DISTRICT OF COLUMBIA

WATER QUALITY ASSESSMENT

2022 INTEGRATED REPORT

TO THE US ENVIRONMENTAL PROTECTION AGENCY AND CONGRESS

PURSUANT TO

SECTIONS 305(b) AND 303(d) CLEAN WATER ACT (P.L. 97-117)

DEPARTMENT OF ENERGY & ENVIRONMENT

Preface

The District of Columbia (District) Department of Energy and Environment (DOEE) prepared this report to satisfy the listing requirements of §303(d) and the reporting requirements of §305(b) of the federal Clean Water Act (CWA) (P.L. 97-117). This report provides water quality information for the District's surface waters and groundwaters that were assessed during 2020 and 2021, and updates the water quality information required by law.

The United States Environmental Protection Agency's (EPA) new Assessment, Total Maximum Daily Load (TMDL) Tracking and Implementation System (ATTAINS) database holds the official submittal of the CWA §303(d) list and §305(b) assessed waters information and contains more detailed information on the District's waterbody segments. The ATTAINS database can be viewed on the EPA website at https://mywaterway.epa.gov/.

The following DOEE divisions contributed to this report: Air Quality, Fisheries and Wildlife, Inspection and Enforcement, Regulatory Review, Toxic Substances, Watershed Protection, and Water Quality.

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Acronyms /Abbreviations

ADB	assessment database
AFF	Alice Ferguson Foundation
AQD	Department of Energy and Environment Air Quality Division
ARRA	American Recovery and Reinvestment Act
ATTAINS	Assessment and Total Maximum Daily Load Tracking and Implementation System
AWS	Anacostia Watershed Society
BID	business improvement district
BMP	best management practice
CEI	compliance evaluation inspections
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CGP	Construction General Permit
CMB	Construction and Maintenance Branch
CMC	Chesapeake Monitoring Cooperative
C&O	Chesapeake and Ohio
CSI	compliance sampling inspection
CSN	Chesapeake Stormwater Network
CSO	combined sewer overflow
CWA	Clean Water Act
CWP	Center for Watershed Protection
DCEEC	District of Columbia Environmental Education Consortium
DCPS	District of Columbia Public Schools
DCOP	District of Columbia Office of Planning
DC Water	District of Columbia Water and Sewer Authority
DDOT	District Department of Transportation
DGS	District of Columbia Department of General Services
District	District of Columbia
DO	dissolved oxygen
DOEE	District of Columbia Department of Energy and Environment
DPR	District of Columbia Department of Parks and Recreation
DPW	District of Columbia Department of Public Works
DSLBD	District of Columbia Department of Small and Local Business Development
EA	Environmental Assessment
EISA	Energy Independence and Security Act
ENF	Earth's Natural Force
EPA	United States Environmental Protection Agency
FWD	Department of Energy and Environment Fisheries and Wildlife Division
FY	fiscal year
GAR	Green Area Ratio
GIS	geographic information system
GSA	General Services Administration

GSI	Green Stormwater Infrastructure
HAP	hazardous air pollutant
HOTD	Heating Operation and Transmission District
ICPRB	Interstate Commission on the Potomac River Basin
IDDEP	Illicit Discharge Detection and Elimination System Program
IED	Department of Energy and Environment Inspection and Enforcement Division
IP	implementation plan
IPM	integrated pest management
IPMT	implementation plan modeling tool
JD	Jurisdictional Determination
JE	joint evaluation
K	kindergarten
LID	low impact development
LMB	largemouth bass
LTCP	Long Term Control Plan
MD	Maryland
MS4	Municipal Separate Storm Sewer System
MSGP	Multi-Sector General Permit
MWCOG	Metropolitan Washington Council of Governments
MWEE	meaningful watershed educational experience
NATA	National Air Toxics Assessment
NATTS	National Air Toxics Trends Station
NCR	National Capital Region
NE	northeast
NOI	Notice of Infraction
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NPS	National Parks Service
NRA	Natural Resources Administration
NW	northwest
NWP	Nationwide Permit
OSSE	District of Columbia Office of the State Superintendent of Education
PAH	polycyclic aromatic hydrocarbon
Pepco	Potomac Electric Power Company
ppb	parts per billion
RRD	Department of Energy and Environment Regulatory Review Division
RSC	regenerative stormwater conveyance
SAV	submerged aquatic vegetation
SE	southeast
SGS	Surface Groundwater System
SRC	Stormwater Retention Credit
SSO	sanitary sewer overflow
SW	Southwest
SWAP	Source Water Assessment Program
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plans

SWRv	stormwater retention volume
TMDL	total maximum daily load
TSB	Department of Energy and Environment Technical Services Branch
TSD	Department of Energy and Environment Toxic Substances Division
UDC	University of the District of Columbia
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VA	Virginia
VCP	voluntary cleanup program
WMATA	Washington Metropolitan Area Transit Authority
WPD	Department of Energy and Environment Watershed Protection Division
WQC	water quality certification
WQD	Department of Energy and Environment Water Quality Division
WQS	water quality standards
WRRC	Water Resources Research Center
WWTP	wastewater treatment plant

Chapter 1 Executive Summary

1.1 Introduction

The District of Columbia Water Quality Assessment 2022 Integrated Report provides information about the state of District of Columbia (District) waters and efforts by the Department of Energy and Environment (DOEE) to protect and improve water quality. The Integrated Report (IR) combines the comprehensive biennial reporting requirements of federal Clean Water Act (CWA) Section 305(b) on the status of all waters in the District including progress made towards meeting the CWA's goals since the time of the last 305(b) Report, and updates Section 303(d) listings of waters of the District that are impaired or likely to become impaired and do not meet the water quality standards (WQS) for specific uses for which total maximum daily loads (TMDLs) may be required.

This report has been drafted for submission to the United States Environmental Protection Agency (EPA). It includes details from the EPA Assessment and TMDL Tracking and Implementation System (ATTAINS) database and addresses comments received during the public comment period of the draft report.

1.2 District of Columbia Water Quality

To meet the District's CWA goals, DOEE monitored thirty-six (36) waterbody segments during the period of January 2017–June 2021 (2022 reporting period), evaluated the data, and assessed each waterbody's designated uses based on the numeric and narrative criteria outlined in the District's WQS. The evaluation found that none of the District's monitored waters are supporting all their designated uses. The uses that impact humans and aquatic life are generally not supported.

A waterbody that does not support its designated uses is considered impaired. The results of the evaluation indicate that while the District's waterbodies show signs that water quality is improving, they continue to be impaired.

This report focuses on surface water assessment, but the District also evaluates groundwater through compliance monitoring and ongoing studies. The appendices of this report contain details regarding the conditions of both surface water and groundwater.

1.3 Causes and Sources of Water Quality Impairment

Typical causes of impairment to the District's waterbodies are elevated concentrations of bacteria and pH, low concentrations of dissolved oxygen (DO), and high turbidity.

Bacteria (*E. coli*)

In 2008, the water quality criterion used to evaluate bacteria was updated from Fecal coliform to *E. coli*. DOEE surveyed *E. coli* for the 2022 reporting period and found the Potomac River had fewer percent exceedances than the Anacostia River, but both rivers experienced a slight decrease for the period. For the tributaries, the C&O Canal had the lowest number of exceedances during the study period, while Hickey Run, an Anacostia River tributary, had the highest percentage of exceedances at 96.51 percent (96.51%). Chronic *E. coli* percent exceedances continue to be a problem for the majority of the District's waterbodies. Fluctuations in these constituents are due to various factors, such as weather and subwatershed activities and conditions, including failing sewer pipes and illicit discharges.

pH

A survey was conducted of the percent exceedances of the criteria for selected constituents for the 2022 reporting period to determine whether the effect of the activities was reflected in the data. No monitored surface waterbodies were measured above a temperature maximum of 32.2°C. In the Anacostia River, measurements for pH did not exceed the ten percent (10%) threshold. For this reason, pH does not appear to be a concern in the Anacostia. In the Potomac River, pH exceedances were observed in as many as 4.17 percent (4.17%) of the measurements in one segment of the main stem. Exceedances for pH are generally low with rare exceptions above the ten percent (10%) threshold. For example, the 2022 report has no tributaries with exceedances above the ten percent (10%) threshold.

Dissolved Oxygen

Exceedances of DO WQS in the Anacostia River decreased for the 2022 reporting period compared with the 2020 reporting period. All measurements in the Potomac River met minimum levels of DO set by WQS. For the 2022 reporting period, all tributaries in the District met the DO WQS.

Turbidity

The upstream segments of the Anacostia and Potomac Rivers were observed to have a higher number of turbidity exceedances than their downstream segments during the 2022 reporting period. Kingman Lake, an Anacostia River watershed waterbody, consistently had the highest number of exceedances, with 50.62 percent (50.62%) of measurements taken during the 2022 review period not meeting the turbidity standard. Rock Creek tributaries are not as impacted by turbidity as the Anacostia River tributaries. The average percent exceedance for all tributaries to Rock Creek was 5.59 percent (5.59%), while the average percent exceedance for all tributaries to the Anacostia River was 29.75 percent (29.75%). The average percent exceedance for the entire main stems of Rock Creek, the Potomac River, and the Anacostia River were 15.39 percent (15.39%), 13.70 percent (13.70%), and 17.09 percent (17.09%), respectively.

The sources that have major impacts on District waters are combined sewer overflows (CSOs), urban stormwater runoff and pollutants from upstream jurisdictions.

Programs to Address Impairment

Several DOEE divisions conduct activities to correct water quality impairments:

- Toxic Substances Division (TSD)
- Watershed Protection Division (WPD)
- Water Quality Division (WQD)

- Inspection and Enforcement Division (IED)
- Regulatory Review Division (RRD)

The WQD and IED joint water pollution control programs implement WQS, monitor and inspect permitted facilities in the District, and comprehensively monitor the District's waters to identify and reduce impairments. The water pollution control program seeks solutions and implements activities to provide maximum water quality benefits.

Given the District's urban landscape, both point source and nonpoint source pollution have a large impact on its waters. WPD and RRD manage the sediment and stormwater control programs that regulate land disturbing activities, stormwater management, and floodplain management by providing technical assistance and inspections throughout the District. The District also conducts stream restoration activities to improve habitat and implements a RiverSmart program that provides financial incentives to help property owners install green stormwater infrastructure (GSI) to reduce polluted runoff. Further, the District provides education and outreach to residents and developers on pollution prevention to ensure their actions do not further impair the District's water quality.

The groundwater protection program conducts monitoring studies, and reviews applications for uses that can significantly impact the resource. The program also implements the groundwater regulations and coordinates with other divisions, such as the TSD on enforcement and remedial activities.

DOEE also coordinates with the District pf Columbia Water and Sewer Authority (DC Water), which began construction of the Northeast Boundary Tunnel segment of the CSO Long Term Control Plan (Clean Rivers Project). The plan involves the construction of large underground tunnels that will serve as collection and retention systems for combined sewage during high flow conditions. A Consent Decree (CD) entered on March 23, 2005, in Consolidated Civil Action No. 1:00CV00183TFH by the United States District Court for the District of Columbia required implementation of the Clean Rivers Project. On January 14, 2016, the Court entered the First Amendment to the CD (Amended CD) in Consolidated Civil Action No. 1:00CV00183TFH, which extended the date for completion of the project to 2030.

1.4 Conclusions

Activities to restore water quality are an integral part of meeting CWA goals for fishable, swimmable water bodies. A stream restoration project at Branch Avenue Park was completed that will reduce erosion and improve stream habitat. Fort Dupont, Oxon Run, Park Drive Gully, Stickfoot Branch, and Pinehurst Branch all have stream restoration projects underway. The negative impacts of stormwater runoff, which result from the forty-three percent (43%) of the District land area being impervious, are being mitigated by the District's Stormwater Rule (https://www.dcregs.dc.gov/Common/DCMR/RuleList.aspx?ChapterNum=21-5), which requires regulated development projects to retain stormwater on-site rather than letting it quickly run off directly to waterbodies. To meet the requirements of the Stormwater Rule, hundreds of stormwater best management practices (BMPs) were installed between 2019 and 2021. Those BMPs installed in 2018 and 2019 continue to be maintained and monitored in 2020.

The DOEE 2020 Stormwater Management Guidebook provides a menu of water quality improvement practices that developers and regulated entities can choose from (see http://doee.dc.gov/swguidebook). In addition to the regulations, the RiverSmart programs (RiverSmart Homes, RiverSmart Communities, RiverSmart Schools, and RiverSmart Rooftops) support voluntary retrofits of impervious surfaces and provide valuable educational experiences and opportunities for citizens, students, and businesses to participate in improving water quality in the city. Lastly, significant portions of the DC Water Clean River's Project are operational and currently show a ninety-six percent (96%) reduction in CSO volume system-wide. Continued improvements in bacteria concentrations are expected as more phases of the project are completed.

The improvements noted in previous years to aquatic resources, such as wetlands and fish populations, have been sustained. The concentrations of chemicals in several fish species caught in District waters have decreased, showing progress toward achieving the fishable goal. DOEE and its partners continue to invest a variety of resources to improve District and regional water quality, and are optimistic about the incremental improvements current and planned activities will deliver.

Chapter 2 Background

The Government of the District of Columbia's environmental protection responsibilities are carried out by various divisions within DOEE. The following sections provide details on the District waters and initiatives to address point and non-point sources of pollution.

2.1 Atlas, Total Waters, and Maps

Table 2.1 provides a general view of the District's resources. Figure 2.1 provides a graph of the District's monthly, yearly, and normal total rainfall. The National Weather Service rain gauge site at Ronald Reagan Washington National Airport is the official source for the District's rainfall totals, which were above average for 2020 and 2021. Figures 2.2 and 2.3 present monthly and yearly average flow data for the Anacostia and Potomac Rivers from 2020 to 2021 (Source: United States Geological Survey). Appendix 2.1 -Major District of Columbia Watersheds, provides a map outlining the major watersheds within the District.

Table 2.1 Atlas

State population: 689,545 (2020 Census) / 670,050 (July 2021 Census Estimate)
State surface area: 69 square miles
Number of water basins: 1
Total number of river miles: 39
- Number of perennial river miles: 39
- Number of intermittent stream miles: none
- Number of ditches and canals: none
- Number of border miles: none
Number of lakes, reservoirs, and ponds: 8
Acres of lakes, reservoirs, and ponds: 238
Square miles of estuaries: 6.1
Acres of wetlands: 289
Name of border waterbody: Potomac River estuary
Number of border estuary miles: 12.5

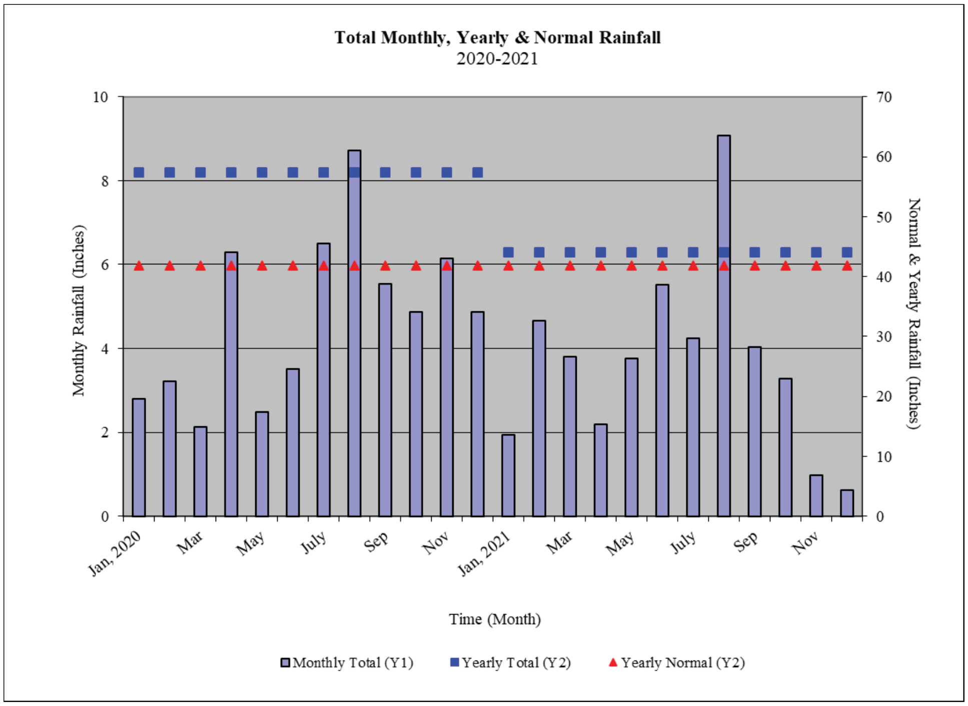


Figure 2.1 Total monthly, yearly, and normal total rainfall (inches), 2020-2021 (Source: National Weather Service, Ronald Reagan Washington National Airport).

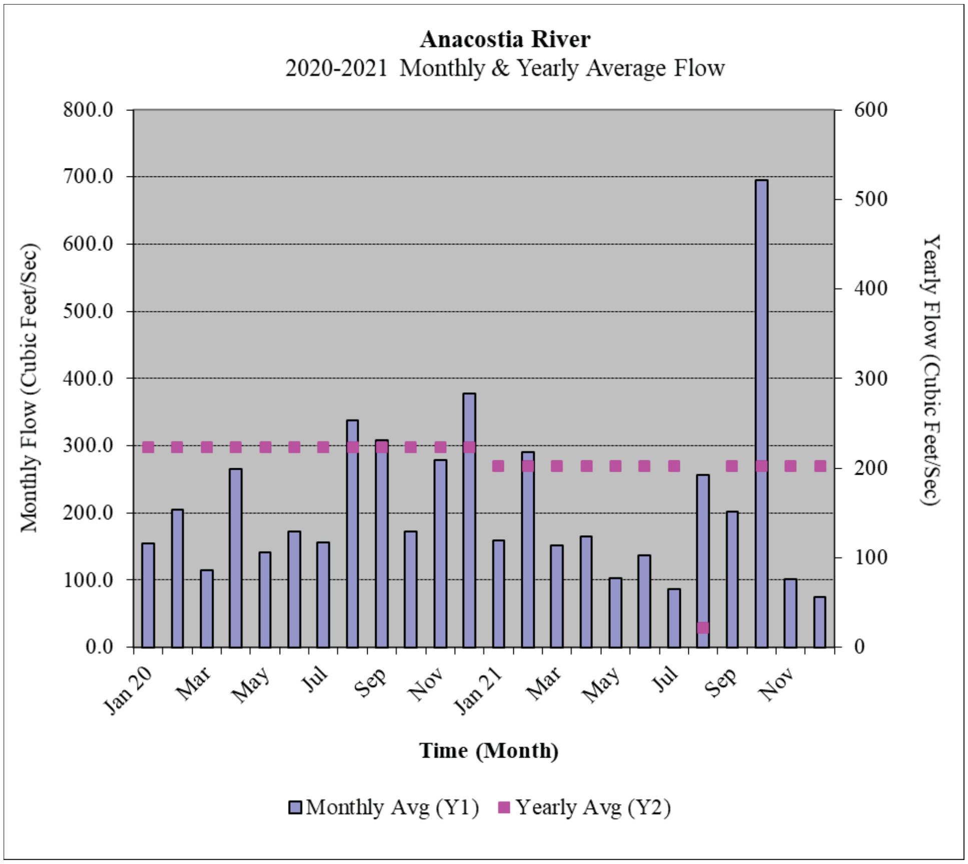


Figure 2.2 Monthly and yearly average flow on the Anacostia River, 2020-2021.

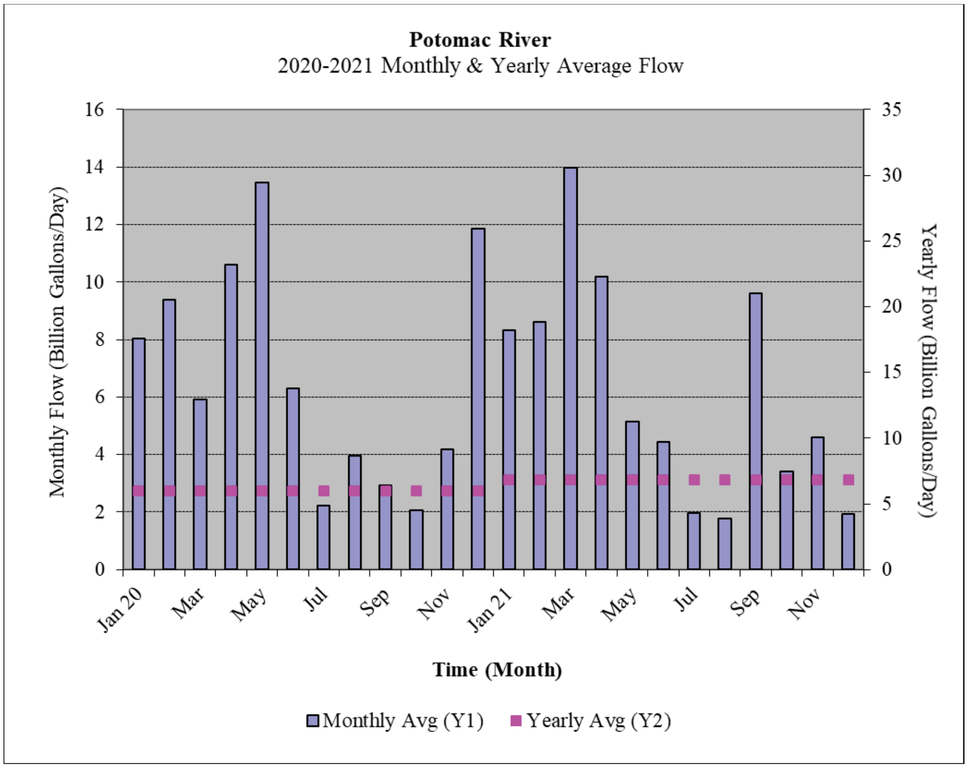


Figure 2.3 Monthly and yearly average flow on the Potomac River, 2020-2021.

2.2 Water Pollution Control Programs

Water Quality Standards Program

The District's WQS regulations are developed and revised under the authority of the federal CWA and the District of Columbia Water Pollution Control Act of 1984, D.C. Official Code § 8-103-01 *et seq*. WQS play a critical role in implementing various essential purposes and functions under the CWA. WQS are used for: reporting in water quality assessments; TMDL development; National Pollutant Discharge Elimination System (NPDES) permits; nonpoint source programs; and, recreational water monitoring and notification. In compliance with the CWA, DOEE reviews the WQS every three years to determine the need for possible changes to District regulations and development of new information on water quality criteria. As part of this process, which is called the Triennial Review, DOEE solicits public participation and holds a public hearing. The review and any updates enable the District to use WQS as a programmatic tool in the water quality management process and as a foundation for water quality-based control programs. Water quality standards ensure the protection of the District's waters.

2021 Triennial Review

DOEE redesignated the 2019 triennial review as the 2021 triennial review because EPA initiates the triennial review period from the date of the previous public hearing. DOEE had expected to hold the public hearing for this triennial review period in 2021. However, due to comments from DOEE and EPA, more time is needed to draft the 2021 WQS.

Initially, DOEE reviewed pH and turbidity updates, researched separating the Class B designed use into two (2) classes (one for secondary recreation and another for aesthetic use), and reviewed updated use class definitions to include examples of activities protected under the designated uses. DOEE also included general language updates to provide consistency and clarity in the 2021 triennial review.

After receiving comments on the proposed updates from DOEE and EPA, DOEE withdrew the proposed pH updates and the proposed separation of Class B into two (2) use classes. Also, more research is needed to verify that the proposed turbidity updates are protective of the aquatic life use, which will delay publishing.

DOEE is reviewing the nationally recommended diazinon criteria (EPA-822-R-05-00) for promulgation in the 2021 triennial review.

DOEE has continued to review the 2012 recreational water quality criteria (*E. coli*) for future adoption. DOEE also continues to collaborate with EPA on all possible options to successfully promulgate the criteria.

DOEE separately drafted wording on the Rivers Section of its WQS. The updated language includes clarifications on the parameters that should be analyzed for swimming events, specifically, pH, turbidity, and *E. coli*, which must be below the single sample value. Updated language also included expanding the Director's discretion on revoking swimming exemptions due to health and safety concerns.

2.3 Point Source Program

National Pollutant Discharge Elimination System Permits

EPA issued site-specific industrial permits to 11 facilities in the District under NPDES individual permits. The Blue Plains Wastewater Treatment Plant (WWTP) operated by DC Water continues to be the primary source of discharges to District waters. The WWTP and other industrial NPDES permitted facilities are inspected to ensure compliance with permit conditions and the District's WQS.

Table 2.2 lists the individual NPDES permitted facilities in the District.

Table 2.2 NPDES Permitted Facilities in the District of Columbia

Permit No	Permittee/Facility	Permit Type	Effective Date	Expiration Date
DC0000175	Bardon, Inc (d/b/a Aggregate Industries, aka Super Concrete)	Industrial	10/01/2020	9/30/2025
DC0000337	Washington Metropolitan Area Transit Authority (WMATA) – Mississippi Avenue Pumping Station	Industrial	12/11/2018	12/10/2023

Permit No	**Permittee/Facility**	**Permit Type**	**Effective Date**	**Expiration Date**
DC0000035	Georgetown 29K Acquisition, LLC – Former General Services Administration (GSA) West Heating Plant	Industrial	9/11/2018	9/10/2023
DC0021199	D.C. Water and Sewer Authority (DC Water), Wastewater Treatment Plant at Blue Plains WWTP	Publicly Owned Treatment Works	8/26/2018	8/25/2023
DC0000370	United States National Park Service National Mall and Memorial Parks – Lincoln Memorial Reflecting Pool	Industrial	7/03/2018	7/02/2023
DC0000345	United States National Park Service National Mall and Memorial Parks - National World War II Memorial	Industrial	7/03/2018	7/02/2023
DC0000221	Government of the District of Columbia – Municipal Separate Stormwater Sewer System (MS4)	Stormwater	6/22/2018	6/21/2023
DC0000019	Department of the Army, Baltimore District, Corps of Engineers - Washington Aqueduct Water Treatment Plant	Industrial	6/01/2021	5/31/2023
DC0000094	Potomac Electric Power Company (PEPCO), Benning Road Service Station	Industrial	6/01/2021	5/31/2026
DC0000248	John F. Kennedy Center for the Performing Arts	Industrial	6/06/2013	6/05/2018[1]
DC0000141	CMDT Naval District Washington, DC – Washington Navy Yard	Industrial	1/22/2010	1/22/2015[1]

[1] *EPA has administratively extended the permit under 40 CFR 122.6(a)(1).*

In addition to facilities that require individual NPDES permits, the EPA also issues general NPDES permits in the District of Columbia. Table 2.3 lists of available general NPDES permits in the District. There are several industrial facilities and construction sites that have been permitted under a Multi-Sector General Permit (MSGP) or a Construction General Permit (CGP), respectively.

Table 2.3 Available General NPDES Permits in the District of Columbia

Available General Permits	Issuance Date	Effective Date	Expiration Date
Construction General Permit (Modified 06/27/2019)	Jan. 2017	02/16/2017	02/16/2022
Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity	1/15/2021	03/01/2021	02/28/2026
Vessel General Permit for Discharges Incidental to the Normal Operation of Vessels (VGP)	4/12/2013	12/19/2013	12/18/2018[1]
Pesticide General Permit (PGP) For Discharges from the Application of Pesticides	9/08/2021	10/31/2021	10/31/2026

1 *EPA has administratively extended the permit per 40 CFR §122.6(a)(1).*

Review and Certification of Draft NPDES Permits

The District is not a delegated state under the EPA NPDES program and therefore does not issue discharge permits. DOEE's WQD reviews drafts of individual and general NPDES permits to certify they are complete and comply with federal and District laws and with District WQS as required by Section 401 of the Clean Water Act. WQD may seek revisions to the draft permit to comply with more stringent District laws and standards or establish conditions for certification of the permit. EPA and the District then jointly announce a public comment period, which will be published on EPA's website at https://www.epa.gov/dc/epa-public-notices-district-columbia. Changes to draft permits may incorporate comments received during this period. EPA decides which comments to address. Final permits are issued for a five-year period, but contain reopener clauses in case facility conditions, WQS, or regulations change.

There are two facilities whose individual permits have expired, and EPA is in the process of either reviewing the permit renewal applications or drafting renewal permits. DOEE continues to work cooperatively with EPA on the NPDES permits currently being drafted for reissuance. DOEE stays engaged with EPA on local water quality and permitting matters as EPA continues to implement the NPDES program in the District. The individual permits and general permits that have expired are listed in Tables 2.2 and 2.3 respectively.

During this reporting period, WQD reviewed and certified draft NPDES Permit Number DC0000175 for the Bardon, Inc (d/b/a Aggregate Industries, aka Super Concrete); draft NPDES Permit Number DC0000019 for the Department of the Army, Baltimore District, Corps of Engineers Washington Aqueduct Water Treatment Plant; draft NPDES Permit Number DC0000094 for the Potomac Electric Power Company (PEPCO), Benning Road Service Station; and draft NPDES Permit Number DC0000141 for Commandant, Naval District Washington, DC – Washington Navy Yard.

Approval of Groundwater Discharge into DC MS4

DOEE WQD and RRD review and authorize the discharge of uncontaminated groundwater into the District's Municipal Separate Storm Sewer System (MS4). Approved discharges include uncontaminated groundwater from a range of sources such as groundwater from construction dewatering, groundwater from sub-grade sumps in completed buildings, stormwater that encounters or mixes with contaminated soil, or potable water from fountains or hydrostatic testing. There are several projects that discharge approved uncontaminated groundwater into DC MS4.

During this period, RRD and WQD reviewed and authorized, renewed, or terminated authorization to discharge uncontaminated groundwater into the District's MS4 for the following construction and post construction project sites:

Table 2.4 Groundwater Discharge Projects that were approved, revised, or terminated for discharge of uncontaminated groundwater into the MS4 during FY 2022

Project Address	Date of Action	Project Description
1000 6th St. SW	2/3/2021	The View/Modern on M Building changed groundwater treatment requirements in the groundwater discharge authorization (GDA).
6900 Georgia Ave. NW	2/10/2021	Walter Reed Building – approved construction GDA.
6800 Georgia Ave. NW	1/6/2021	Walter Reed VU Building – terminated construction GDA; approved building sump GDA.
4873 Benning Rd. SE	2/16/2021	KIPP Benning Building - terminated construction GDA; approved building sump GDA.
1000 4th St. SW	12/1/2020	Waterfront Station II - approved construction GDA.
429 L'Enfant Plaza, SW	9/3/2020	Banneker Fountain - approved GDA.
1650 Kenilworth Ave. NE	4/23/2021	The Residences at Kenilworth – approved construction GDA.
600-800 Kenilworth Terrace NE	3/16/2021	Grove at Parkside – approved construction GDA.
1400 Constitution Ave. NW	6/17/2021	National Museum of African American History and Culture (NMAAHC) building sump; transitioned from NPDES permit to GDA.
3950 37th St. NW	10/04/2021	Hearst Park Pool – terminated construction GDA.
1000 South Capitol St. SE	2/10/2021	Lerner South Capitol – terminated construction GDA.
4001 South Capitol St. SW	9/24/2021	Building sump – terminated construction GDA

Table 2.5 RRD and WQD reviewed and provided comments for the following project applications:

Project Address	Approval Status	Project Description
4414-4430 Benning Rd. NE	Under review	So, Others Might Eat building sump; application for renewal of post construction GDA.
1015 Half St. SE	Under review	Building sump – request to transition from EPA's MSGP to DOEE's post construction GDA.
760 Maine Ave. SW	Under review	Wharf Phase II – application for post construction GDA.
17 Mississippi Ave. SE	Under review	Mississippi Ave Apartments – application for construction GDA.
100 V St. SW Square 611 Lots 19 and 810	Under review	Application for authorization to discharge groundwater from a well pump test on site.
3924 Minnesota Ave. NE	Under review	Senator Square – application for construction GDA.
5211-5229 South Dakota Ave. NE	Under review	Art Place at Fort Totten - application for construction GDA.
113 Potomac Ave. SE	Under review	The Vermeer - application for construction GDA.
1319 South Capitol St. SW	Under review	New Building - application for construction GDA.
Independence Ave. SE	Under review	DCCR Duct Bank trenching work - application for construction GDA.

2.4 Compliance Inspections

Each fiscal year (October 1 to September 30), DOEE develops a Compliance Monitoring Strategy (CMS) to document the compliance monitoring activities for facilities covered under NPDES. The compliance monitoring strategy is a vital part of the District's NPDES Compliance Inspection Program, which assesses permit compliance and develops enforcement documentation. The District NPDES Compliance Inspection Program generally conducts Compliance Evaluation Inspections (CEI) to determine compliance but may perform Compliance Sampling Inspections (CSI) if required. CEI inspections are designed to verify the permittee's compliance with applicable permit effluent limits, self-monitoring requirements, and compliance schedules. CEI involves record reviews, visual observations, and evaluations of a permitted facility's treatment systems, effluent, receiving waters, and waste disposal practices. Appropriate enforcement and corrective actions are recommended to EPA for violations and/or deficiencies noted during the compliance inspections.

During this reporting period, DOEE implemented CMS for Fiscal Years 2020 and 2021. DOEE conducted CEIs for facilities in Table 2.6 and Table 2.7.

Table 2.6 NPDES Core Program Facilities Inspected

NPDES ID	Permit Name	Type of Facility
DC0000019	Washington Aqueduct	Major
DC0000094	PEPCO Environment Management Services	Major
DC0021199	D.C. WASA (Blue Plains)	Major
DC0022004	Mirant Potomac River L.L.C.	Major
DC0000370	Lincoln Memorial Reflecting Pool	Minor
DC0000141	Washington Navy Yard	Minor
DC0000248	JFK Center for Performing Arts	Minor
DC0000345	World War II Memorial	Minor

Table 2.7 NPDES Wet Weather Industrial Stormwater Program Facilities Inspected

NPDES ID	Permit Name	Type of Facility
DCR05J00K	Benning Road Trash Transfer Station	MSGP
DCR05J00G	Fort Reno Leaf Transfer Station	MSGP
DCR05J00F	Fort Reno Salt Dome	MSGP
DCR05J00C	DPW Leaf and Snow Headquarters	MSGP
DCR05J009	OSSE Southwest Bus Terminal	MSGP
DCR053018	Virginia Concrete – Vulcan SWDC	MSGP
DCR05J00P	Capital Asphalt	MSGP
DCR053009	WMATA Western Bus Division	MSGP
DCR05J00A	DPW Street and Alley Cleaning Division	MSGP
N/A	US National Arboretum Maintenance Facility	Unpermitted
N/A	Strittmatter Rock Crushing/Screening	Unpermitted
N/A	Fort Meyers Construction	Unpermitted

DOEE also conducts inspections of point source discharges of groundwater from temporary construction dewatering operations. These operations are typically covered under the NPDES General Construction Permit. However, DOEE reviews and certifies that the groundwater discharge meets District surface WQS. DOEE conducts inspections of these operations to ensure they comply with District regulations, and that any required groundwater discharge treatment systems are operating correctly and efficiently.

Critical Source Inspection and Enforcement Program

DOEE maintains a database of critical sources of stormwater pollution including industrial, commercial, institutional, municipal, and federal facilities within the MS4 area. In FY 2020 and FY 2021, DOEE identified and inspected a total of ninety-two (92) facilities deemed critical sources of stormwater pollution. These inspections were documented with facility-specific inspection forms and recorded in the MS4 Inspection Tracking Database. DOEE takes appropriate actions to ensure these facilities are in compliance with the District's MS4 Permit, and that structural controls and BMPs are in place and effectively protecting water quality.

Illicit Discharge Detection and Elimination Program

DOEE manages an Illicit Discharge Detection and Elimination Program (IDDEP) designed to detect and eliminate illicit and unpermitted discharges, spills, and releases of pollutants to the District's MS4 and waterbodies. The IDDEP responds to reported illicit discharges, spills, or releases, and conducts targeted facility inspections and dry weather outfall inspections. In FY 2020 and FY 2021, DOEE responded to and investigated a total of one hundred and thirty-eight (138) incidents of illicit discharges, spills, or releases. In the event of an incident, DOEE applies varying strategies to enforce clean up or compliance, including follow up inspections, site directives, notice of violations, administrative or compliance orders, and notice of infractions.

Additionally, DOEE maintains a watershed-based inventory of all MS4 outfalls and conducts dry weather inspections of these outfalls. In FY 2020 and 2021, DOEE conducted a total of three hundred and forty-six (346) dry weather outfall inspections. In the event of a suspected illicit discharge from the outfall, DOEE initiates an investigation and implements various techniques to identify and eliminate the discharge or suspected dry weather flow.

2.5 Watershed Protection Division Enforcement Programs

The Anacostia River Clean Up and Protection Fund

The Anacostia River Clean Up and Protection Act (Bag Law) requires all District businesses selling food or alcohol to charge five cents ($.05) for each disposable paper and plastic carryout bag. The law allows businesses to keep one cent ($.01) (or two cents ($.02)) if it offers a rebate when customers bring their own bag), and the remaining three or four cents ($.03) or ($.04) is deposited into the Anacostia River Clean Up and Protection Fund. This fund generates approximately two million dollars ($2,000,000) per year, which is used to implement watershed education programs, stream restoration, trash capture projects, and to purchase and distribute reusable bags to District residents. Many of these activities also support the District's compliance with the MS4 Permit.

DOEE inspects at least five hundred and fifty (550) businesses per year for compliance with the Bag Law. Routine inspections were suspended in March 2020 in response to COVID-19 safety measures enacted by the Mayor. Of the four hundred and eleven (411) inspections completed between July 2019 and June 2021, three hundred and seven (307) businesses were compliant (seventy-five percent (75%) compliance).

Food Service Ware Requirements

The Sustainable DC Omnibus Amendment Act of 2014 bans the use of food service products made of expanded polystyrene, commonly known as Styrofoam™. The foam ban began on January 1, 2016, and applies to all District businesses and organizations that serve food. The law also required these regulated food entities to switch to recyclable and compostable food service ware products beginning January 1, 2017. Beginning October 2018, single-use plastic straws and stirrers were banned under the 2017 recyclable and compostable requirements. Effective January 1, 2021, the ban was expanded to include the retail sale of foam food service ware and coolers, and packing materials like foam peanuts.

DOEE inspects at least three hundred (300) businesses per year for compliance with the District's food service ware requirements. Routine inspections were suspended in March 2020 in response to COVID-19 safety measures enacted by the Mayor. Of the four hundred (400) inspections completed between July 2019 and June 2021, three hundred and sixty-three (363) businesses were compliant with the foam food service ware and retail sale ban, and three hundred and sixty-nine (369) were compliant with the food service ware material requirements.

Coal Tar Ban and High PAH Sealant Ban

As required by Section 4.7.5 of the MS4 Permit, the District continues to enforce its prohibition on the sale, use, and permitting of coal tar-based pavement products. The coal tar ban protects human health and the environment by reducing the amount of toxic polycyclic aromatic hydrocarbons (PAHs) in our communities and environment. Rainwater washes PAH-containing sealant particles and dust into storm drains and our local streams and rivers, threatening aquatic life in the Anacostia and Potomac Rivers and the Chesapeake Bay. In March 2019, the law was amended to ban products containing Ethylene Cracker Residue, known to contain high concentrations of PAHs, and any other products with PAH concentrations above one-tenth of one percent (0.1%) by weight.

DOEE inspects at least sixty (60) properties per year for compliance with the District's pavement sealant ban.

2.6 Municipal Separate Storm Sewer System Permit

The Government of the District of Columbia is responsible for Municipal Separate Storm Sewer System (MS4) discharges into District waterways. The District's current MS4 permit was issued on May 23, 2018, became effective on June 22, 2018, and will expire on June 22, 2023.

MS4 Permit Compliance

The District continues to implement and enforce its stormwater management program in accordance with the MS4 Permit and the Revised Stormwater Management Plan (SWMP). The program uses retention practices to reduce stormwater runoff by mimicking natural landscapes through green roofs, bioretention, pervious pavers, and other green stormwater infrastructure (GSI). Table 2.8 shows the District's compliance with quantifiable performance standards required by the MS4 Permit.

The District's MS4 Annual Reports and accompanying ArcGIS Storymaps, which serve as a review of program implementation and compliance with the MS4 Permit, can be found at https://doee.dc.gov/publication/ms4-discharge-monitoring-and-annual-reports.

Table 2.8 Numeric Performance Standards and MS4 Permit Compliance

Numeric Requirement	Achievement During Reporting Year	Percent Complete	Achievement During Permit Term
Managed 1,038 Acres with green stormwater infrastructure in the MS4 Permit Area	176 acres	85.0%	882 acres
Achieve a minimum net increase of 33,525 trees in the MS4 Permit Area	8,218 trees	79.6%	26,686 trees
Install 350,000 square feet of green roofs within the MS4 Permit area	412,354 square feet	236.1%	826,411 square feet
Remove 108,347 pounds of trash from the Anacostia River annually	163,847 lbs	Requirement has been met each year of the permit term	
Sweep 8,000 street miles within the MS4 annually	6,119.05 miles	Requirement has been met each year of the permit term	

MS4 Monitoring

The District's MS4 permit requires DOEE to conduct wet weather discharge monitoring for Total suspended solids, total nitrogen, total phosphorus, copper, lead, zinc, cadmium, and *E. coli*. In addition, in situ samples are collected for water temperature, dissolved oxygen, conductivity, pH and hardness. This monitoring occurs three (3) times per year at nine (9) outfalls (three (3) each in the Anacostia River, Rock Creek, and Potomac River watersheds). Results of the wet weather discharge monitoring are provided on an annual basis to EPA in the MS4 report as well as the Net DMR website (https://npdes-ereporting.epa.gov/net-netdmr). Table 2.9 below provides the locations of the monitoring outfalls.

Table 2.9 MS4 wet weather discharge monitoring locations

Site	Outfall	Watershed
SW1	Outfall 999 – Gallatin	Anacostia
SW2	Outfall 124* - Oxon Run	Potomac
SW3	Outfall 851 - Soapstone Creek	Rock Creek

Site	Outfall	Watershed
SW4	Outfall 1035 - Kenilworth and Douglas	Anacostia
SW5	Outfall 260 - 53rd and Dix Street	Anacostia
SW6	Outfall 950 - Potomac Tributary	Potomac
SW7	Outfall 103 - Oxon Run	Potomac
SW8	Outfall 825 - Tilden and Reno	Rock Creek
SW9	Outfall 901 - Tributary to Pinehurst Br.	Rock Creek

2.7 Wetlands Protection

The District has a policy of no net loss of wetlands or streams within its jurisdictional boundaries. To achieve this goal, RRD reviews all regulated activities and construction projects that may have the potential to impact wetlands and streams in the District for either a water quality certification pursuant to 33 U.S.C § 1341, or a District wetland and stream permit pursuant to Chapters 25 (Critical Areas – General Rules) and 26 (Critical Areas – Wetlands and Streams) of Title 21 of the District of Columbia Municipal Regulations (DCMR). The District relies on jurisdictional determinations by the United States Army Corps of Engineers (USACE) to determine whether a proposed activity requires a water quality certification (WQC) for regulated activities in wetlands determined to be "Waters of the United States" (WOTUS) or requires a Wetland and Stream Permit (WSP) for regulated activities in wetlands that are not consider WOTUS.

For dredge and fill projects within WOTUS, RRD reviews permits issued by USACE under Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act (RHA) to ensure wetland and stream impacts are avoided, minimized, and/or mitigated. RRD issues Section 401 CWA water quality certifications (WQC) to certify these permits with conditions to ensure compliance with Section 401 of the CWA and that District water quality standards (WQS) are not exceeded.

For regulated activities proposed in wetlands and streams that are not WOTUS, a District WSP is required in accordance with 21 DCMR Chapters 25 and 26. RRD reviews regulated activities to ensure impacts to wetlands and streams are avoided, minimized, and/or mitigated. WSPs are issued with conditions to ensure no net loss of wetlands and streams and that water quality standards are not exceeded. Table 2.10 lists permits reviewed and certified during this reporting period.

Table 2.10 Dredge and Fill Permits Reviewed and Certified

Certification Number	Permittee	Project Description
Modified WQC-DC-18-012B	National Park Service (NPS)	To clean storm drains that discharge into the Potomac River from the Arlington Memorial Bridge.
N/A (Non-jurisdictional wetland impacts)	D.C. Department of General Services and the Deputy Mayor for Planning and Economic Development	To construct a parking garage in a wetland for the St. Elizabeth's development.
N/A (WQC Denial)	U.S. Army Corps	Reissuance of Nationwide Permits
WQC-DC-014-018A	District Department of Transportation (DDOT)	Modification to include power washing a bridge over Potomac River.
WQC-DC-019-006	District of Columbia Water and Sewer Authority (DC Water)	To perform geotechnical soil borings in the Potomac River.
WQC-DC-019-006A	DC Water	Modification to include additional soil borings in the Potomac River.
WQC-DC-019-007	Schnabel Engineering	To perform sediment and water sampling in the Anacostia River.
WQC-DC-019-008	DDOT	To perform emergency streambank stabilization.
WQC-DC-019-009	District Department of Energy and Environment (DOEE)	To perform stream restoration.
WQC-DC-019-010	DDOT	To perform culvert maintenance.
WQC-DC-019-011	Partrac Geomarine, Inc. / NAVFAC	To perform sediment sampling and surveys in the Anacostia River.
WQC-DC-020-001	AECOM	Modification of WQC-DC-16-018 to perform additional sediment sampling in the Anacostia River.
WQC-DC-020-002	DOEE	To perform sediment sampling in Watts Branch and Nash Run.
WQC-DC-020-003	DC Water	To perform geotechnical soil borings in the Potomac River.
WQC-DC-020-004	DDOT	To create a regenerative stormwater conveyance system within an ephemeral stream.

Certification Number	Permittee	Project Description
WQC-DC-020-005	Joint Base Anacostia-Bolling	To replace an existing pier within the Potomac River.
WQC-DC-020-006	Department of the Army	Chesapeake Bay Total Maximum Daily Load Regional General Permit.
WQC-DC-2020-7	Navy/EA Engineering, Science, and Technology, Inc.	To repair an existing seawall along the Potomac River.
WQC-DC-2020-8	DMY Engineering Consultants, Inc.	To perform geotechnical soil borings in tidal wetlands adjacent to the Anacostia River.
WQC-DC-2020-8B	DMY Engineering Consultants, Inc.	Modification of WQC-DC-2020-8 to relocate two geotechnical borings.
WQC-020-009	NPS	To perform geotechnical soil borings in the Anacostia River.
WQC-DC-2020-9A	DC Water	To repair a sewer that runs parallel to Soapstone creek.
WQC-DC-020-010	Marbury Point Solar	To construct a solar canopy over an existing concrete pier within the Potomac River.
WQC-DC-020-011	National Park Service (NPS)	To repair the Chesapeake and Ohio (C&O) Canal walls.
WQC-DC-020-11A	NPS	Modification of turbidity curtain condition in original WQC-DC-020-11.
WQC-DC-2021-4	DOEE	To conduct sediment sampling in Nash Run and Watts Branch
WQC-DC-2021-47	Federal Highway Administration (FHA)	To repair a section of the tidal basin seawall.

2.8 Nonpoint Source Control Program

Environmental pollution from nonpoint sources occurs when water moving over land picks up pollutants, such as sediment, bacteria, nutrients, and toxics, and carries them to nearby waterbodies. Sediment and pollutant-laden water can pose a threat to public health. The pollutants may result from both natural sources and human activity. Stormwater runoff and associated soil erosion are significant causes of lost natural habitat and poor water quality in the District. Nonpoint source pollutants of concern in the District are nutrients, sediment, toxics, pathogens, oil, and grease. The origins of nonpoint pollutants in the District are diverse and include:

- Stormwater runoff due to the large number of impervious surfaces in urban areas;
- Development and redevelopment activities;
- Urbanization of surrounding jurisdictions; and
- Agricultural activities upstream of the watershed.

The District's Nonpoint Source Plan is based on the following goals, which provide the framework for the District government to continue to develop and enhance its program.

- Support activities that reduce pollutant loads from urban runoff, construction activity, combined sewer overflows, and trash disposal for the purpose of attaining designated uses.
- Support and implement activities that restore degraded systems and maintain healthy habitats, species diversity, and water flows in all Anacostia River tributaries.
- Coordinate efforts with outside programs and adjoining jurisdictions to prevent and control nonpoint source pollution in the District to the maximum extent with the resources available.
- Support information and education campaigns that aim to prevent nonpoint source pollution from individual actions. These campaigns should reach at least five thousand (5,000) individuals each year and should target audiences who either visit, live, work, or teach in the District and its watersheds.
- Implement programs that aim to increase nonpoint source pollution runoff prevention practices on private property, reaching at least one thousand (1,000) properties per year.

2.9 Best Management Practices (BMP) Implementation

BMP Implementation by Sister Agencies

DOEE works closely with sister agencies by funding the design and installation of stormwater BMPs and GSI on municipal properties under the Clean Water Construction (CWC) grant program. For many of these projects, DOEE also provides technical expertise and project management assistance. During the current reporting period, eleven (11) projects completed construction (Table 2.11).

Table 2.11 Clean Water Construction funded stormwater projects with sister agencies

Sister Agency	Project Title	Project Summary
DDOT	Alger Park Upland Low Impact Development (LID)	Install roadway retrofits including bioretention and pervious pavement
DDOT	Dix Street Impervious Surface Removal	Install right-of-way LID including bioretention, pervious pavement, and tree plantings
DDOT	Oregon Avenue Green Street	Install roadway retrofits including bioretention and pervious pavement
DDOT	Bunker Hill Impervious Surface Removal	Slip lane converted to compacted green surface
DDOT	7th St NW Alley	Alley retrofitted with pervious pavers
DPW/DGS	Ft. Totten Trash Transfer Station Improvements	Install retrofits that treat stormwater and leachate discharges
DPR	Palisades Community Center Stormwater Retrofits	Retrofit impervious surfaces with stormwater LID
DPR	Ft. Greble Recreation Center Stormwater Retrofits	Retrofit impervious surfaces with stormwater LID
DPR	Douglass Community Center Stormwater Retrofits	Retrofit impervious surfaces with stormwater LID
DPR	Congress Heights Recreation Center Stormwater Retrofits	Retrofit impervious surfaces with stormwater LID
DPR	Benning Park Recreation Center Stormwater Retrofits	Retrofit impervious surfaces with stormwater LID

Retrofits on Parkland Sites in the District

DOEE is in the third phase of a new program to retrofit parkland sites in the District. These "Parkland LID Retrofits" aim to improve water quality in the Anacostia and Potomac Rivers for the benefit of District residents, visitors, wildlife, and the environment, while providing high-quality outdoor recreational space and facilities for children and adults to learn, play, and connect with nature. To date, seven (7) parkland sites have been environmentally restored or retrofitted with stormwater management controls (Amidon Park, Congress Heights Recreation Center, Woody Ward Recreation Center, Douglass Community Center, Fort Greble, Palisades Recreation Center, and Fort Stevens Recreation Center). Upcoming projects will include four new parkland sites in the District (Dwight A. Mosely Sports Complex/Taft Field, North Michigan Park Recreation Center, Benning Stoddert Recreation Center, and Dakota Park).

Inspection and Enforcement Updates

DOEE's Inspection and Enforcement Division Construction and Maintenance Branch (IED CMB) inspects construction sites in the District and assures compliance with District regulations and approved erosion and sediment control plans. DOEE also inspects existing stormwater management practices for compliance with approved stormwater management plans and to ensure the practices are effective and properly maintained.

In FY 2020 and FY 2021, CMB accomplished the following:

- Conducted a total of eight thousand nine hundred and seventy-four (8,974) erosion and sediment control inspections, six thousand and thirty (6,030) stormwater best management practice construction inspections, and one thousand seven hundred and twenty-four (1,724) stormwater best management practice maintenance inspections;
- Issued a total of two hundred and twenty-nine (229) notice of violation, eight (8) administrative orders, one hundred and three (103) notice of infractions, and ninety-seven (97) maintenance notices and;
- Reviewed inspection and maintenance service completion reports for a total of one hundred and seventy-six (176) stormwater pollution prevention plans (SWMPs) submitted through DOEE's self-inspection self-reporting program.

2.10 Stream Restoration Updates

Stream restoration and wetland restoration is the act of modifying a waterway or marsh to improve its environmental health and habitat. All District streams face similar threats from impervious surface runoff due to urbanization. Runoff increases stormwater flows, which in turn changes the geomorphological flow of the stream, ultimately eroding its banks and bed. Stream restoration alleviates the stress of increased flow by creating a new channel to redirect stormwater away from the stream.

In FY 2020 and FY 2021, DOEE continued the construction of several projects, performed pre- and post-restoration monitoring at completed and future restoration sites, and completed one stream restoration project. WPD currently conducts post-restoration monitoring for twenty-four thousand nine hundred and fifty -six (24,956), and is preparing designs for the restoration of over thirty-five thousand (35,000) linear feet of stream reaches over the coming years.

Branch Ave. Park

In FY 2021, DOEE completed a design-build contract for the restoration of a 550-foot stretch of stream that is tributary to Oxon Run. Designs for the Branch Avenue Park Stream Restoration project were completed in FY 2019, and the project was completed at the beginning of FY 2021. In addition to 550 feet of stream restoration, two (2) degraded outfalls were stabilized, and a trail was installed through the parkland, so residents have access to a recreational trail to the restoration site.

Fort Dupont Watershed Restoration

In FY 2020, DOEE awarded a design contract for seventeen thousand (17,000) feet of stream and five (5) acres of wetland restoration at Fort Dupont Park. Throughout FY 2020 and FY 2021, the design contractor advanced designs for the restoration project.

The Fort Dupont Stream and Wetland Restoration Project will cover ten (10) project areas utilizing a mix of stream restoration methods, focusing on minimizing adverse impacts to the natural resources within the park. Nine of the project areas that cover approximately seventeen thousand (17,000) feet of perennial stream are exclusively stream restoration combined with outfall stabilization. The tenth project area will be a wetland and stream day lighting project area for which four hundred and twenty-five (425) feet of piped stream between the bike trail and the Anacostia River is day lighted and land around it is designed to create a tidal wetland complex behind the seawall. DOEE anticipates five to ten (5-10) acres of wetlands being restored in this area. Design work should be completed by the end of FY 2022 or early FY 2023.

Oxon Run Stream Restoration

In FY 2020, DOEE issued a Request for Proposals to execute an Environmental Assessment (EA) and Preliminary Design Project for Oxon Run. The EA and Preliminary Design project is a collaborative effort among DOEE, the District of Columbia Department of Parks and Recreation, the National Park Service (NPS), DC Water, and community groups. The project will produce 30 percent (30%) stream designs with the option for 100 percent (100%) designs, produce a master park plan, assess sewer line work needed, and study the impacts to natural resources and the floodplain along Oxon Run.

Park Drive Gully Restoration

In FY 2021, DOEE issued a design-build contract for the Park Drive Gully Restoration, which will restore one thousand three hundred (1,300) feet of eroded stream gullies and stabilize four (4) collapsing stormwater outfalls. The project is located on Park Drive SE, Washington, D.C., with two (2) different restoration sites: Fort Davis and Texas Avenue. Site One is part of the Fort Davis watershed. Site Two is part of the Texas Avenue watershed. Both sites ultimately drain into the Anacostia River and are in the same federal park area managed by NPS, known as Fort Davis Park.

Stickfoot Branch

In FY 2020 and FY 2021, DOEE advanced designs to the 90 percent (90%) phase for the Stickfoot Branch Stream Restoration project and completed the Environmental Assessment (EA) for the project. Stickfoot Branch, located in Southeast DC, drains into the Anacostia River. Restoration work will involve restoring nine hundred and fifty (950) feet of highly eroded stream channel, protection of a sanitary sewer line, and the improvement of three storm sewer outfalls in the restoration area.

Pinehurst Branch Environmental Assessment

In 2017, DOEE began the environmental assessment (EA) process for Pinehurst Branch, which originates at the District/Maryland border and flows approximately 1.3 miles east–southeast on National Park Service (NPS) property to its confluence with Rock Creek. Land use in the six hundred and nineteen (619)-acre Pinehurst Branch watershed is approximately seventy percent

(70%) residential and commercial development and thirty percent (30%) parkland. Approximately seventy percent (70%) of the watershed lies within the District, with the remaining thirty percent (30%) in Montgomery County, Maryland. The large amount of impervious surface in the watershed has caused significant erosion in Pinehurst Branch, resulting in sediment transport to Rock Creek and exposing sanitary sewer lines in the stream. DC Water has abandoned or removed existing sanitary sewer lines in Pinehurst Branch and DOEE will coordinate with them to restore the stream within the next few years.

The Pinehurst Branch Stream Restoration project will be a comprehensive restoration project that addresses current degraded conditions in the stream, including eroding banks, exposed sewer lines, and invasive vegetation. The first step in restoration is to conduct an EA. The scope of work in this EA will explore options to implement the proposed actions of the Pinehurst Branch Stream Restoration project that would take place on NPS property. The EA will consider the potential to implement restoration activities that could meet the following objectives: restoring approximately seven thousand nine hundred (7,900) feet of degraded stream reaches; creating conditions suitable for wildlife habitat; and improving the condition of existing wetlands.

The scope of work for a contractor to conduct the EA will include preliminary designs to respond to anticipated NPS and community comments. The scope of work is in development and solicitation is expected to begin in mid-FY22.

Stream Mapping Project

In FY20, DOEE awarded a grant to map underground and piped streams throughout the District. The project produced a District of Columbia Geographic Information System (DCGIS) database of historic stream in the District, an interactive StoryMap (available here) that tells the history of streams in the District, an inventory of the one hundred (100) most likely streams to daylight, and conceptual renderings for four (4) potential stream daylighting opportunities.

2.11 Stormwater Pollution and Runoff Reduction

Private property, including commercial, residential, and nonprofit lands (religious and academic institutions), is the single largest land use in the District. These lands are one of the primary sources of pollution to District waterways, contributing pollutants through combined sewer overflow events and urban stormwater runoff.

One of the District's greatest needs and challenges is to reduce water pollution by incentivizing retrofits on individual properties. The District recognizes that it will be difficult to achieve its water pollution reduction goals unless it can convince property owners to adopt pollution prevention techniques on their lands. As such, the District has developed a variety of programs to encourage property owners to adopt nonpoint source pollution reduction techniques. These efforts include a Low Impact Development (LID) retrofit grant program and the following RiverSmart programs:

- RiverSmart Rooftops (Green Roof Rebate/Retrofit Program)
- RiverSmart Communities
- RiverSmart Homes

- RiverSmart Rewards for cisterns, impervious surface reduction, rain gardens and trees

RiverSmart Rooftops (Green Roof Rebate/Retrofit Program)

The DOEE program offers rebates for properties willing to install green roofs. Only properties within the Municipal Separate Storm Sewer System (MS4) area are eligible to participate. Residential, commercial, and institutional properties of all sizes are encouraged to apply. Participating property owners receive up to fifteen dollars ($15) per vegetated square foot. A current inventory of green roofs in the District can be found at http://doee.dc.gov/publication/inventory-green-roofs.

Since 2006, the RiverSmart Rooftops rebate program has supported the installation of one hundred and four (104) projects. This amounts to a total of five hundred and forty-four thoudand (544,000) square feet of vegetation installed, averaging sis thousand (6,000) square feet per individual project.

In FY 2019, FY 2020, and FY 2021, the District added a total of eight hundred and twenty-seven (827) projects, encompassing over two million fifty three thousand eight hundred and seventy-three (2,053,873) square feet of green roof, to its portfolio.

RiverSmart Communities Program

RiverSmart Communities is a program aimed solely at installing LID retrofits on nonprofit and religious institutional properties. The program provides full funding for design and construction costs to participants on the condition that the nonprofit partner will perform outreach and education on watershed protection and relevant DOEE programs. Participants install LID practices such as rain gardens, BayScaping, permeable pavement, and rain cisterns to control stormwater pollution.

In FY 2019, FY 2020, and FY 2021, the RiverSmart Communities program implemented stormwater management practices at a total of thirteen (13) sites across the District at religious and/or nonprofit institutions. These thirteen (13) completed projects are treating sixty-five thousand eight hundred and fifty-one (65,851) square feet of impervious surface within the District. Typical LID practices include permeable paving systems, bioretention, cisterns, rain gardens, BayScaping, and tree planting. Since it started in 2013, the RiverSmart Communities program has completed a total of forty-nine (49) project installations. These projects have provided treatment for over 4.4 acres of nonpermeable land in the District.

RiverSmart Homes Program

The District has recognized the importance of targeting residents for pollution reduction measures because private property is the largest single land use in the city and, due to relatively small lot sizes, is the least likely to be required by regulation to install stormwater management practices. In 2008, DOEE developed RiverSmart Homes, a (GSI) retrofit program aimed at District single-family homes. The program started with eight (8) demonstration sites, one in each of the District’s wards. It then expanded to a pilot program in the Pope Branch watershed and has been open to all District residents since the summer of 2009.

Through this program, DOEE performs audits of residential properties and provides feedback to residents on which GSI features can be safely installed on the property. DOEE also offers residents subsidized installations of any GSI recommended at the audit, which can include shade trees, native landscaping to reduce erosion or replace turf grass, rain gardens, rain barrels, and permeable pavers.

DOEE made some substantial changes to RiverSmart Homes in FY 2016 to increase participation. The program increased total incentives from one thousand six hundred dollars ($1,600) per property to three thousand dollars ($3,000) per property, began offering a new rain barrel for installation, and provided a rebate of five to ten dollars ($5-$10) per square foot for the removal impervious surfaces and the replacement of vegetation and/or installation of permeable pavers. Also, in 2019, the fifty dollars ($50) copay for shade tree installations was eliminated. In fall of 2020, the program restricted permeable paver rebates to only those properties located in the MS4 and in Wards 7 and 8. Each permeable paver project has a maximum rebate of four thousand dollars ($4,000) per property. The program is popular with District residents, with an average of one thousand five hundred (1,500) residents registering per year.

For the reporting period covering July 1, 2019-June 30, 2021, the RiverSmart Homes program:

- Installed seven hundred and seventy-three (773) rain barrels;
- Installed two hundred and five (205) rain gardens;
- Implemented BayScaping at eight hundred and thirteen (813) properties;
- Replaced impervious surfaces with green space or pervious pavers at one hundred and fifty-one (151) properties (over eighty thousand (80,000) square feet of treatment area); and
- Conducted two thousand two hundred and ninety-four (2,294) audits.

In FY20 and FY21, three thousand two hundred and forty-one (3,241) shade trees were planted.

RiverSmart Schools

DOEE partners with District schools to install LID practices to reduce runoff and nonpoint sources of pollution while providing stormwater-related educational resources. The program offers District schools technical support, professional development, field trips, community planting events, and assistance with installing GSI practices. These practices are specially designed to be functional as well as educational to fit the school environment. During this reporting period, DOEE retrofitted eight (8) schoolyard greening sites that include: John Burroughs Education Campus (2019), EW Stokes Public Charter School (2019), Cleveland Elementary (2020), Turner Elementary (2020), Friendship Tech Prep High School (2020), Friendship-Armstrong Public Charter School (2021), St. Thomas More Academy (2021), and Stanton Elementary (2021). More details below:

- The Friendship Public Charter School Technology Prep Campus project included an outdoor classroom, raised infiltration planter beds, rainwater cisterns, a large bioretention basin, removal of existing impervious surface, and conservation landscaping.

- The Turner Elementary project included an outdoor classroom, infiltration beds, permeable walkways, and conservation landscaping;
- The Cleveland Elementary project included improvement to an on-site gravel pad, an outdoor classroom, and the installation of one thousand five hundred (1,500) square feet of stormwater management BMPs.
- The John Burroughs Education Campus project included an outdoor classroom, a fruit tree grove (including persimmons, serviceberry, and eastern red bud trees), a small rain garden, rain barrels, and a pollinator meadow.
- The Elsie Whitlow Stokes Public Charter School project included a large conservation landscaping area with repurposed tree stumps for seating, fruit trees, and cherry blossom trees.
- The Friendship – Armstrong Public Charter School is a voluntary improvement project to remove asphalt parking lot on-site and install two thousand one hundred and eighty-two (2,182) square feet of BMP and outdoor classroom areas. The BMPs are located at a natural low point in the schoolyard and will capture and filter runoff from an area of forty-one thousand six hundred and ten (41,610) square feet surrounding the rain gardens swales.
  - Onsite retention achieved = nineteen thousand two hundred and twenty-seven (19,227) gallons
  - Onsite treatment achieved = twelve thousand eight hundred and eighteen (12,818) gallons
  - Total contributing drainage area (CDA) = forty-five thousand five hundred and fifty (45,550) square feet
  - Eligible stormwater retention credit = five thousand five hundred and twenty (5,520) gallons
- The St. Thomas More Academy School has an enhancement project to remove concrete area on-site and install one thousand four hundred and seventy-one (1,471) square feet of BMP and adjacent outdoor classroom space. The schoolyard will capture and filter runoff from an area of four thousand and twenty-five (4,025) square feet surrounding the rain gardens.
  - Onsite retention achieved = ten thousand and fifty-eight (10,058) gallons
  - Onsite treatment achieved = six thousand seven hundred and five (6,705) gallons
  - Total contributing drainage area (CDA) = twenty-nine thousand seven hundred and eighty-five (29,785) square feet
  - Eligible stormwater retention credit = one thousand six hundred and fifteen (1,615) gallons
- The Stanton Elementary schoolyard improvement project removed asphalt and installed eight hundred (800) square feet of BMP and outdoor education area. Project total disturbance is five thousand (5,000) square feet with two thousand (2,000) gallons of onsite retention achieved.
  - Onsite retention achieved = two thousand two hundred (2,200) gallons
  - Onsite treatment achieved = five hundred (500) gallons
  - Total CDA = four thousand (4,000) square feet.

RiverSmart Rewards Incentive Program

Through participation in the RiverSmart Rewards program, property owners can apply for and receive discounts on their DC Water bill. District residents, businesses, and other property owners can earn a discount of up to fifty-five percent (55%) off the District Government Stormwater Fee (Stormwater Fee) when they reduce stormwater runoff by installing GSI or BMPs such as green roofs, bioretention, permeable pavement, shade trees and rainwater harvesting systems. GSI helps protect the Anacostia and Potomac Rivers and Rock Creek. GSI installed through the RiverSmart programs are automatically enrolled to receive the discount on a property's DC Water bill. A RiverSmart Rewards application period's last three (3) years and can be renewed upon their expiration, provided the GSI practices have been maintained.

The District charges the Stormwater Fee to support the implementation of the District's MS4 permit. DOEE uses these funds to keep trash and other pollutants out of the rivers, install GSI throughout the District, ensure that new construction and redevelopment projects incorporate GSI, and provide incentives for voluntary retrofits. This fee is based on the total area of impervious surface—including roofs, driveways, and patios—on a property. Impervious surfaces prevent rainwater from soaking into the ground. The Stormwater Fee is calculated using Equivalent Residential Units (ERUs). One ERU is equal to 1,000 square feet of impervious surface. Currently, the Stormwater Fee is two dollars and sixty-seven cents ($2.67) per month per ERU.

From 2015-2020, the RiverSmart Rewards program processed two thousand five hundred and fifteen (2,515) total applications with participants saving a combined total of two hundred thirty-nine thousand six hundred seventy-six dollars and twenty-seven cents ($239,676.27) off their monthly Stormwater Fees. The Contributing Drainage Area for the five thousand seven hundred and nine (5,709) BMPs earning RiverSmart Rewards discounts totaled nine million seven hundred fifty-nine thousand two hundred and twelve (9,759,212) square feet and had a storage volume of two million eight hundred and twelve thousand nine hundred and fifty-nine (2,812,959) gallons.

In 2021, the RiverSmart Rewards program processed eight hundred and forty-seven (847) applications with one hundred and five (105) applications being renewed. Program participants saved a combined total of thirty-one thousand five hundred fifty-two dollars and eight cents ($31,552.08) off their monthly Stormwater fees. The contributing drainage area for the one thousand four hundred and thirty-seven (1,437) BMPs earning RiverSmart Rewards discounts totaled three hundred seventy-seven thousand and forty-five (377,045) square feet and had storage volume of three hundred forty-nine thousand eight hundred and seventy-one (349,871) gallons.

Stormwater Retention Credit Trading Program

The Stormwater Retention Credit (SRC) Trading Program is an innovative market-based program to manage stormwater in the District of Columbia. Stormwater management regulations require large development projects to install stormwater BMPs to reduce runoff. Depending on their location in the District's sewersheds, properties can meet up to one hundred percent (100%)

of their regulatory requirement through off-site retention by purchasing SRCs from other properties that install runoff-reducing GSI voluntarily.

This flexibility allows regulated properties to pursue more cost-effective compliance methods and incentives properties to voluntarily install and maintain GSI that has the capacity to retain stormwater and thereby reduce the runoff that harms District streams and rivers.

The SRC market grew substantially in FY 2020 and FY 2021. In FY 2020, DOEE approved forty five (45) trades for a total of seven hundred forty-three thousand and fifty-seven (743,057) SRCs selling at an average price of one dollar and seventy-four cents ($1.74) per credit. In FY 2021, DOEE approved forty-six (46) trades for a total of three hundred and eight thousand seven hundred and seventy-four (308,774) SRCs at an average price of one dollar and sixty-three cents ($1.63) per credit.

Through the SRC Price Lock Program, participants have the option to sell their SRCs to DOEE as a buyer-of-last-resort at fixed prices, effectively creating a price floor in the SRC market. This purchase guarantee provides investors with the confidence necessary to commit funding to SRC-generating projects. DOEE made an initial eleven million five hundred thousand dollars ($11,500,00) available through the SRC Price Lock Program. In FY 2021, DOEE continued to use the SRC Price Lock Program to encourage private investment in High-Impact SRCs. High-Impact SRCs are generated when new GSI practices are built as voluntary retrofits in areas draining to the MS4. Voluntary GSI in the MS4 area does the most to protect the District's rivers because, in these areas, stormwater runoff would otherwise drain untreated into our rivers and streams, typically without any treatment.

Through the SRC Price Lock Program, projects that have completed construction retrofitted a total of 24.6 acres within the MS4; once all eleven (11) projects are complete, they will achieve a combined retrofit of over twenty-nine (29) acres. Of the eleven million five hundred thousand dollars ($11,500,00) DOEE committed to the SRC Price Lock Program, the projects that enrolled through FY21 accounted for three million nine hundred seventy thousand dollars ($3,970,000) million to purchase nearly three million (3,000,000) SRCs over twelve (12) years of credit certification prior to selling any of their SRCs on the market.

In FY 2020, DOEE launched a program offering a new incentive for projects to achieve retention requirements using High-Impact SRCs. When development projects meet a portion of their regulatory requirements by using High-Impact SRCs, the highest levels of water quality restoration in the District are realized. DOEE subsidizes the sale of High-Impact SRCs when SRC Price Lock Program participants reduce the price they charge SRC buyers. DOEE will offer increased payments to sellers who further decrease the sale price in large or multi-year transactions. DOEE expects the program will make it cheaper for buyers to purchase High-Impact SRCs, thereby increasing the incentive to build more green stormwater infrastructure in the MS4.

Through the end of FY 2021, DOEE purchased or subsidized over eight hundred thousand dollars ($800,000) in SRCs. SRC Price Lock Program participants also sold a total of three hundred twenty-seven thousand five hundred and twenty-three (327,523) SRCs on the market through the end of FY 2021. If not sold on the market, these SRCs would have used five hundred and thirty-six thousand seven dollars and seven cents ($536,007.07) of DOEE's SRC Price Lock Program funds, which can now be used for other SRC Price Lock Program projects in the future.

Surface and Groundwater System (*formerly known* as Stormwater Database)

In FY 2015, DOEE launched the Stormwater Database to track projects that reduce pollution from stormwater runoff by managing submission, review, and inspection of Stormwater Management, Erosion and Sediment Control, and Green Area Ratio permit applications. In FY 2021, DOEE expanded the Stormwater Database to manage the submission and review of Floodplain Management, Wetlands and Streams, and Wells and Soil Boring permit applications, and changed the name of the database to Surface and Groundwater System (SGS) to reflect this expansion.

The SGS tracks each site's regulatory obligations and compliance, including off-site retention achieved with SRCs or payment of the in-lieu fee (ILF).

The public uses the Stormwater Database to:

- Submit compliance calculations and other information to support an application for DOEE approval of a Stormwater Management Plan, Erosion and Sediment Control Plan, or Green Area Ratio Plan, Floodplain Management Plan, Wells and Soil Boring Permit Application, and Wetlands and Streams Permit Application;
- Comply with an off-site retention obligation by applying to use SRCs or notifying DOEE of an ILF fee payment;
- Apply to certify, transfer, or retire SRCs;
- View the SRC registry; and
- Participate in voluntary programs that incentivize installation and maintenance of green stormwater infrastructure, including RiverSmart Homes and RiverSmart Rewards, which provides modest discounts on the District's impervious surface-based fees.

In FY 2020-2021, DOEE developed or implemented several new features and business processes to improve the breadth and accuracy of data in the SGS, including:

- Developing and implementing systems for the submission and review of Wetlands and Streams, and Wells and Soil Boring, permit applications;
- Developing and implementing a Self-Inspection, Self-Reporting system that allows property managers to voluntarily report green stormwater infrastructure maintenance;
- Developing new spatial analysis tools to better identify site and green stormwater infrastructure locations that lie within specific geographies (i.e., watersheds, sewersheds, etc.);
- Developing and implementing new business processes for federal agencies to report green stormwater infrastructure installation and maintenance with increased accuracy; and

- Developing and implementing improved systems for internal DOEE users to report data quality issues and other requests.

In FY 2020-2021, DOEE also improved public users' experience in the database by:

- Launching online fee payment and covenant approval systems, completing the transition to an entirely online permitting process and enabling DOEE permitting to continue with minimal disruption during COVID-related closures.
- Developing and implementing a new interface to improve useability and navigability.
- Updating public-facing trainings and user manuals; and
- Publishing new public-facing FAQ documents.

More information about the SGS can be found at: http://doee.dc.gov/SGS.

Tree Planting

The District of Columbia has been called "The City of Trees." It has a tree canopy cover of thirty-eight percent (38%), which is high for a dense, urban environment, but lower than what the canopy cover has been historically, even when the city had a higher population density. To improve air and water quality, reduce the urban heat island effect, and offset greenhouse gas emissions, the District adopted a forty percent (40%) tree canopy goal. Mayor Bowser adopted a Sustainability Plan that calls for achieving the canopy goal by 2032. To achieve that goal, the District will need to plant an average of ten thousand eight hundrend (10,800) trees annually.

In both FY 2020 and FY 2021, the annual planting goal was exceeded, with twelve thousand nine hundred and seventy-four (12,974) and thirteen thousand four hundred and seventy (13,470) trees planted respectively across the District.

The DDOT Urban Forestry Division (UFD), which maintains the District's street trees, increased its annual planting rate from four thousand to six thousand (4,000-6,000) to an average of eight thousand four hundred (8,400) over the past two (2) fiscal years. In 2016, The District's Urban Forest Preservation Act of 2002 was amended and revised with several changes impacting management, protection, and coordination of, as well as jurisdiction over, tree canopy activities. Specifically, the Act expanded the UFD jurisdiction to manage all tree activities on District-owned lands. All public tree-related activities, including inspection, pruning, removal, and planting trees on District land, are now integrated into the District's 311 service request program and are directed to the UFD. The UFD also manages the tree permit removal process.

DOEE, through grants and contracts to various for-profit and non-profit partners such as Casey Trees, Washington Parks and People, BioHabitats, Natural Resource Design, and Anacostia Watershed Society, plants trees on private, federal, and other District lands.

The following are FY 2020 and FY 2021 tree planting accomplishments:

- Planted a total of three thousand two hundred and fifty-nine (3,259) trees as part of the RiverSmart suite of programs (Homes, Communities, Schools and Tree Rebate Program);
- Planted a total of one hundred and seventy-four (174) trees in stream restoration projects;

- Planted a total of three thousand two hundred and fifty-one (3,251) trees across large public and private parcels including parks and school as a part of a new effort to increase tree canopy in these areas; and
- An additional total of two thousand seven hundred and eighty-three (2,783) trees were planted District-wide by other partners' efforts, including Casey Trees, Trees for Georgetown, Pepco, the National Park Service, the General Services Administration, the National Cherry Blossom Festival, and through various regulated development.

Pollution Prevention Plans

District Municipal Critical Source Facilities

Since July 1, 2017, DOEE has been working with District municipal critical source facilities to develop, implement, and update stormwater pollution prevention plans. DOEE has met with all agencies that operate and manage municipal critical source facilities to begin developing, updating, and finalizing stormwater pollution prevention plans (SWPPPs). Of the thirty-three (33) critical source facilities requiring SWPPPs in the District, all have up-to-date, certified SWPPPs.

DOEE developed a template SWPPP and SWPPP review checklist for municipal facilities on the official inventory, and provided training on how to develop SWPPPs on July 9, 2019, December 10, 2019, December 15, 2020, and May 21, 2021. The template SWPPP was updated in the Spring of 2021 to comply with the newly released 2021 EPA Multi-Sector General Permit (MSGP) for industrial stormwater runoff. DOEE also provided site maps for any municipal critical source facility that requested one. All SWPPPs were reviewed by DOEE to ensure they met MS4 Permit and, when appropriate, MSGP requirements. Twenty-five (25) facilities updated their SWPPPs in the winter and spring of 2021 to make the necessary changes to comply with the 2021 MSGP.

In total, DOEE provided assistance and feedback on forty-eight (48) SWPPPs. To streamline and standardize feedback on SWPPPs, DOEE developed a SWPPP checklist in July 2019. DOEE provided comments on all SWPPPs using the checklist to clarify expectations for what a SWPPP should include, to correct errors, and to ensure all SWPPPs met MS4 Permit and MSGP requirements.

Businesses and other entities

DOEE launched the GreenWrench Technical Assistance program in the spring of 2018 with EPA funding to provide compliance assistance and encourage pollution reductions at automotive repair and body shops in the District of Columbia. Since then, DOEE has secured four (4) more years of funding for the program. These operations are critical sources of stormwater pollution in the MS4 and direct drainage areas of the District. As part of these efforts DOEE developed a template pollution prevention plan (P2 Plan) that includes the elements of a SWPPPs, but also includes sections on air quality, toxic substances, and energy use. The template P2 Plan and an accompanying GreenWrench Guidebook are being updated during this period to better incorporate electric and hybrid vehicle considerations. The Template P2 Plan and Guidebook can be found on DOEE's website (https://doee.dc.gov/service/greenwrench).

2.12 Environmental Education and Outreach

DOEE's mission includes providing environmental education and outreach to raise environmental stewardship, increase awareness of environmental challenges and initiatives, and inform stakeholders of opportunities to contribute to the restoration of the District's waters and natural habitats. The support programs aim to prevent NPS pollution from individual actions by carrying out effective information and education campaigns.

Meaningful Watershed Educational Experiences

As part of DOEE's sub-grant program, several initiatives were funded for nonprofit partners to create Meaningful Watershed Education Programs (MWEEs) for hundreds of District youth. In FY 2020 and FY 2021, the Alice Ferguson Foundation partnered with Living Classrooms of the National Capital Region and Nature Bridge to conduct both in-person and virtual MWEE programs with activity boxes. In the period January - March 2020, one thousand seven hundred and one (1,701) fifth-grade District Public School and Charter School students participated in a three-day, two-night educational program. The COVID pandemic necessitated a move to virtual lessons and for the remainder of FY 2020 and FY 2021, two thousand one hundred and ninety-nine (2,199) students participated in the educational program.

In addition to the overnight MWEE program, DOEE funds a Middle School MWEE through a grant awarded to a nonprofit partner, Living Classrooms, to offer day programs to students in Wards 7 and 8. This program reached one hundred and twenty (120) students in FY 2020 and one hundred and seventy-six (176) students in FY 2021.

Project Learning Tree

Project Learning Tree (PLT) is an internationally recognized program that trains Grade K through12 educators in innovative techniques for exploring a wide range of environmental concepts with students and teaches critical thinking skills that lead to environmental stewardship. DOEE offers PLT training workshops free to those that request them. During this reporting period, DOEE incorporated the PLT curriculum into the RiverSmart Schools' virtual professional learning sessions. An abbreviated PLT curriculum was introduced in the training sessions during the COVID-19 pandemic, which resulted in a reduced number of teachers attending the PLT session.

RiverSmart Schools

RiverSmart Schools is a program that works with applicant schools within the District to install LID practices to reduce runoff and nonpoint source pollution while providing stormwater-related educational resources. These practices are specially designed to be functional as well as educational to fit with the school environment. Additionally, schools that participate in the RiverSmart Schools program receive teacher training on how to use the sites to teach to curriculum standards and how to properly maintain the sites.

Due to COVID-19 pandemic during school years of 2019-2020 and 2020-2021, the professional learning sessions were pivoted to virtual trainings for teachers and staff. This also gave opportunities for parents and school volunteers to virtually join. In 2020 and 2021, the program provided a total of forty (40) teachers and school community staff with eight (8) professional learning sessions on the RiverSmart schools site usage and program.

District of Columbia Environmental Education Consortium

DOEE helps to organize a network of environmental educators throughout the District so that ideas and resources can be shared among them. The D.C. Environmental Education Consortium (DCEEC) provides opportunities for networking, event coordination, and program partnering. The program also provides environmental expertise, professional development opportunities, curricula and resources, and hands-on classroom and field studies to District schools.

During this reporting period, DCEEC, along with the United States Botanical Garden and DOEE, hosted the annual DC Teacher’s Night virtually, called DC Teacher’s Night: An ONLINE Environmental Education Resource Event. The event featured twenty-four (24) exhibitors with K-12 resources to use for the virtual school year. There were one hundred and thirty-nine (139) teachers registered and eighty-one (81) attended the virtual evening event.

The online resource evenings connected District teachers with area environmental educators to learn about resources to engage students with the outdoors and about ways to bring the environment into the classrooms. During the online DC Teacher’s Night event, teachers had the opportunity to join in two different virtual platform breakout groups and then enter another virtual platform, Topia, which is an interactive virtual meeting space, to continue conversations and share ideas with their peers.

District Environmental Literacy Plan

During this reporting period, DOEE collaborated with stakeholders to implement the Environmental Literacy Plan (ELP) and draft an updated plan, which was released in 2020. The ELP creates the groundwork to develop academic standards and measure student environmental literacy. During this reporting period: thirty-eight percent (38%) of students in the District learned about environmental and sustainability concepts; at least forty (40) elementary schools taught about the environment at every grade level; and the Community Stormwater Solutions Grant was revamped for adult education in historically marginalized communities and those that are challenged with disproportionate impact from pollution. Furthermore, updated in 2019, Sustainable DC 2.0 now includes education as a stand-alone topic area for implementation and continues to recognize that the ELP is the appropriate platform on which to build environmental and sustainability education into District schools. The updated ELP framework will help identify the best places in school curriculum where DOEE programming will fit. This project will also coordinate Green Career Expos for high school students to learn about green jobs and summer internships. DOEE continues to work with OSSE to implement the ELP, which will bring environmental education, including meaningful outdoor experiences at-home and beyond, to District youth.

The Anacostia Environmental Youth Summit

The Anacostia Environmental Youth Summit (AEYS) is a District-wide showcase that spotlights youth voice, demonstrates environmental literacy, and encourages stewardship for the Anacostia and Potomac Rivers and the Chesapeake Bay. By exemplifying an ethic of stewardship and responsible action, the Youth Summit emphasizes youth leadership and innovation. The annual AEYS occurs every May of the year. Due to the COVID-19 pandemic, the Anacostia Environmental Youth Summit in May 2020 and May 2021 were suspended. The AEYS initiative was pivoted to virtual STEM Fairs, resulting in lower student participation numbers. DOEE staff continues to support student projects at individual school's virtual STEM Fairs. In 2020, the virtual Fairs hosted six (6) student projects focusing on environmental and sustainable categories. In 2021, the virtual Fairs hosted twelve (12) student projects from three (3) schools focusing on environmental engineering and sustainable categories.

Anacostia River Explorers

Anacostia River Explorers are boat tours that educate the public about the Anacostia River through one and two-hour motorized and canoe tours. Participants learn about the Anacostia River's human and natural history, the threats it faces, and what solutions are being undertaken to help the River realize its full potential as an invaluable asset for the District and its residents. There are two (2) grantees implementing this program for the District. From July 2019-June 2021, the grantees hosted three hundred and forty-nine (349) motorized or paddle tours of the Anacostia River that engaged four thousand two hundred and thirty-nine (4,239) participants. Tours were greatly impacted by the COVID-19 pandemic, including a postponement of most tours from March 2020 to April 2021. During the interim period, the grantees pivoted to develop virtual materials including video tours of the River and educational content aimed at engaging students. During the reporting period the virtual materials were viewed over one thousand five hundred (1,500) times and were shared at conferences and virtual event

Adopt-Your-District Program

Adopt-Your-District is a program that allows volunteers to adopt parks, blocks, or segments of streams throughout the District. This program is a collaboration effort between DOEE, District Department of Parks and Recreation, the National Park Service, and Mayor's Office of the Clean City.

Adopt-A-Stream

In FY 2018, AFF launched a pilot Adopt-A-Stream program with funding from DOEE's Trash Free Communities grant. With training provided by the AFF and Rock Creek Conservancy, this program allows Adopt-A-Stream volunteers to adopt a segment of District stream, collect data on the types of trash found in the area, and organize cleanups to help protect the stream and beautify the area. Over thirty (30) volunteers were trained for the Adopt-A-Stream program between September 2020 and April 2021.

Adopt-A-Park

In FY 2021, DOEE assisted in identifying parks of interest and establishing correct government contacts for seventeen (17) District residents and organizations interested in adopting a park through the Adopt-A-Park program.

Green Zone Environmental Programs

Every summer, DOEE partners with the Marion Barry Summer Youth Employment Program to provide youth and young adults, ages 14-24, with an opportunity to learn about energy and environmental issues, complete community-based environmental projects, and prepare for careers through the Green Zone Environmental Program (GZEP).

DOEE's Watershed Protection Division (WPD) releases the GZEP Watershed Protection Grants to fund organizations to provide education, training, and activities to GZEP participants. In FY20, the GZEP Watershed Protection Grants funded three (3) organizations to provide virtual training to seventy-five (75) youth. Over the course of six (6) weeks, youth were educated on various activities and topics related to green jobs, pollution in our watershed, environmental activism, and more.

Watershed Stewards Academy

The Watershed Stewards Academy is an eight-week certification course taught by DOEE and Anacostia Watershed Society (AWS) staff for District residents who want to address local pollution problems in their local watersheds. The program is funded by a DOEE grant to AWS and is part of the National Capital Region Watershed Stewards Academy, which is a coalition of watershed protection groups in the Potomac, Rock Creek, Anacostia, and East Patuxent watersheds. Once they have completed the course, these residents are considered to be Master Watershed Stewards in their local watershed. These alumni serve as resource people and community leaders in the effort to clean up local waterways, to coordinate efforts to infiltrate stormwater, and to reduce. In FY 2020 and FY 2021, through a hybrid class model (part virtual and part in-person) fifty-six (56) District residents became Watershed Stewards.

Storm Drain Marking Program

DOEE installed 357 storm drain markers, during this period. DOEE has maintained its geolocated database of marked storm drains and worked with five (5) different volunteer groups that supported this work, including the National Park Service, sister agencies such as Department of General Services, schools, and citizen volunteers.

2.13 Job Training Programs

River Corps

Since 2017, DOEE has led a green stormwater infrastructure and job training program, the River Corps, run by the Latin American Youth Center. Each year, two (2) cohorts comprised of seven to ten (7-10) youth, participate in a five-month-long green stormwater infrastructure job training program during which young people learn how to maintain LID sites, inspect RiverSmart Homes installations, perform trash cleanups, remove invasive plant species, and photo monitor upcoming and existing stream restoration projects. From July 1, 2019, to June 30, 2021, the

River Corps monitored the following streams: Alger Park, Bingham Run, Broad Branch, Fort Dupont, Linnean Park, Milkhouse Run, Nash Run, Pope Branch, Spring Valley, Springhouse Run, Stickfoot Branch, and Watts Branch.

2.14 Cost/Benefit Assessment

The District is investing significant resources to address the sources of impairment to local waters. This includes efforts to manage and upgrade the Blue Plains Wastewater Treatment Plant, reduce combined sewer overflows and manage stormwater runoff in the MS4 areas of the District as described in the following sections.

Cost for Managing Blue Plains Wastewater Treatment Plant and Combined Sewer Overflows

The District of Columbia has and continues to commit significant amounts of resources to improve the quality of its waters. Effective wastewater treatment, sanitary sewer system maintenance, combined sewer overflow control, and stormwater management are the principal elements in water pollution control. The Blue Plains Wastewater Treatment Plant (WWTP) operated by DC Water provides wastewater services to over two million (2,000,000) customers in the District and the surrounding jurisdictions of Maryland and Virginia. Figure 2.4 shows the areas/jurisdictions served by the WWTP.

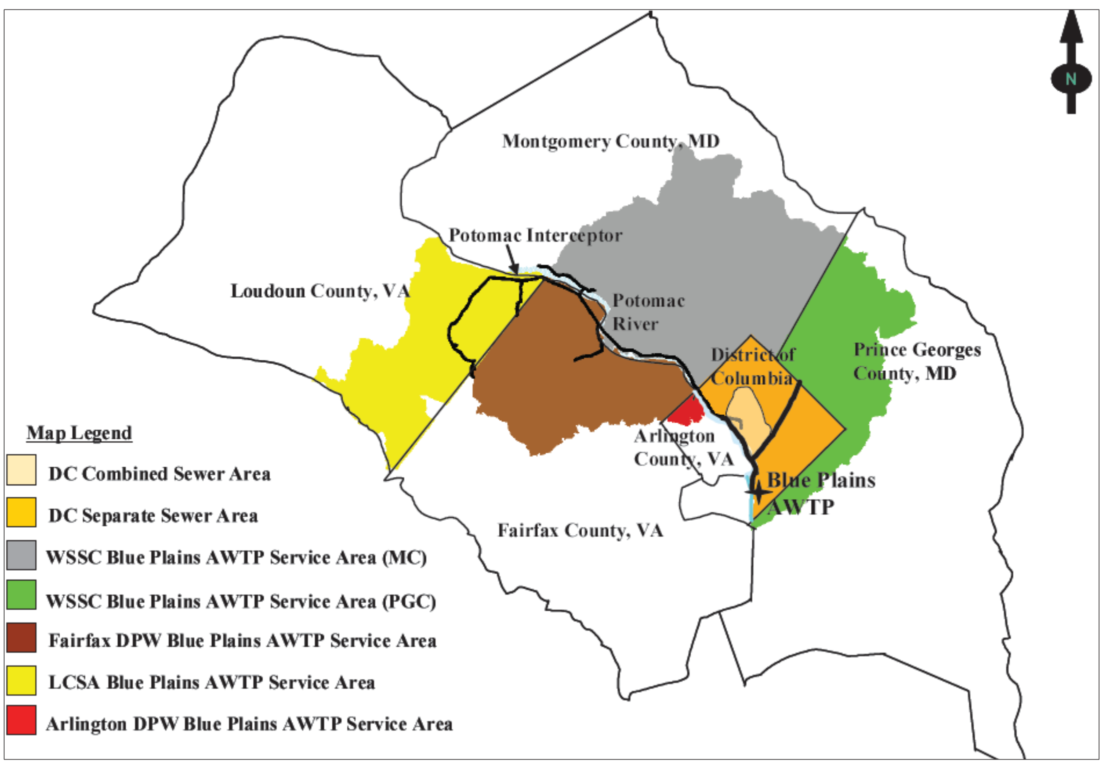


Figure 2.4 Map of stormwater and wastewater treatment service areas.

The wastewater treatment costs are apportioned between the jurisdictions served by WWTP. The financial responsibilities of each jurisdiction were updated under the new Blue Plains Intermunicipal Agreement of 2012, effective April 3, 2013 (IMA at http://www.mwcog.org/uploads/pub-documents/u15dVlc20130506094101.pdf). The District's portion of the capital and operations & maintenance costs for wastewater treatment, sanitary sewer maintenance and engineering and technical services constitute 45.8 percent (45.8%) of the total cost incurred by DC Water. As the only jurisdiction with combined sewer systems, the District is also responsible for combined sewer overflow control costs. Description of the various elements and associated costs are presented below.

Engineering and Technical Services

DC Water Engineering and Technical Services programs provide support to the planning, design, and construction of new and rehabilitation projects across all functions of the collection and treatment of wastewater. The functions include system planning, technical engineering expertise, and oversight of construction Water and technical.

Sanitary Sewer System Maintenance

The bulk of the cost of the wastewater collection system is associated with the assessment, rehabilitation, and replacement of the aging infrastructure in the District. High bacteria counts in various waterways have been attributed to leaking sanitary sewers. Under a multi-year Sewer Assessment Program, DC Water completed the ten-year (10-year) Sewer System Facilities Plan in 2009 (Executive Summary at https://www.dcwater.com/sites/default/files/documents/Water%20System%20Facilities%20Plan-Executive%20Summary%20June%202009.pdf). The plan addresses the evaluation of the physical condition and capacity of the sewer system, identification and prioritization of rehabilitation needs, record keeping and data management, as well as ongoing inspection and rehabilitation programs. In accordance with key findings and recommendations of the plan, priority projects to rehabilitate sewer collection systems as well as pumping facilities are currently ongoing. In particular, the rehabilitation of sewers in stream valleys is critical to the significant water quality improvement in DC streams.

Subsequent programs under the DC Clean Rivers Projects are ongoing to further reduce sewers inflows in the District's waterways. Among the programs, is a massive infrastructure and support program designed to capture and clean wastewater during rainfalls before it ever reaches the waterways (more information at https://www.dcwater.com/cleanrivers).

Wastewater Treatment

Under the Chesapeake Bay Agreement, the Blue Plains WWTP was the first facility to meet the nutrient reduction goals of forty percent (40%) from the 1985 levels. The WWTP operates under stringent NPDES permit conditions. Significant plant-wide upgrades, and rehabilitation and installation of support systems are ongoing. Among the major projects is the Nutrient Removal project to meet regulatory requirements and the goals of the Chesapeake Bay Agreement. In 2007, DC Water proposed to interface the overall Blue Plains Nutrient Removal project with the Combined Sewer Overflow Long Term Control Plan (LTCP) finalized in 2002. In 2015, DC Water finalized the LCTP Modification for Total Nitrogen Removal/Wet Weather Plan (TN/WW

Plan). The TN/WW Plan is detailed in the report "Long Term Control Plan Modification for Total Nitrogen Removal/Wet Weather Plan, District of Columbia Water and Sewer Authority, Washington, DC, May 2015." (http://www.dcwater.com/sites/default/files/green-infrastructure-ltcp-modificaitons.pdf)

The major components of the project include construction of the Blue Plains Tunnel (extending from the Anacostia Tunnel System to Blue Plains), construction of a tunnel dewatering pumping station, and enhanced clarification facilities at Blue Plains. These projects will remove nitrogen at levels sufficient to meet the Blue Plains federal NPDES discharge permit requirements as well as the Chesapeake Bay Agreement for nutrient reduction. The projects will simultaneously achieve CSO reduction equal to or better than the approved LTCP.

Combined Sewer Overflow Long-Term Control Plan

DC Water developed the LTCP in 2002. The LTCP involves the construction of large underground tunnels that will serve as a collection and retention system for the combined sewer during rainfall conditions. In 2005, DC Water and the District entered into a Consent Decree with the EPA and the United States Department of Justice requiring implementation of the LTCP.

On January 14, 2016, a modification to the 2005 Long Term Control Plan (LTCP) Consent Decree was entered into by the parties to include innovative green stormwater infrastructure practices to achieve the reduction of combined sewer overflow volume by ninety-six percent (96%) system-wide (for the Anacostia and Potomac rivers and Rock Creek) and offer additional community benefits. The LTCP is to be implemented over a 25-year period under the amended Consent Decree.

Table 2.12 shows the predicted CSO reduction and project costs, and Table 2.13 summarizes the costs associated with the treatment of wastewater for the years 2020 and 2021.

Table 2.12 Predicted CSO Reduction and Cost

	Before CSO Controls[1]	LTCP[2]	After Implementation of TN/WW Plan Selected Alternative[2]
CSS Overflow Volume million gallons/year (mg/yr)			
Anacostia River	2,142	54	0
Potomac River	1,063	79	79
Rock Creek	49	5	5
Number of Overflows (per yr)			
Anacostia River	82	2	0
Potomac River	74	4	4
Rock Creek	30	5	5
Capital Cost Opinion ($, ENR CCI=7888)			
Capital Cost ($Million)[3]	0	$28	$783

% above the lowest alternative	0	N/A	7
% above the LTCP[4]	0	N/A	2,696

[1] Source: Combined Sewer System Long Term Control Plan, Final Report, District of Columbia Water and Sewer Authority, July 2002, Table ES-4.
[2] Source: Long Term Control Plan Modification for Total Nitrogen Removal/Wet Weather Plan, District of Columbia Water and Sewer Authority, Washington, DC, May 2015, Appendix C: TN/WW Plan, Table 5-1.
[3] Construction Cost Index = $7,888,000 million
[4] Computed. The capital cost of CSO reduction if not implemented (i.e., "Before CSO Controls"), there will be no cost incurred. Therefore, the amount is set to zero.

Table 2.13 Cost Summary of Water Pollution Control Activities

Activity Area	FY 2020 (in $ thousands of dollars)	FY 2021 (in $ thousandsof dollars)	Total FY 2020-FY 2021 (in $ thousands dollars)
Wastewater Treatment	48,887	78,992	127,879
Sewer Services	23,786	50,547	74,333
Combined Sewer System	181,317	170,842	352,159
Engineering and Technical Services	33,548	24,937	58,485

Source https://www.dcwater.com/sites/default/files/finance/budgets/Approved%20FY%202022%20Budget%20Book_0.pdf

Cost for Stormwater Management in MS4

The District has embarked on an aggressive stormwater management program as part of the implementation and administration of activities required by MS4 Permit issued by EPA. The area covered under the permit is entirely within the jurisdiction of the District and constitutes approximately two-thirds of the city's area (DC separate sewer area in Figure 2.5).

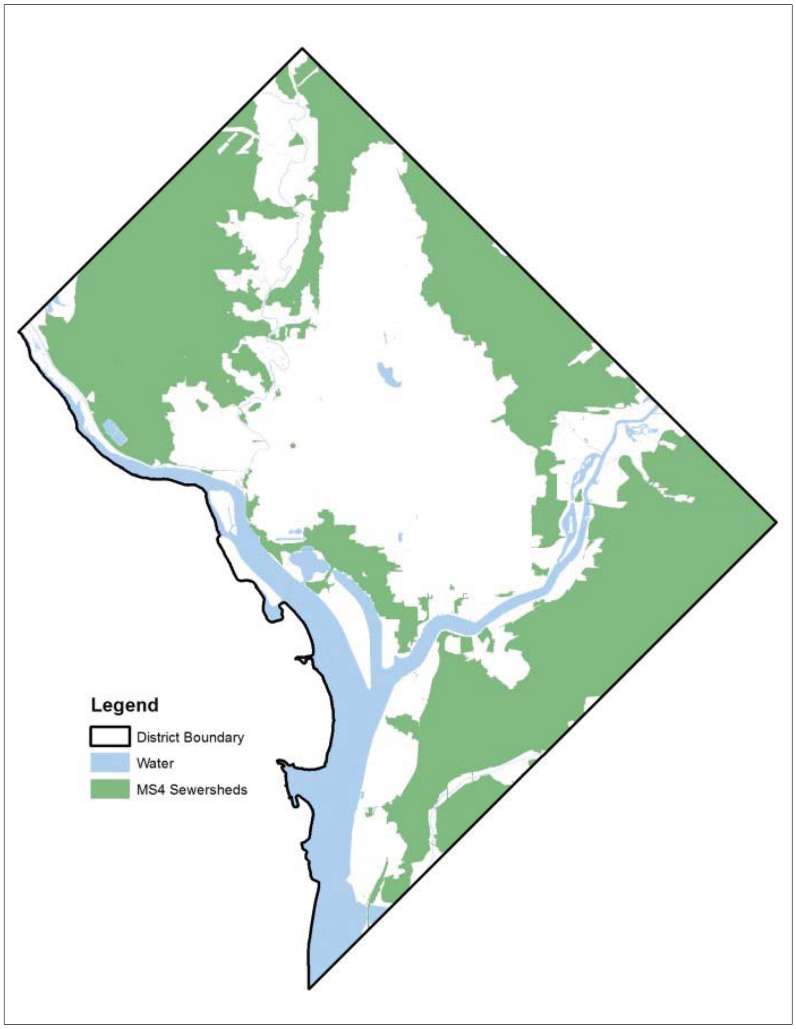


Figure 2.5 Map of MS4 sewershed coverage area.

The District's stormwater management efforts cover an array of activities including research and demonstration projects, drainage improvements, monitoring and control of various types of pollutants from various sources, enforcement, and public education. Six (6) different agencies collaborate to manage stormwater in the District - DOEE, DC Water, the Department of Public Works (DPW), DDOT, the Department of General Services (DGS), and the Office of Planning (DCOP). Table 2.14 outlines some of the related activities performed by each agency.

Table 2.14 Agency Stormwater Functions

Agency	Compliance Activity
DOEE	MS4 program administration Source identification Pollution Prevention Wet/dry weather monitoring program Wet weather screening program Flood control projects review Construction management and plan review Pollutant control from hazardous waste sites Pesticide, herbicide, and fertilizer application Promoting LID practices Illicit discharge detection Sediment erosion control Inspection/enforcement
DC Water	Floatables reduction program Pollution prevention Operation and maintenance of sewer infrastructure Catch basin cleaning Illicit discharge detection
DPW	Street sweeping Seasonal leaf and holiday tree collection program Pollution prevention Household hazardous waste collection Deicing and snow removal Stormwater management at municipal waste transfer stations
DDOT	Pollutant reduction from vehicles and roadways Pollution prevention LID practices in public right-of-way
DGS	LID practices on District-owned properties Pollution prevention
DCOP	Planning for neighborhoods, public facilities, parks and open spaces, etc. Urban design and land use review

The District's Stormwater Permit Compliance Amendment Act of 2000 established the Stormwater Permit Compliance Enterprise Fund to provide revenue for the mitigation of pollutants in stormwater discharges. The cost for stormwater management is dependent on the MS4 permit requirements. The District is required to certify that it has "sufficient finances, staff, equipment, and support capabilities" to implement the provisions of the Permit in its MS4 Annual Report 1. Table 2.15 shows the expenditures in FY2020 and budget for FY2021 for DOEE's MS4 Permit-related costs.

In addition to DOEE Enterprise Fund spending, other District agencies spend local funding on programs and initiatives that also provide stormwater management benefits, such as street sweeping by DPW, and GSI projects on public buildings by DGS or in public right-of way areas by DDOT. The most recent MS4 Annual Report, including the required funding certification, can be found at:
https://doee.dc.gov/sites/default/files/dc/sites/ddoe/publication/attachments/2019%20MS4%20Annual%20Report-FINAL-for%20web.pdf

Table 2.15 FY 2021 Enterprise Fund Expenditures and FY 2022 Enterprise Fund

Fiscal Year 2021 Expenditures	Fiscal Year 2022 Budget
$11,329,376	$16,761,532

2.15 Benefits

Comprehensive stormwater and wastewater management is making the benefits of clean rivers and streams apparent in the District. The District of Columbia Comprehensive Plan provides a foundation for policies that support ecologically sound waterfront development, which contributes to these benefits. Among the key elements of the plan is to "create and enhance relationships between the rivers and District residents, develop urban waterfronts and water related recreation in appropriate locations, and establish attractive pedestrian connections from neighborhoods to activities along the waterfronts." Development and rehabilitation of waterfront properties to include residential, retail, office space, and green space areas have significantly increased. There is a remarkable development going on at the Washington D.C. Wharf (Waterfront project), which is referred to as a place "Where D.C Meets". The first phase of the Wharf is completed, creating a beautiful, epic, and vibrant waterfront view in the District's Southwest region. The Wharf's phase 2 is scheduled to open in 2022 and will add more square feet of mixed space usage, such as residential, office, marina, parks, and public spaces, to the District's Southwest Waterfront. These developments will attract more people from different parts of the world and subsequently enhance the recreational use of District waters. More information about the Wharf can be found at https://www.wharfdc.com/wharf/ and https://phase2.wharfdc.com/about/the-wharfs-phase-2/.

One highlight is the recent development of the Anacostia River waterfront, which promotes recreational use of the waters. A recreational survey was conducted for three District waterways (Rock Creek, Potomac River, and Anacostia River) in the summer of 2019 and 2021 as part of the District's citizen water quality monitoring program. The recreational activities observed in the three District waterways were rowing/sculling, powerboating, kayaking and canoeing, fishing, sailing, paddling, boating, water play by children, contact with wet dogs, contact when hiking, and others. The main recreational activities for Rock Creek and the Anacostia and Potomac Rivers are water play by children, rowing/sculling, and powerboating respectively. The most recent report, including these findings, can be found at https://doee.dc.gov/sites/default/files/dc/sites/ddoe/service_content/attachments/2021VWQM_report_Final%20sm.pdf).

The restoration of the District's waters is a critical component of economic development. The quality of the District's waters continue to improve. Although a quantitative assessment of the benefits resulting from current water pollution control expenditures is difficult, the long-term benefits over time are evident. A fish tumor survey conducted by the United States Fish and Wildlife Service (FWS) ("Temporal and Spatial Patterns in Tumor Prevalence in Brown Bullhead (*Ameiurus nebulosus*) in the Tidal Potomac River Watershed," April 2013) examined fish tissue analysis from the Anacostia River sampled in the years of 1996, 2000–2001, and

2009–2011. The survey shows a marked decrease in the prevalence of tumors in bottom-dwelling fish in the Anacostia River. In addition, annual surveys by the DOEE FWD document the general stability of the resident and migratory fish populations in the District's waters.

The improved water quality and health of fish in District waters supports fishing and other recreational activities, which benefits District residents and visitors.

Chapter 3 Surface Water Assessment

3.1 Background

Section 303(d) of the federal CWA and EPA implementing regulations require states to prepare a list of waterbodies that do not meet WQS even after all the pollution controls required by law are in place. In the District, waterbodies not meeting the appropriate District WQS are considered to be impaired.

The District assesses thirty-six (36) waterbodies and waterbody segments (Table 3.1). As shown in the table, the Potomac and Anacostia Rivers, Rock Creek, and Watts Branch are divided into two (2) or more segments for assessment purposes. Waterbodies are also classified as tidal or non-tidal.

Table 3.1 District of Columbia Waterbodies/Waterbody Segments

Tidal Waters	Non-Tidal Waters		
	Anacostia Tributaries	Potomac Tributaries	Rock Creek and Tributaries
Lower Anacostia Segment 1	Fort Chaplin Run	Battery Kemble Creek	Broad Branch
Upper Anacostia Segment 2	Fort Davis Tributary	Dalecarlia Tributary	Dumbarton Oaks
Kingman Lake	Fort Dupont Tributary	Foundry Branch	Fenwick Branch
Lower Potomac Segment 1	Fort Stanton Tributary	Oxon Run	Klingle Valley
Middle Potomac Segment 2	Hickey Run	C&O Canal	Luzon Branch
Upper Potomac Segment 3	Nash Run		Melvin Hazen Valley Branch
Tidal Basin	Pope Branch		Normanstone Creek
Washington Shipping Channel	Texas Avenue Tributary		Pinehurst Branch
	Watts Branch Lower Segment 1		Piney Branch
	Watts Branch Upper Segment 2		Portal Branch
			Rock Creek Lower Segment 1
			Rock Creek Upper Segment 2
			Soapstone Creek

The District follows EPA requirements and places each waterbody into one or more of five (5) categories based on its support or non-support of designated uses. A list of categories can be found in the “Categorization” discussion in Subsection 3.2, Use Support Determination, below. Placement of waterbodies into assessment categories and development of the Category 5 list of impaired waterbodies (the 303(d) list) are significant features of the Integrated Report. Most importantly, TMDLs must be developed for waterbody segments on the Category 5/303(d) list of impaired waters.

Basis for Consideration of Data

Various data sources are used to assess District waters and develop the 2022 Integrated Report and the 303(d) list of impaired waters. Because the impairment listings and the 303(d) list are tools used in the TMDL process, the District ensures that the assessment process and the approved 303(d) list are based on data that utilized unbiased, scientifically sound data collection and analytical methods. The Water Quality Monitoring Regulations (Title 21, Chapter 19 of District of Columbia Municipal Regulations) were developed to ensure accurate, consistent, and reproducible water quality monitoring data for decision-making purposes. Data that satisfies these monitoring regulations was used in the assessment that led to development of the District 303(d) list in 2022.

In July 2021, a request for data was sent to organizations that may have data on the District's waters. The 2022 list enumerates specific pollutants of concern in various waterbodies or waterbody segments. The 2022 303(d) list was established using the following data sets:

- 2020 Integrated Report and 303(d) list;
- District Ambient Water Quality Monitoring data for 2017–2021;
- District Municipal Separate Storm Sewer System 2017–2020 Monitoring Data;
- Stream Survey data collected between 2017–2021;
- District Phytoplankton, Zooplankton and Benthic Macroinvertebrate Samples Report, 2009; and 2019;
- USGS Nontidal monitoring stations at Hickey Run (USGS station 01651770), Watts Branch (USGS station 01651800), and Rock Creek (USGS station 01648010), 2017–2021;
- The Anacostia Riverkeeper Citizen Science Project;
- Anacostia Remediation project data, 2016-2019;
- DOEE Background Study data 2020-2021;
- District of Columbia Toxic Characterization – Phase Two, 2018-2019;
- USGS National Water Information System (NWIS) data, 2016-2021;
- USGS Remedial Investigation Data, 2017;
- District Fish Consumption Advisory, 2016;
- USFWS Fish Tissue Contamination Report for the District, 2018; and
- TMDL documents for District waterbodies.

3.2 Use Support Determination

The District developed a new assessment and listing methodology for the 2022 IR reporting cycle that is presented in Appendix 3.1 (DOEE, 2023a). This methodology summarizes the District's decision rules and methods for assessing attainment of designated uses, categorizing waterbodies, listing and delisting waterbodies from the 303(d) list, and reporting results through the IR. It incorporates methods for water quality assessment, bioassessment, physical habitat assessment, fish consumption assessment, and assessment for narrative criteria.

As part of its surface water assessment for the 2022 IR, DOEE initiated a reevaluation of impairment attributed to toxics (metals and organic constituents) to resolve long-standing issues surrounding the District of Columbia 303(d) list of impaired and threatened waters. The primary objective of the reevaluation is to review current and past impairment causes attributed to toxics in the District to determine if they are supported by adequate data. A related objective is to use the results of the reevaluation of impairment causes to determine the necessity of TMDLs for toxics in individual waterbodies. The report containing the results of this effort – *Reevaluation of Impairment Causes and TMDLs for Toxics in District of Columbia Waterbodies* – is presented in Appendix 3.2 (DOEE, 2023b). Additional detail is provided under Special Topics in Section 3.6.

The District developed its 2022 Assessment of Use Support and Cause by Pollutant – included in Appendix 3.1 - based on its application of the *Assessment Methodology* and the *Reevaluation of Impairment Causes and TMDLs for Toxics* documents. With this approach, individual waterbodies are found to be supporting or not supporting their designated uses. A finding of insufficient available data and/or information to make a use support determination was recorded in a relatively small set of circumstances.

The District also used assessment results from the *Chesapeake Bay Program TMDL for nitrogen, phosphorus and sediment impairments in Chesapeake Bay* waters for assessment of Class C use support for tidal waters in the District. Other regional TMDL studies and documents, including the *Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia,* and the Anacostia watershed TMDLs for TSS and BOD, were also used to assess for impairments.

Statistical summary reports for assessed waterbodies with percent exceedances of water quality criteria are provided in Appendix 3.3.

Designated Uses

The following are designated uses for the surface waters of the District of Columbia:

Class A -Primary contact recreation (swimmable).

Class B - Secondary contact recreation and aesthetic enjoyment (wadeable).

Class C - Protection and propagation of fish, shellfish, and wildlife (aquatic life).

Class D - Protection of human health related to consumption of fish and shellfish (fish consumption).

Class E - Navigation (ability to travel freely up and down the river using assorted watercraft, and absence of man-made objects that impede free movement).

Assessment Criteria

As described in the *Assessment Methodology* document, the criteria used for assessment include numeric water quality criteria, narrative criteria, and other methods and protocols, including bioassessment, physical habitat assessment, and fish tissue analysis. The assessment criteria are summarized as follows:

Class A: District WQS include narrative criteria and numeric criteria for *E. coli*, pH, and turbidity that apply to Class A waters for the protection of primary contact recreation.

Class B: District WQS include narrative criteria and numeric criteria for pH and turbidity that apply to Class B waters for the protection of secondary contact recreation and aesthetic enjoyment.

Class C: District WQS include narrative criteria and numeric for dissolved oxygen, temperature, pH, turbidity, secchi depth, total dissolved gases, hydrogen sulfide, oil & grease, Chlorophyll-a, inorganic compounds (mostly metals but including ammonia), and organic constituents that apply to Class C waters for the protection of aquatic life. Protocols for macroinvertebrate based bioassessment and physical habitat assessment are normally applied for surface water assessment but are undergoing review and revision and are unavailable for the 2022 IR.

Class D: District WQS include narrative criteria and numeric criteria for inorganic compounds (mostly metals) and organic chemicals that apply to Class D waters for the protection of human health. EPA's recommended fish tissue screening levels are also used to assess metals and organic constituents found in fish tissue.

Class E: District WQS include narrative criteria that apply to Class E waters for the protection of navigation.

Categorization

The District applies the five (5)-category approach for classifying WQS attainment using the guidelines for category placement established by EPA (U.S. EPA, 2005). Following assessment, the District places every waterbody into one or more of the five (5) IR categories shown below based on use support or non-support of individual uses for that waterbody.

Category 1 - All designated uses are supported; no use is threatened.

Category 2 - Available data and/or information indicate that some, but not all, designated uses are supported.

Category 3 - There is insufficient available data and/or information to make a use support determination.

Category 4 - Available data and/or information indicate that at least one (1) designated use is not supported or is threatened. The subcategories in Category 4 indicate how the non-support of, or threat to, the designated use (i.e., the impairment) is being addressed.

> Category 4a - A State developed TMDL has been approved by EPA or a TMDL has been established by EPA for any segment-pollutant combination. This subcategory may include waterbodies with TMDLs that may or may not need to be revised for one reason or another, including court orders, consent decrees, and availability of new information.
>
> Category 4b - Other required control measures are expected to result in the attainment of an applicable WQS in a reasonable period of time.
>
> Category 4c - The non-attainment of any applicable WQS for the segment is the result of pollution and is not caused by a pollutant.

Category 5 - Available data and/or information indicate that at least one designated use is not supported or is threatened, and a TMDL is needed.

Priority and Ranking of TMDL Development Based on 303(d) List

Waterbody/pollutant combinations listed in Category 5 (the 303(d) list) require the development of TMDLs. The process summarized below describes how DOEE prioritizes and ranks the TMDLs that need to be developed based on the 303(d) list.

Revisions to TMDLs required by a consent decree or court order will supersede all other TMDLs scheduled for development.

Waterbodies placed on the draft 303(d) list for toxics substances, such as metals and organic constituents, are ranked as high priority for TMDL development on the basis of their risk to human health. Based on previous experience with the TMDL development process, which includes data gathering, model development, and public participation, the District anticipates the development of TMDLs for waterbodies ranked as high priority in the next six (6) years.

Waterbodies placed on the draft 303(d) list for trash are ranked as high priority for TMDL development.

Waterbodies placed on the draft 303(d) list for bacteria (*E. coli)* associated with primary contact recreation use are ranked as a medium priority for TMDL development. Bacterial impairment poses human health risk, though the observed effects are usually not as severe as toxic substances' effects. TMDL development for the primary contact recreation use is given preference over TMDL development for secondary contact recreation (also a medium priority).

Waterbodies placed on the draft 303(d) list for pH are also ranked as medium priority as it is an aquatic life use criterion.

The medium priority waterbodies will be scheduled for TMDL preparation within nine (9) years.

Waterbodies placed on the draft 303(d) list not previously mentioned are ranked low priority. Low priority waterbodies will be scheduled for TMDL preparation within twelve (12) years.

Georeferencing

The geographic location codes included in the 2022 303(d) list were taken from the National Hydrography Dataset. The District has two codes: 02070010 for the Potomac River watershed and 02070008 for the Middle Potomac-Catoctin watershed. Only one District waterbody, Dalecarlia Tributary, is in the Middle Potomac-Catoctin watershed. All the remaining waterbodies are in the Potomac River watershed. The EPA ATTAINS database is used to compile the data for the Integrated Report.

Public Participation

The 2022 District of Columbia Surface Water Assessment and Listing Methodology was available for a thirty-day (30-day) public comment period, which commenced on December 23, 2021, and ended on January 21, 2022. The notice of availability of the report was published in the DC Register, provided on the DOEE website, and also emailed to stakeholders. Reponses to comments received were prepared and sent to EPA Region 3.

Categorization of District of Columbia Waters

See Appendix 3.4 Draft District of Columbia 303(d) List.

3.3 Waterbody Segments Water Quality Assessment

Designated Use Support

Designated use support for the 2022 IR was determined through application of the Assessment Methodology and the results produced through the *Reevaluation of Toxics* document. A District-wide summary of fully supporting and impaired waterbody segments is presented in Table 3.2. As shown, all 36 District waterbodies were assessed, and all thirty-six (36) waterbodies were found to be impaired for one (1) or more of their designated uses.

Table 3.2 Summary of Fully Supporting and Impaired Waterbody Segments

Degree of Use Support	Number of Waterbody Segments	Number of Waterbody Segments Assessed
Number fully supporting all assessed uses	0	36
Number impaired for one or more uses	36	0

A District-wide summary of use support by for waterbodies is presented in Table 3.3.

Table 3.3 Individual Use Support Summary for Waterbody Segments

Use	Total Number	Number Assessed	Number Fully Supporting	Number Not Supporting	Number Not Assessed	Number with Insufficient Info
Class A: Primary Contact Recreation	36	36	1	35	0	0
Class B: Secondary Contact Recreation and Aesthetic Enjoyment	36	36	15	21	0	0
Class C: Protection and Propagation of Fish, Shellfish and Wildlife	36	36	0	26	0	10
Class D: Protection of Human Health related to	36	36	2	32	0	2

Consumption of Fish and Shellfish						
Class E: Navigation	22	22	22	0	0	0

Use support by use class as presented in Table 3.3 is summarized as follows:

Class A:

- One (1) waterbody supported the primary contact use.
- Thirty-five (35) waterbodies did not support the primary contact use due to pH, turbidity, and/or *E. coli* exceedances.

Class B:

- Fifteen (15) waterbodies supported the secondary contact recreation use.
- Twenty-one (21) waterbodies did not support the secondary contact use because of violations of pH and/or turbidity/water clarity.

Class C:

- Zero (0) waterbodies supported the aquatic life designated use.
- Twenty-six (26) waterbodies did not support the aquatic life designated use because of violations of Class C criteria, such as water clarity, dissolved oxygen, toxics, or other criteria.
- Ten (10) waterbodies had insufficient information available to determine if they supported the aquatic life use. This was due to a combination of the lack of the benthic macro-invertebrate and physical habitat metrics being available for use in 2022, as well as uncertainties in several of the toxic reevaluation results.

Class D:

- Two (2) waterbodies supported the human health use.
- Two (2) had insufficient information available to determine if they supported the human health use. This was due to uncertainties in several of the toxic reevaluation results.
- Thirty-two (32) waterbodies did not support the human health use based on violations of metals, pesticides, PCBs, or other criteria.

Class E:

- All twenty-two (22) of the waterbodies with a Class E navigation designated use supported that use.

A District-wide summary of use support by individual waterbody is presented in Table 3.4. This table shows 1) use support for individual waterbody segments (Yes or No), and 2) instances where there is insufficient available data and/or information to make a use support determination.

Table 3.4 Use Classes Supported in 2022 IR

Waterbody	Use Class				
	A	B	C	D	E

Anacostia DC (Lower) Segment 01	No	No	No	No	Yes
Anacostia DC (Upper) Segment 02	No	No	No	No	Yes
Potomac DC (Lower) Segment 01	No	Yes	No	No	Yes
Potomac DC (Middle) Segment 02	No	No	No	No	Yes
Potomac DC (Upper) Segment 03	No	No	No	No	Yes
Rock Creek (Lower) Segment 01	No	No	No	No	Yes
Rock Creek (Upper) Segment 02	No	No	No	Insufficient available data and/or information to make a use support determination	Yes
Battery Kemble Creek	No	Yes	Insufficient available data and/or information to make a use support determination	Yes	NDU
Broad Branch	No	Yes	No	No	Yes
Chesapeake & Ohio Canal	Yes	Yes	Insufficient available data and/or information to make a use support determination	Insufficient available data and/or information to make a use support determination	Yes
Dalecarlia Tributary	No	Yes	Insufficient available data and/or information to make a use support determination	No	NDU
Dumbarton Oaks	No	Yes	No	No	Yes
Fenwick Branch	No	Yes	Insufficient available data and/or information to make a use	No	Yes

			support determination		
Fort Chaplin Run	No	No	No	No	NDU
Fort Davis	No	No	No	No	NDU
Fort Dupont	No	No	No	No	NDU
Fort Stanton	No	No	No	No	NDU
Foundry Branch	No	No	No	Yes	NDU
Hickey Run	No	No	No	No	NDU
Kingman Lake	No	No	No	No	Yes
Klingle Valley	No	Yes	Insufficient available data and/or information to make a use support determination	No	Yes
Luzon Branch	No	No	No	No	Yes
Melvin Hazen Valley Branch	No	No	No	No	Yes
Nash Run	No	No	No	No	NDU
Normanstone Creek	No	Yes	Insufficient available data and/or information to make a use support determination	No	Yes
Oxon Run	No	No	No	No	NDU
Pinehurst Branch	No	Yes	Insufficient available data and/or information to make a use support determination	No	Yes
Piney Branch	No	Yes	Insufficient available data and/or information to make a use support determination	No	Yes
Pope Branch	No	Yes	No	No	NDU
Portal Branch	No	Yes	Insufficient available data and/or information to make a use support determination	No	Yes
Soapstone Creek	No	Yes	Insufficient available data and/or	No	Yes

			information to make a use support determination		
Texas Avenue Tributary	No	No	No	No	NDU
Tidal Basin	No	No	No	No	Yes
Washington Ship Channel	No	Yes	No	No	Yes
Watts Branch DC (Lower) Seg 01	No	No	No	No	NDU
Watts Branch DC (Upper) Seg 02	No	No	No	No	NDU
NDU – "Not a designated use"					

The Category 5 303(d) List of Impaired Waterbodies

The Category 5 303(d) List of Impaired Waterbodies is central to IR reporting. This list changes from one IR reporting cycle to the next as new impairments are found and TMDLs are completed. In addition, new data may show that previous impairments are no longer impaired. The summary of Category 5 impairments presented in Table 3.5 is intended to show this change across the 2020 IR and 2022 IR cycles. It does this for each waterbody by presenting:

- The pollutants/metrics identified as causing impairment and requiring TMDLs in the 2020 IR (the 2020 Category 5 303(d) list);
- The pollutants/metrics identified in the assessment for the 2022 IR as causing impairment and requiring TMDLs (the 2022 Category 5 303(d) list); and
- Pollutants/metrics identified in the assessment for the 2022 IR as no longer being impaired (the pollutants/metrics identified for Category 5 delisting).

The assessment identified a total of fifty-four (54) impairments for which a designated use is not supported and a TMDL is needed. These fifty-four (54) impairments constitute the 2022 Category 5 303(d) list. From an accounting standpoint:

- Thirty-eight (38) newly identified impairments were added to the 2022 Category 5 303(d) list.
- Sixteen (16) of the twenty-four (24) Category 5 pollutants identified in the 2020 IR remain on the 2022 Category 5 303(d) list.
- Eight (8) of the Twenty-four (24) Category 5 pollutants identified in the 2020 IR are delisted.

A summary of assessment categorization results – including the District of Columbia Category 5 303(d) list of impaired waterbodies - is provided in Appendix 3.4. This comprehensive list summarizes designated use support (fully supporting, not supporting) and categorization. It includes separate tables for Category 3, Category 4a, Category 4b, Category 4c, and Category 5.

Table 3.5 Summary of Category 5 Impairments			
Waterbody Segment	**The 2020 Category 5 303(d) list***	**The 2022 Category 5 303(d) list***	**The pollutants/ metrics identified for Category 5 delisting in the 2022 IR***
Lower Anacostia	None	Dieldrin (fish tissue)	None
Upper Anacostia	None	Dieldrin (fish tissue)	None
Lower Potomac	None	Arsenic, dieldrin (fish tissue)	None
Middle Potomac	None	Arsenic, dieldrin, dieldrin (fish tissue)	None
Upper Potomac	None	Arsenic, dieldrin (fish tissue)	None
Kingman Lake	None	DDD, dieldrin, dieldrin (fish tissue)	None
Tidal Basin	None	pH, dieldrin (fish tissue)	None
Washington ship channel	None	Arsenic, dieldrin (fish tissue), benzo_a_anthracene, benzo_b_fluoranthene, benzo_k_fluoranthene, dibenzo_a_h_anthracene, indeno_1_2_3_cd_pyrene	None
Lower Rock Creek	TSS	Turbidity/TSS, arsenic, DDE, dieldrin, heptachlor epoxide, Total PCBs	None
Upper Rock Creek	TSS	Turbidity/TSS	None
Broad Branch	E. coli	E. coli, arsenic, DDT	None
Dumbarton Oaks	E. coli	E. coli, arsenic, DDT	None
Fenwick Branch	E. coli	E. coli	None
Fort Chaplin	DO/BOD	None	DO/BOD

Fort Davis	DO/BOD	None	DO/BOD
Foundry Branch	None	Turbidity/TSS	None
Hickey Run	Total residual chlorine, DO/BOD	Total residual chlorine	DO/BOD
Klingle Valley	E. coli	E. coli	None
Luzon Branch	E. coli	E. coli, turbidity/TSS	None
Melvin Hazen Valley Branch	E. coli, TSS	E. coli, turbidity/TSS, arsenic, DDT, heptachlor epoxide	None
Normanstone Creek	E. coli, pH	E. coli	pH
Oxon Run	TSS	Turbidity/TSS	None
Pinehurst Branch	E. coli, pH	E. coli	pH
Piney Branch	E. coli	E. coli	None
Pope Branch	None	Dieldrin	None
Portal Branch	E. coli, pH[1]	E. coli	pH[1]
Soapstone Creek	E. coli, pH	E. coli	pH
Lower Watts Branch	None	Arsenic	None
Upper Watts Branch	pH	Arsenic	pH

*Note that this column shows both the indicator of impairment, as well as the pollutant for which the TMDL will be done to address the impairment, if they are not the same. For example, the table shows turbidity/TSS because turbidity is the indicator determining impairment, but TSS is the pollutant for which the TMDL is done to address the impairment. Similarly, the table shows DO/BOD, because DO is the indicator for impairment, but BOD is the pollutant for which the TMDL is done to address the DO impairment.

[1]pH for Portal Branch was inadvertently left out of the 2020 303(d) list. However, data for the 2022 IR indicates the pH is no longer impaired. Therefore, pH is being removed from the 303(d) list in the 2022 IR.

Delisting/Removal from Category 5/the 303(d) List

As shown in the previous section, eight (8) waterbody/pollutant combinations are recommended for delisting from the 303(d) list. These recommendations are based on good cause justification outlined in 40 CFR §130.7 (b)(6)(iv)) to support the regulatory requirements of the delisting recommendation. The specific good cause justification for these actions is that more recent data collected during the current five-year (5-year) assessment period (2017-2021) did not show evidence of impairment.

Removal of TMDLs from Category 4a

The water quality assessment and the reevaluation of toxic pollutants found no evidence of impairment for sixty-nine (69) waterbody/pollutant combinations categorized under 4a in the 2020 IR. The list of these sixty-nine (69) waterbody/pollutant combinations is presented in Table 3.6. All of these waterbody/pollutant combinations have TMDLs that are removed from Category 4a. The "good cause justification" for removal of TMDLs from Category 4a is that "more recent and accurate data" is available and/or there were "flaws in the original analysis that led to the waterbody being listed."

Removal of TMDLs from Category 4a is within the purview of the District. Withdrawal of TMDLs lies solely in the purview of EPA. The District recommends withdrawal of these TMDLs by EPA. Note that TMDL documents previously developed for the District "roll up" polyaromatic hydrocarbon (PAH) compounds as PAH1, PAH2, and PAH3, but the toxics reevaluation and Table 3.6 present PAH data as individual PAH chemical compounds.

Table 3.6 TMDLs Removed from Category 4a

Waterbody	Pollutant
Lower Anacostia	Copper, zinc, acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, pyrene, turbidity/TSS
Upper Anacostia	Zinc, acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, pyrene
Lower Potomac	Turbidity/TSS, DO*
Middle Potomac	DO*
Upper Potomac	DO*
Fort Davis	BOD
Fort Stanton	Acenaphthene, anthracene, fluorene, naphthalene, chrysene, fluoranthene, pyrene
Hickey Run	Acenaphthene, anthracene, fluorene, naphthalene, chrysene, fluoranthene, pyrene
Kingman Lake	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, pyrene
Nash Run	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, pyrene
Pope Branch	Acenaphthene, anthracene, fluorene, naphthalene, chrysene, fluoranthene, pyrene, turbidity/TSS
Texas Avenue Tributary	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, pyrene
Lower Rock Creek	Copper, lead, mercury, zinc
Upper Rock Creek	Total PCBs
Tidal Basin	Turbidity/TSS
Washington Ship Channel	Turbidity/TSS
C&O Canal	E. coli

*This waterbody was categorized in Category 4a for DO in 2020, but is not impaired for DO in 2022. Therefore, a TMDL for DO is unnecessary and this pollutant was removed from Category 4a.

3.4 Relative Assessment of Causes/Stressors

Table 3.7 summarizes the stressors/causes of impairment identified in the 2022 IR.

Table 3.7 Total Number of Waterbody Segments Impaired by Various Causes

Impairment Causes	Number of Waterbodies Impacted
Arsenic	19
Benthic Macroinvertebrates Bioassessments	0
Benzo[a]Anthracene	9
Benzo[a]Pyrene	4
Benzo[b]Fluoranthene	8
Benzo[k]Fluoranthene	6
Biochemical Oxygen Demand (BOD)	3
Chlordane	5
Chlorine, Residual (Chlorine Demand)	1
Chlorophyll-a	5
Chrysene	1
DDD (Dichlorodiphenyldichloroethane)	4
DDE (Dichlorodiphenyldichloroethylene)	5
DDT (Dichlorodiphenyltrichloroethane)	8
Dibenz[a,h]Anthracene	6
Dieldrin	23
Dieldrin In Fish Tissue	8
Dissolved Oxygen	2
Escherichia coli (E. Coli)	35
Habitat Assessment	0
Heptachlor Epoxide	18
Indeno[1,2,3-cd]Pyrene	6

Table 3.7 Total Number of Waterbody Segments Impaired by Various Causes	
Impairment Causes	**Number of Waterbodies Impacted**
Nitrogen, Total	8
Oil And Grease	2
PCBs In Fish Tissue	8
pH	1
Phosphorus, Total	8
Polychlorinated Biphenyls (PCBs)	28
Total Suspended Solids (TSS)	8
Trash	2
Turbidity	19
[1]There is currently no approved method for physical habitat assessment or benthic macroinvertebrate assessment in the 2022 IR. Therefore, these metrics were not used for the 2022 IR. However, they are included in this table for completeness purposes.	

3.5 Relative Assessment of Sources

Table 3.8 summarizes sources of impairment identified in the 2022 IR.

Table 3.8 Total Number of Waterbody Segments Impaired by Various Sources	
Impairment Source	**Number of Waterbodies Impacted**
Unspecified urban stormwater	33
Discharges from municipal separate storm sewer systems (ms4)	27
Residential districts	15
Source unknown	10
Impacts from hydrostructure flow regulation/modification	10
Upstream source	8
Illegal dumps or other inappropriate waste disposal	8
Combined sewer overflows	8
Municipal (urbanized high-density area)	5

Table 3.8 Total Number of Waterbody Segments Impaired by Various Sources	
Impairment Source	**Number of Waterbodies Impacted**
Wet weather discharges (point source and combination of stormwater, SSO or CSO)	5
Channelization	4
Wet weather discharges (non-point source)	4
Municipal point source discharges	3
Contaminated sediments	3
Atmospheric deposition - toxics	3
Waterfowl	2
Highway/road/bridge runoff (non-construction related)	1

3.6 Special Topics

Toxics Reevaluation

As discussed above, the District undertook a reevaluation of impairment caused by toxic pollutants (metals and organic compounds) and the associated TMDLs developed to control these pollutants in order to resolve long-standing issues surrounding water quality assessment, causes of impairment, categorization, and reporting for toxics in the District. The primary objective of the reevaluation was to review current and past impairment causes attributed to toxics in the District to determine if they were supported by adequate data. A related objective was to use the results of the reevaluation of impairment causes to determine the necessity of TMDLs for toxics in individual waterbodies. Overall, the reevaluation confirmed impairment of some waterbody segments by toxic pollutants, while it determined that some toxics pollutants were not causing impairment as had been previously recorded. In some other cases, there was insufficient evidence to determine whether the toxics were causing impairment or not. Finally, the reevaluation identified some toxic impairments that had not been previously identified. The results of the toxics reevaluation were used to inform categorization/recategorization of toxics, as well as to update the Category 5 303(d) list.

The toxics reevaluation was also used to identify TMDLs that were no longer needed. The reevaluation provided good cause justification to support the recommendation of withdrawal of specific TMDLs.

Reconciliation of Toxics Reevaluation with Ongoing TMDL Replacement

Several of the outcomes of the categorization decisions resulting from the toxics reevaluation were modified because of ongoing work to replace some of the toxics TMDLs. Outcomes of the modifications to the toxics reevaluation categorization outcomes are summarized in the bullets below:

- Fort Dupont PCBs – Total PCBs in Fort Dupont were categorized into Category 4a instead of Category 5 because they are included as part of the regional PCB TMDL (*Total Maximum Daily Loads of Polychlorinated Biphenyls (PCBs) for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland, and Virginia*, ICPRB, 2007).
- Kingman Lake dieldrin – Dieldrin in Kingman Lake was categorized into Category 5 even though there is a current TMDL for dieldrin in Kingman Lake. The existing TMDL is not protective of the Class D human health criterion. Consequently, dieldrin is placed in Category 5. It will be moved to Category 4a when a replacement TMDL is developed.

Chesapeake Bay TMDL

Pursuant to Section 303(d) of the Clean Water Act (CWA), EPA established the Chesapeake Bay TMDL for nutrients and sediment for all impaired segments in the tidal portion of the Chesapeake Bay watershed on December 29, 2010. As a signatory to the EPA Chesapeake Bay Agreement, the District has been actively working with EPA and the other partner jurisdictions (Maryland, Virginia, Pennsylvania, West Virginia, New York, and Delaware) to develop and implement the Chesapeake Bay TMDL.

During this reporting cycle, DOEE WQD regularly participated in monthly meetings of the Bay Water Quality Goal Implementation Team (WQGIT) and technical workgroup (e.g., Land Use, Modeling, Wastewater, Water Quality Trading, etc.). The WQD also co-chaired the WQGIT and helped lead the multi-jurisdiction agreement on decisions related to land use, Bay modeling, and climate change impacts to planning targets. In addition, WQD and other DOEE Divisions who participate in Bay meetings ensure that issues specific to the District are identified and addressed.

Bacteria TMDLs Revision

Between 2003 and 2004, DOEE developed, and EPA approved, bacteria TMDLs for District waters based on fecal coliform. These TMDLs needed to be revised to express the load allocations in “daily” terms due to a court order in Friends of the Earth v. EPA, 446 F.3d 140 (D.C. Cir. 2006). In addition, fecal coliform needed to be translated to E.coli after the District adopted E.coli for purposes of the bacteria water quality criteria in 2008.

In 2014, EPA approved bacteria TMDLs for the Potomac River, the Anacostia River, Kingman Lake, Oxon Run, Rock Creek, C&O Canal, the Tidal Basin, and Washington Ship Channel.

In 2015, DC Water filed a lawsuit in the United States District Court for the District of Columbia against EPA challenging the TMDLs. In the lawsuit, which has since been withdrawn, DC Water sought to correct what it perceived as technical mistakes, arguing the TMDLs set the waste load allocations for Blue Plains too low. In response, EPA issued a revised TMDL and TMDL approval in 2017.

In 2016, the Anacostia RiverKeeper, Kingman Park Civic Association, and Potomac RiverKeeper Network (plaintiffs) jointly filed a lawsuit in the United States District Court for the

District of Columbia against EPA, challenging its approval of the TMDLs. In the lawsuit, the plaintiffs argued that the TMDLs failed to appropriately set a maximum daily load as required by the *Friends of the Earth* decision, and also failed to achieve the narrative criteria designed to protect human health. Anacostia Riverkeeper, Inc. et al v. McCarthy et al, Case No. 1:16-cv-01651-CRC (D.D.C.).

In 2019, the Court issued a Memorandum Opinion holding that EPA violated the CWA "when it approved 'total maximum daily load' that did not establish daily maximum discharge limits". The Court also held that EPA's reasoning that the numeric criteria established for E.coli also met the District's narrative WQS criteria was flawed. As a result, the Court vacated EPA's approval of the District's bacteria TMDLs but stayed vacatur for one year to allow the District and EPA to develop new TMDLs. Vacatur has since been stayed until May 9, 2022, by the Court.

Since the Court decision in 2019, the District has worked, with EPA's assistance, to revise the bacteria TMDLs. Efforts for this Integrated Reporting cycle include: developing options to revise the TMDLs; engaging stakeholders and plaintiffs on those options; estimating a timeline to revise TMDLs; exploring TMDL datasets (e.g., past modeling files and analyses) to investigate past evidence to address the Court's decision; and collating data for future TMDL modeling. In addition, EPA has allocated funding and developed a work plan to help identify data gaps that need filling to revise the TMDLs.

Anacostia River Trash TMDL Revision

On March 30, 2018, in Natural Resources Defense Council, Inc. v. EPA, 301 F. Supp. 3d 133 (D.D.C. 2018), the Court vacated the EPA's approval of the TMDL for trash in the Anacostia River, but stayed vacatur until such time as EPA approves a replacement TMDL. The Court further directed EPA to submit regular status reports informing the Court of the actions that the agency has taken to comply with the Order. Since July 2019, EPA has provided the Court with regular status updates on EPA, DOEE, and Maryland Department of Environment (MDE) activities to revise the trash TMDLs.

Activities during this reporting cycle include working with Morgan State University to review Anacostia trash literature and other trash TMDLs, review scientific literature on public use surveys, and develop a public survey to identify quantitative and qualitative trash thresholds for the recreational use of the Anacostia River. These thresholds will be important for developing a TMDL endpoint. As part of the contracted work described above, EPA, MDE, and DOEE meet regularly with the University to provide technical expertise and help move the study forward.

Anacostia River Metals and Toxics TMDLs Revision

In 1988, the District listed waterbodies impaired by toxics on its 303(d) list, and subsequently developed TMDLs. In 2006, Friends of the Earth successfully challenged the District's TMDLs because they did not express daily loads (Friends of the Earth vs. EPA 446 F.3d 140,144 (D.C. Cir. 2006)). Then in 2009, Anacostia Riverkeeper, Friends of the Earth, and Potomac Riverkeepers filed a complaint that other District TMDLs were also not expressed as daily loads. The Court ordered that the TMDLs be vacated but stayed vacatur until January 2017. Due to additional data needs identified by DOEE and EPA, the Court extended the current vacatur through March 2022.

For this Integrated Report cycle, DOEE activities related to revising the Anacostia River Toxics and Metals TMDLs include:

- With EPA's assistance, a contractor has drafted a TMDL modeling report that supported the draft metals and toxics TMDLs. DOEE's WQD provided expertise and guidance on the modeling report.
- Drafted text for the TMDLs.
- Publicly-noticed the proposed revised TMDLs in the DC Register in July 2021 for a public comment period.
- Prepared a comment and response document to address public comments. The document is still being worked on.
- Engaged stakeholders and plaintiffs on revisions. For example, the draft TMDLs were presented at a virtual public meeting convened by DOEE, MDE, and EPA.

Bacteria Source Tracking Studies

All District waters are impaired by bacteria. DOEE is using new tools and techniques to identify bacteria sources that will facilitate source control and mitigating practices to reduce bacteria impairment of District waters.

Anacostia River

WQD partnered with EPA's Office of Research and Development (ORD) and EPA Region 3 to both source and track microbial pollution in headwater streams of the Anacostia River. Seven (7) headwater streams were monitored for water quality and hydrology for twelve (12) months. In addition, water samples were collected from headwater streams and MS4 pipe outfalls for quantitative polymerase chain reaction (PCR) analysis. This analysis will identify both human and non-human sources (e.g., bird, dog, deer, etc.) of bacteria. Once the PCR analysis is complete, DOEE will use the results to target and reduce microbial pollution in the Anacostia River.

Rock Creek Tributary

DOEE received EPA Multipurpose Grant funding to identify sources for microbial pollution in Rock Creek. Since February 2021, DOEE WQD has partnered with the Metropolitan Washington Council of Governments (MWCOG) and Virginia Tech to collect samples for water quality analyses at three locations in Rock Creek. In addition to *E.coli* and other routine water quality analyses, the Occoquan Watershed Monitoring Laboratory - Virginia Tech will undertake PCR analysis to identify human and non-human sources (e.g., deer, dog, and bird) to better understand fecal pollution. Results will help DOEE implement targeted source control and mitigation efforts to address microbial pollution in Rock Creek.

Monitoring and Predictive Modeling of Bacteria in the Lower Anacostia River

DOEE is collaborating with the United States Geological Survey (USGS) to undertake additional monitoring of bacteria and to create a model to predict bacteria in the Lower Anacostia River. USGS received funding in 2020 through the Urban Waters Federal Partnership and DOEE is also funding the study.

This multiyear collaborative study is in its second year. Activities to date include: evaluating and statistically summarizing bacteria, water quality, water flow, and other parameters during a twenty-year (20-year) period; exploring statistical relationships between bacteria and other parameters; installing a new USGS gage station (that measures flow and will measure real-time bacteria concentrations) at Bladensburg Waterfront; and testing new tools, which use fluorometry to quantify bacteria in real-time.

In future years, the intent is to create a predictive model to determine the likelihood that bacteria concentrations will be above or below Recreational Water Quality Criteria for bacteria in the Lower Anacostia River. This model will be used as one (1) line of evidence to help local decision-making related to swimming in the Anacostia River.

Volunteer Water Quality Monitoring in District Waters.

The Volunteer Water Quality Monitoring project is a citizen science project that began in 2018. DOEE awarded a grant to Anacostia Riverkeeper to develop and implement the District's volunteer-based program that monitored water quality for *E. coli,* pH, turbidity, and water temperature at twenty-two (22) locations in District rivers and tributaries where high recreation activities occurred. Monitoring took place weekly from May to September every year from 2019 through 2021. The water quality parameters sampled were chosen with recreation as the primary concern. Additionally, a Recreational Use Survey (RUS) was completed to develop a clearer picture of on-water recreation in District waters. Volunteers observed types of recreation activities witnessed, and the number of participants engaged in each activity.

Anacostia Riverkeeper (ARK) partnered with Audubon Naturalist Society, Rock Creek Conservancy, Alliance for the Chesapeake Bay, and Potomac Riverkeeper Network to execute the project. Volunteers engaged from all eight (8) District Wards were trained, and together with ARK and partners, completed the first three (3) years of the project. The project will continue to collect water quality data in areas with high recreation activities. All data generated were published (via Swim Guide, water reporter, and Chesapeake Monitoring Cooperative database) and accessible to the public. During the three-year (3-year) monitoring period, the following trends were observed throughout the District's surface waters:

<u>Watershed Trends from 2019-2021</u>

While bacteria levels ranged across the three (3) watersheds and often violated both the standard for single-samples and geometric mean, other measures of water quality including pH (6.5-8), water temperature (less than 32.3°F), and turbidity (less than 20 Nephelometric Turbidity Unit (NTU) above ambient) were generally within the acceptable range.

<u>Anacostia River Trends</u>

The Anacostia River sites are located on the main stem from the National Arboretum to the Washington Channel, with one (1) tributary site located on Hickey Run. Bacteria levels were generally lower downstream than upstream except at Yards Marina, which recorded seventy-five to one hundred percent (75%-100%) of the samples in violation of the *E. coli* geometric mean threshold (126 Most Probable Number (MPN)/100 milliliters). The geometric mean trends showed a lesser percentage of violations at the downstream sites than at upstream sites (Table 3.9). At the Washington Channel site, all geometric means recorded were always below the *E.*

coli geometric mean threshold (no violations found). The Anacostia Park site had ninety percent (90%) of samples in violation of the geometric mean threshold. The National Arboretum and Hickey Run sites both exceeded the threshold one hundred percent (100%) of the time. In the Anacostia River, turbidity tended to decrease downstream. The average turbidity for all Anacostia sites, except the National Arboretum site, were well below the standard. The National Arboretum site had a higher turbidity average due to a few rain events with very high turbidity spikes. Violations for low pH occasionally (less that ten percent (10%) of the time) occurred for sites along the Anacostia River. Again, the National Arboretum site was the exception in 2021, having low pH values forty-five percent (45%) of the time. This was a very different trend from 2019 and 2020 when pH only violated the standard five percent (5%) and zero percent (0%) of the time respectively. The National Arboretum and Hickey Run sites had the worst overall water quality of all sites on the Anacostia River.

Table 3.9 Percent violations for *E. coli* (geometric mean), pH and Turbidity.

Monitoring Site	% Violation geometric mean			% violation pH (<6 and >8.5)			% violation turbidity		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
RC-1 **Rock Creek at Juniper Street NW**	100	100	100	45	0	0	10	5	10
RC-2 (Pinehurst Branch)	100	100	100	0	0	11	0	0	0
RC-3 (Broad Branch)	94	100	88	10	0	0	15	15	20
RC-4 **Soapstone Creek**	100	100	100	15	5	10	0	5	0
RC-5 (Melvin Hazen Run)	100	75	100	10	0	0	0	0	15
RC-6 **Rock Creek below Piney Branch**	100	94	100	25	0	0	10	15	5
RC-7 (Normanstone Run)	100	100	100	5	0	10	0	0	0

Monitoring Site	% Violation geometric mean			% violation pH (<6 and >8.5)			% violation turbidity		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
RC-8 **P Street Beach**	100	100	94	5	0	5	15	15	5
PR-1 (Battery Kemble Park)	100	100	81	15	0	5	0	0	0
PR-2 (Fletcher's Cove)	25	62	63	0	0	0	15	0	15
PR-3 (Foundry Branch)	100	78	88	15	0	5	0	10	5
PR-4 (Washington Canoe Club)	56	91	88	0	0	0	10	0	5
PR-5 **Thompson Boat Center**	25	12	44	0	0	5	10	0	0
PR-6 (Tidal Basin)	0	0	0	5	5	0	0	0	0
PR-7 (Columbia Island)	50	44	56	0	5	0	15	5	0
AR-1 (National Arboretum)	100	100	100	5	0	45	25	25	30
AR-2 (Hickey Run)	100	100	100	5	0	5	0	5	7
AR-3 **Kingman Lake**	31	56	69	0	0	5	20	15	25
AR-4 (Anacostia Park)	94	75	100	5	0	5	20	10	20

Monitoring Site	% Violation geometric mean			% violation pH (<6 and >8.5)			% violation turbidity		
	2019	2020	2021	2019	2020	2021	2019	2020	2021
AR-5 (Yards Marina)	100	75	94	5	5	5	5	5	10
AR-6 Buzzard Point	38	37	69	0	10	0	5	0	0
AR-7 (Washington Channel)	0	0	0	5	0	0	0	0	0

Potomac River Trends

The Potomac River sites include five (5) on the mainstem from Fletcher's Cove to Columbia Island. The two (2) Potomac tributaries sampled were Battery Kemble Park and Foundry Branch. Several of the mainstem sites reported consistently low bacteria levels throughout the three (3) years of monitoring. The Tidal Basin site met water quality standards for recreation ninety-seven percent (97%) of the time and no *E. coli* violations of the geometric mean standard were recorded. Bacteria levels at the Washington Canoe Club site increased over time, with eighty-eight percent (88%) of samples failing to meet *E. coli* standards in 2021. The Battery Kemble Park and Foundry Branch sites frequently exhibited very high bacteria loads and recorded the highest percentages of violations, including in dry weather. The Potomac River sites showed generally good water quality for pH, turbidity, and temperature. Turbidity levels were very low at all locations. The Battery Kemble site had the lowest turbidity level; no violations were recorded at this site or at the Tidal Basin site. The turbidity at the Fletcher's Cove site was the highest on average for the Potomac River sites, the result of river flow patterns and sedimentation issues in that section of the Potomac River.

Rock Creek Trends

Rock Creek exhibited very high levels of bacteria, oftentimes more than the Anacostia and Potomac Rivers. Based on the geometric mean standard, the percentage of violations recorded in Rock Creek was equal to or greater than seventy-five percent (75%) for all sites, reflecting the significant bacteria impairment of Rock Creek and its tributaries. Every site except for Broad Branch exceeded the *E. coli* threshold with one hundred percent (100%) violations recorded for at least two (2) years during the project period. Normanstone Run exhibited the highest bacteria levels in Rock Creek across all three (3) years but dropped steadily from 2019-2021. The consistently unsafe levels of bacteria across nearly every Rock Creek site show that the creek remains significantly impaired throughout the section of it that runs through the District. The average pH, turbidity, and water temperature at every Rock Creek site fell within the acceptable ranges for each category. Normanstone Run had the lowest average pH value at 6.4, and Melvin Hazen Run had the highest pH average at 7.3. Average turbidity at Pinehurst Branch and Normanstone Run were low and did not exceed the turbidity threshold (<20 NTU).

Recreational Use Trends

All three District waterways experienced weekday recreational use throughout each summer. Potomac River had the highest number of participants recreating on the water and Rock Creek had the lowest (figure 3.1). Rock Creek and the Potomac River saw fluctuations in the amount of recreation occurring from year to year with fluctuations likely the result of the COVID-19 pandemic. The Anacostia River did not experience the same fluctuations as Rock Creek and the Potomac River as nearly the same number of recreational use participants were recorded each year. Recreation activities on the Anacostia River were recorded mostly from Anacostia Park moving downriver towards the Washington Channel, which had better water quality. In the Potomac, recreation mostly occurred at the mainstem sites (Fletchers Cove and Thompson Boat Center) and included secondary contact activities, such as canoeing, kayaking, fishing, rowing, and power boating. Recreation increased slightly on mainstem sites on the Potomac River during the height of the pandemic in summer 2020. Activities recorded at the Potomac tributary sites (Battery Kemble Park and Foundry Branch) were mostly activities like contact with water while hiking/crossing streams. Recreational use in Rock Creek raised health concerns given the high levels of bacteria recorded at these sites. Recreation in Rock Creek included people wading, crossing, or playing with dogs in the creek. Activities peaked in 2020 during the pandemic, likely due to closure of public pools and spray parks.

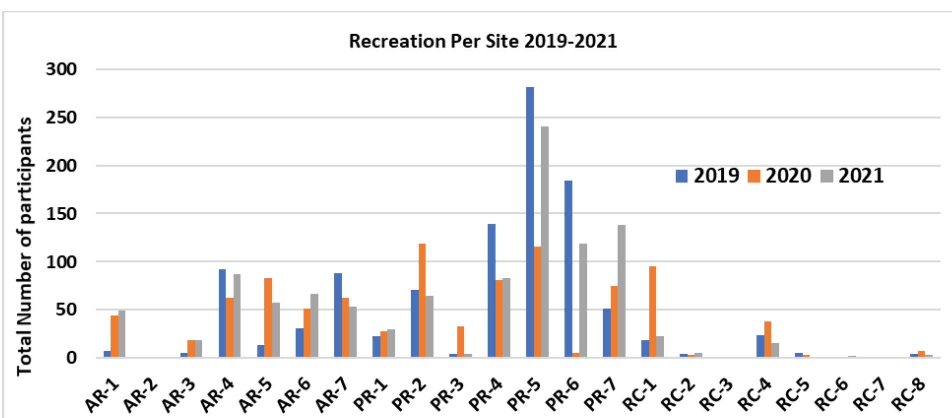


Figure 3.1 Total number of recreation participants recorded at each site during monitoring.

TMDL Implementation Plan

DOEE submitted an updated draft of its Consolidated TMDL Implementation Plan (TMDL IP) in August of 2016. The Consolidated TMDL IP describes the plan and timetable for how and when the District's MS4 Waste Load Allocations (WLA) will be attained and focuses on achieving load reductions simultaneously in all of the District's watersheds with TMDLs. This plan uses a consolidated modeling approach to track and report on these load reductions in a consistent manner.

The TMDL IP includes a series of programmatic milestones the District has committed to in the interest of accelerating the pace of stormwater management implementation. These programmatic milestones include:

- Committing twelve million seven hundred and fifty thousand dollars ($12,750,000) to establish a Stormwater Retention Credit Purchase Agreement program (completed)
- Developing a list of targeted watersheds and targeted implementation approaches (completed)
- Evaluating options for increasing the District’s stormwater fee (completed)
- Conducting a cost/benefit analysis of potential changes to existing stormwater management regulations (completed)
- Updating the Implementation Plan Modeling Tool and the TMDL IP (ongoing)
- Working to revise and update District TMDLs (ongoing):
    - Identifying priority TMDLs in need of revision
    - Developing a monitoring work plan to support TMDL revisions
    - Conducting intensive monitoring to support TMDL revisions
    - Completing the first round of priority TMDL revisions

TMDL IP Modeling

The District’s TMDL Implementation Plan Modeling Tool (IPMT) was developed in 2014 to model the stormwater runoff volumes, pollutant loads generated, and load reductions achieved through stormwater management. By generating a pollutant load “gap” between current conditions and the wasteload allocation (WLA), it is possible to determine how much load reduction is required to meet an individual WLA. It can also be used to forecast pollutant reductions associated with implementation of the District’s 2013 Stormwater Regulations. The IPMT also includes a comprehensive TMDL inventory that provides users with access to details for each waterbody, pollutant, TMDL document, decision rationale document, and numeric WLA.

Application of the IPMT provides a method to track the achievement of TMDLs in a consistent manner for all pollutants. DOEE updates the IPMT at the end of each annual reporting cycle with the specifications of Best Management Practices (BMPs) that have been implemented in that time frame. These data are then used to model pollution reductions made toward implementation milestones and, if necessary, guide adaptive management strategies.

DOEE applies the IPMT model to calculate the runoff and pollutant load reductions from BMP implementation for each MS4 Permit reporting year. Tables 3.10, 3.11, and 3.12 show the IPMT outputs for reporting year 2021.

Table 3.10 Pollutant Load Reductions, 07/01/2020 - 06/30/2021

Watershed	Runoff Retained (gallons)	Total Nitrogen (lbs)	Total Phosphorus (lbs)	Total Suspended Solids (lbs)	Fecal Coliform (billion MPN)	Arsenics (lbs)	Copper (lbs)	Lead (lbs)	Cadmium (lbs)	Mercury (lbs)	Zinc (lbs)
Anacostia	53,430,153	1,590	184	36,255	30,034	0.73	25.35	7.79	8.53	0.09	58.55
Rock Creek	19,785,876	576	67	9,752	10,811	0.26	9.15	2.80	3.07	0.03	17.69
Potomac River	13,603,983	406	47	5,658	7,581	0.18	6.39	1.97	2.16	0.02	12.35
Total	**86,820,012**	**2,572**	**298**	**51,665**	**48,426**	**1.18**	**40.9**	**12.6**	**13.8**	**0.15**	**88.59**

Table Key

The following tables are color-coded as follows:

Green cells indicate that the WLA has already been achieved for that waterbody and pollutant combination.
Blue cells indicate that the benchmark load reduction was achieved or exceeded for that waterbody and pollutant combination.
Orange cells indicate that the benchmark load reduction was not achieved for that waterbody and pollutant combination.
Grey cells indicate that there is no MS4 WLA for that waterbody and pollutant combination, and therefore no benchmark has been established. Load reductions are provided for informational purposes only.

Table 3.11 Overall Summary of WLA Benchmark Achievements, 07/01/2020 - 06/30/2021

WLA Achieved	32
Benchmark Achieved	51
Benchmark Not Achieved	124
No WLA or benchmark	849

Table 3.12 Pollutant Load Reductions from BMP Implementation with WLA Benchmarks, 07/01/2020 to 06/30/2021

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
Anacostia	33,123,536	999.42	115.90	22,811.6	18,846	10,109	1,156.9	4.6E-01	1.6E+01	4.9E+00	5.4E+00	5.6E-02	3.7E+01	2.8E-03	9.0E-04	4.1E-03	1.0E-02	8.0E-05	2.6E-04	1.8E-01	1.2E+00	8.3E-01	2.4E-02	7,563.7
Anacostia Lower	15,461,603	463.95	53.89	10,715.8	8,839	4,705	498.4	2.1E-01	7.4E+00	2.3E+00	2.5E+00	2.6E-02	1.7E+01	1.3E-03	4.2E-04	1.9E-03	4.9E-03	3.7E-05	1.2E-04	8.5E-02	5.6E-01	3.9E-01	1.1E-02	3,547.3

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
Anacostia Upper	17,661,933	535.47	62.01	12,095.8	10,007	5,404	658.5	2.4E-01	8.4E+00	2.6E+00	2.8E+00	3.0E-02	2.0E+01	1.5E-03	4.8E-04	2.2E-03	5.5E-03	4.3E-05	1.4E-04	9.7E-02	6.4E-01	4.4E-01	1.3E-02	4,016.4
ANATF_DC	29,197,242	593.83	70.18	13,903.0	11,371	5,750	773.9	2.7E-01	9.5E+00	3.0E+00	3.3E+00	3.4E-02	2.2E+01	1.6E-03	5.4E-04	2.5E-03	6.2E-03	4.5E-05	1.5E-04	1.0E-01	7.0E-01	5.1E-01	1.4E-02	4,563.7
ANATF_MD	4,522,845	69.18	7.76	1,487.1	1,224	650	64.5	3.0E-02	1.0E+00	3.2E-01	3.5E-01	3.7E-03	2.4E+00	1.8E-04	5.8E-05	2.6E-04	6.7E-04	5.1E-06	1.7E-05	1.2E-02	7.7E-02	5.4E-02	1.6E-03	491.1
Battery Kemble Creek	133,451	3.70	0.42	46.9	69	31	3.7	1.7E-03	5.9E-02	1.8E-02	1.9E-02	2.1E-04	1.1E-01	1.1E-05	3.3E-06	1.5E-05	3.8E-05	3.2E-07	1.1E-06	7.3E-04	4.6E-03	3.0E-03	9.0E-05	27.7
Broad Branch	3,406,843	97.69	11.32	1,772.0	1,823	673	140.8	4.5E-02	1.5E+00	4.7E-01	5.2E-01	5.5E-03	3.0E+00	2.8E-04	8.8E-05	3.9E-04	1.0E-03	8.2E-06	2.7E-05	1.9E-02	1.2E-01	8.0E-02	2.4E-03	731.8
C&O Canal	757,234	21.17	2.42	265.9	392	177	21.2	9.7E-03	3.3E-01	1.0E-01	1.1E-01	1.2E-03	6.4E-01	6.2E-05	1.9E-05	8.4E-05	2.2E-04	1.8E-06	6.0E-06	4.2E-03	2.6E-02	1.7E-02	5.1E-04	157.4
Dalecarlia Tributary	2,313,777	65.94	7.58	841.8	1,228	542	68.7	3.0E-02	1.0E+00	3.2E-01	3.5E-01	3.7E-03	2.0E+00	1.9E-04	5.9E-05	2.6E-04	6.8E-04	5.6E-06	1.8E-05	1.3E-02	8.1E-02	5.4E-02	1.6E-03	492.7
Dumbarton Oaks	397,497	11.02	1.26	197.4	206	79	13.8	5.1E-03	1.8E-01	5.3E-02	5.8E-02	6.3E-04	3.4E-01	3.3E-05	1.0E-05	4.4E-05	1.1E-04	9.6E-07	3.2E-06	2.2E-03	1.4E-02	8.9E-03	2.7E-04	82.6
Fenwick Branch	265,870	8.27	0.95	156.3	156	53	9.2	3.8E-03	1.3E-01	4.1E-02	4.5E-02	4.6E-04	2.6E-01	2.3E-05	7.5E-06	3.4E-05	8.6E-05	6.4E-07	2.1E-06	1.5E-03	9.7E-03	7.0E-03	2.0E-04	62.8
Fort Chaplin Tributary	87,197	2.55	0.29	53.4	45	26	2.7	1.1E-03	3.8E-02	1.2E-02	1.3E-02	1.4E-04	8.8E-02	7.2E-06	2.2E-06	9.7E-06	2.5E-05	2.1E-07	7.0E-07	4.8E-04	3.0E-03	2.0E-03	5.9E-05	18.1

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
Fort Davis Tributary	71,630	2.16	0.24	43.8	37	21	2.2	9.2E-04	3.2E-02	9.5E-03	1.0E-02	1.1E-04	7.2E-02	5.9E-06	1.8E-06	8.0E-06	2.0E-05	1.7E-07	5.7E-07	3.9E-04	2.5E-03	1.6E-03	4.8E-05	14.9
Fort Dupont Tributary	71,837	2.19	0.24	44.0	37	22	2.2	9.2E-04	3.2E-02	9.6E-03	1.0E-02	1.1E-04	7.3E-02	5.9E-06	1.8E-06	8.0E-06	2.1E-05	1.7E-07	5.7E-07	3.9E-04	2.5E-03	1.6E-03	4.8E-05	14.9
Fort Stanton Tributary	572,525	24.47	2.87	635.5	486	172	17.4	1.1E-02	3.9E-01	1.3E-01	1.4E-01	1.4E-03	9.5E-01	5.5E-05	2.3E-05	1.1E-04	2.6E-04	1.4E-06	4.6E-06	3.2E-03	2.6E-02	2.3E-02	5.8E-04	195.0
Foundry Branch	45,990	1.27	0.15	16.1	24	11	1.3	5.9E-04	2.0E-02	6.1E-03	6.7E-03	7.3E-05	3.9E-02	3.8E-06	1.2E-06	5.1E-06	1.3E-05	1.1E-07	3.7E-07	2.5E-04	1.6E-03	1.0E-03	3.1E-05	9.6
Hickey Run	2,821,331	89.43	10.98	2,150.8	1,748	858	174.9	4.2E-02	1.5E+00	4.6E-01	5.0E-01	5.1E-03	3.4E+00	2.4E-04	8.3E-05	3.8E-04	9.6E-04	6.9E-06	2.3E-05	1.6E-02	1.1E-01	7.8E-02	2.2E-03	701.4
Kingman Lake	460,936	14.60	1.68	338.7	276	138	14.5	6.6E-03	2.3E-01	7.2E-02	7.9E-02	8.2E-04	5.4E-01	3.9E-05	1.3E-05	6.0E-05	1.5E-04	1.1E-06	3.7E-06	2.5E-03	1.7E-02	1.2E-02	3.5E-04	110.9
Klingle Valley Run	36,475	1.01	0.12	18.1	19	7	1.3	4.7E-04	1.6E-02	4.9E-03	5.3E-03	5.8E-05	3.1E-02	3.0E-06	9.1E-07	4.0E-06	1.0E-05	8.8E-08	2.9E-07	2.0E-04	1.3E-03	8.2E-04	2.5E-05	7.6
Lower Beaverdam Creek																								
Luzon Branch	4,656,308	129.83	14.89	2,327.7	2,422	920	167.8	6.0E-02	2.1E+00	6.2E-01	6.8E-01	7.4E-03	4.0E+00	3.8E-04	1.2E-04	5.2E-04	1.3E-03	1.1E-05	3.7E-05	2.6E-02	1.6E-01	1.0E-01	3.1E-03	972.0
Melvin Hazen Valley Branch	879,167	24.86	2.85	448.4	464	174	30.5	1.1E-02	3.9E-01	1.2E-01	1.3E-01	1.4E-03	7.6E-01	7.2E-05	2.2E-05	1.0E-04	2.6E-04	2.1E-06	7.0E-06	4.8E-03	3.1E-02	2.0E-02	6.0E-04	186.3
Nash Run	3,284,499	96.06	11.07	2,179.8	1,814	1,015	109.7	4.4E-02	1.5E+00	4.7E-01	5.1E-01	5.5E-03	3.5E+00	2.7E-04	8.7E-05	3.9E-04	1.0E-03	8.0E-06	2.6E-05	1.8E-02	1.2E-01	7.9E-02	2.3E-03	728.1

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
Normanstone Creek	131,618	3.72	0.43	67.4	70	26	4.6	1.7E-03	5.9E-02	1.8E-02	2.0E-02	2.1E-04	1.1E-01	1.1E-05	3.4E-06	1.5E-05	3.8E-05	3.2E-07	1.1E-06	7.2E-04	4.6E-03	3.0E-03	9.0E-05	28.0
Northwest Branch	3,985,451	119.33	13.54	2,614.5	2,181	1,212	121.6	5.3E-02	1.8E+00	5.6E-01	6.2E-01	6.6E-03	4.3E+00	3.3E-04	1.0E-04	4.7E-04	1.2E-03	9.7E-06	3.2E-05	2.2E-02	1.4E-01	9.5E-02	2.8E-03	875.2
Oxon Run	3,383,154	100.74	11.51	1,290.3	1,854	821	99.3	4.5E-02	1.6E+00	4.8E-01	5.3E-01	5.6E-03	3.0E+00	2.8E-04	8.9E-05	4.0E-04	1.0E-03	8.2E-06	2.7E-05	1.9E-02	1.2E-01	8.2E-02	2.4E-03	743.9
Pinehurst Branch	342,414	9.82	1.12	174.6	181	68	11.9	4.5E-03	1.5E-01	4.7E-02	5.1E-02	5.5E-04	3.0E-01	2.8E-05	8.7E-06	3.9E-05	1.0E-04	8.3E-07	2.7E-06	1.9E-03	1.2E-02	7.9E-03	2.3E-04	72.5
Piney Branch	13,207	0.37	0.04	6.6	7	3	0.5	1.7E-04	5.8E-03	1.8E-03	1.9E-03	2.1E-05	1.1E-02	1.1E-06	3.3E-07	1.5E-06	3.8E-06	3.2E-08	1.1E-07	7.3E-05	4.6E-04	3.0E-04	8.9E-06	2.7
Pope Branch	163,319	4.56	0.52	100.0	85	49	5.0	2.1E-03	7.2E-02	2.2E-02	2.4E-02	2.6E-04	1.6E-01	1.3E-05	4.1E-06	1.8E-05	4.7E-05	4.0E-07	1.3E-06	9.0E-04	5.7E-03	3.7E-03	1.1E-04	33.9
Portal Branch	45,990	1.39	0.15	22.8	24	9	1.6	5.9E-04	2.0E-02	6.1E-03	6.7E-03	7.3E-05	3.9E-02	3.8E-06	1.2E-06	5.1E-06	1.3E-05	1.1E-07	3.7E-07	2.5E-04	1.6E-03	1.0E-03	3.1E-05	9.6
Potomac Lower	4,854,710	141.55	16.18	1,807.0	2,616	1,166	140.5	6.4E-02	2.2E+00	6.8E-01	7.4E-01	7.9E-03	4.3E+00	4.0E-04	1.3E-04	5.6E-04	1.4E-03	1.2E-05	3.9E-05	2.7E-02	1.7E-01	1.1E-01	3.4E-03	1,049.7
Potomac Middle	601,308	22.96	3.17	359.1	463	141	75.1	1.0E-02	3.8E-01	1.3E-01	1.4E-01	1.3E-03	7.5E-01	5.3E-05	2.1E-05	1.0E-04	2.4E-04	1.5E-06	4.8E-06	3.3E-03	2.4E-02	2.2E-02	5.5E-04	185.7
Potomac Upper	6,178,435	179.72	20.64	2,312.0	3,341	1,448	180.0	8.2E-02	2.8E+00	8.7E-01	9.5E-01	1.0E-02	5.4E+00	5.1E-04	1.6E-04	7.2E-04	1.8E-03	1.5E-05	4.9E-05	3.4E-02	2.2E-01	1.5E-01	4.3E-03	1,340.8

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
POTTF_DC	22,964,241	450.63	52.46	7,614.6	8,473	3,245	523.7	2.1E-01	7.1E+00	2.2E+00	2.4E+00	2.5E-02	1.4E+01	1.3E-03	4.1E-04	1.8E-03	4.7E-03	3.6E-05	1.2E-04	8.2E-02	5.4E-01	3.8E-01	1.1E-02	3,400.7
POTTF_MD	2,448,559	25.73	2.96	329.1	471	200	27.9	1.1E-02	4.0E-01	1.2E-01	1.3E-01	1.4E-03	7.7E-01	7.1E-05	2.3E-05	1.0E-04	2.6E-04	2.1E-06	6.8E-06	4.7E-03	3.0E-02	2.1E-02	6.0E-04	189.2
Rock Creek Lower	2,194,284	74.68	9.24	1,562.2	1,505	520	76.0	3.5E-02	1.2E+00	4.0E-01	4.4E-01	4.3E-03	2.5E+00	1.9E-04	7.0E-05	3.3E-04	8.2E-04	5.3E-06	1.8E-05	1.2E-02	8.6E-02	6.9E-02	1.8E-03	604.1
Rock Creek Upper	12,180,614	346.33	39.80	6,240.3	6,451	2,407	451.3	1.6E-01	5.5E+00	1.7E+00	1.8E+00	2.0E-02	1.1E+01	1.0E-03	3.1E-04	1.4E-03	3.6E-03	2.9E-05	9.7E-05	6.7E-02	4.3E-01	2.8E-01	8.3E-03	2,589.1
Soapstone Creek	764,794	24.01	2.75	446.8	448	151	26.5	1.1E-02	3.8E-01	1.2E-01	1.3E-01	1.3E-03	7.3E-01	6.5E-05	2.1E-05	9.7E-05	2.5E-04	1.9E-06	6.1E-06	4.2E-03	2.8E-02	2.0E-02	5.7E-04	179.7
Texas Avenue Tributary	47,766	1.34	0.15	29.2	25	14	1.5	6.1E-04	2.1E-02	6.4E-03	7.0E-03	7.6E-05	4.8E-02	3.9E-06	1.2E-06	5.3E-06	1.4E-05	1.2E-07	3.8E-07	2.6E-04	1.7E-03	1.1E-03	3.2E-05	9.9
Tidal Basin	76,122	2.11	0.24	26.7	39	18	2.1	9.8E-04	3.4E-02	1.0E-02	1.1E-02	1.2E-04	6.4E-02	6.2E-06	1.9E-06	8.5E-06	2.2E-05	1.8E-07	6.1E-07	4.2E-04	2.6E-03	1.7E-03	5.1E-05	15.8
Washington Ship Channel	512,500	20.50	2.89	327.9	417	120	72.6	9.2E-03	3.4E-01	1.1E-01	1.2E-01	1.1E-03	6.8E-01	4.6E-05	1.9E-05	9.0E-05	2.2E-04	1.2E-06	4.1E-06	2.8E-03	2.1E-02	2.0E-02	4.9E-04	167.3
Watts Branch	1,643,782	48.27	5.58	1,053.8	883	493	64.9	2.2E-02	7.5E-01	2.3E-01	2.5E-01	2.7E-03	1.7E+00	1.4E-04	4.3E-05	1.9E-04	4.9E-04	4.0E-06	1.3E-05	9.0E-03	5.8E-02	3.9E-02	1.1E-03	354.5
Watts Branch - Lower	925,380	26.77	3.19	614.1	511	278	43.0	1.2E-02	4.3E-01	1.3E-01	1.5E-01	1.5E-03	1.0E+00	7.7E-05	2.5E-05	1.1E-04	2.8E-04	2.2E-06	7.4E-06	5.1E-03	3.3E-02	2.2E-02	6.5E-04	205.2

Watershed	Runoff Retained (gallons)	TN (lbs)	TP (lbs)	TSS (lbs)	Fecal Coliform (billion MPN)	BOD (lbs)	Oil and Grease (lbs)	Arsenic (lbs)	Copper (lbs)	Lead (lbs)	Cadmium[1] (lbs)	Mercury (lbs)	Zinc (lbs)	Chlordane (lbs)	DDD (lbs)	DDE (lbs)	DDT (lbs)	Dieldrin (lbs)	Heptachlor Epoxide (lbs)	PAH1 (lbs)	PAH2 (lbs)	PAH3 (lbs)	TPCB (lbs)	*E. coli* (Billion MPN)
Watts Branch - Upper	718,402	21.50	2.40	439.7	372	215	21.9	9.2E-03	3.2E-01	9.6E-02	1.0E-01	1.1E-03	7.3E-01	5.9E-05	1.8E-05	8.0E-05	2.1E-04	1.7E-06	5.7E-06	3.9E-03	2.5E-02	1.6E-02	4.8E-04	149.3
CSS - Anacostia	20,306,617	590.30	68.44	13,443.2	11,188	6,218	717.2	2.7E-01	9.5E+00	2.9E+00	3.2E+00	3.4E-02	2.2E+01	1.7E-03	5.4E-04	2.4E-03	6.2E-03	4.9E-05	1.6E-04	1.1E-01	7.3E-01	4.9E-01	1.4E-02	4,490.2
CSS - Potomac	1,969,530	62.08	7.20	1,179.9	1,161	389	74.8	2.8E-02	9.7E-01	3.1E-01	3.4E-01	3.4E-03	1.9E+00	1.7E-04	5.5E-05	2.5E-04	6.4E-04	4.8E-06	1.6E-05	1.1E-02	7.2E-02	5.3E-02	1.5E-03	466.1
CSS - Rock Creek	5,410,978	155.00	17.69	1,949.7	2,855	1,270	156.7	7.1E-02	2.4E+00	7.4E-01	8.1E-01	8.7E-03	4.6E+00	4.5E-04	1.4E-04	6.1E-04	1.6E-03	1.3E-05	4.3E-05	3.0E-02	1.9E-01	1.2E-01	3.7E-03	1,145.7

Submerged Aquatic Vegetation

DOEE's Fisheries Management Branch (FMB) has monitored submerged aquatic vegetation (SAV) since 1993. In this time, the FMB compiled an extensive amount of data that reflects the growth and decline of submerged aquatic vegetation (SAV) species within the District. Not only does SAV provide an important habitat for juvenile and adult aquatic life, it provides sediment stabilization and improves water quality. Considered suitable areas for refuge, feeding, and reproduction, SAV beds are of utmost ecological importance in a watershed system (Kraus, Jones 2012). However, SAV is vulnerable to nutrient and sediment pollution caused by runoff. Because the District's highly urbanized area causes substantial runoff to enter the environment, monitoring the health of SAV is vital when considering the health of the aquatic ecosystem.

2021 observations revealed four different species of SAV in District waters: *Ceratophyllum demersum*; *Hydrilla verticillata*; *Najas minor;* and *Vallisneria americana* (only found in restoration exclosures). A total of 6.9 acres of SAV were recorded in 2021, all the SAV mapped being found in the Anacostia River. Acreage of SAV in the District was recorded at an all-time high of 1176.15 acres in 2017. Starting in 2018, SAV abundance and species diversity has decreased District-wide (Figure 3.2). The major factor in the decrease of SAV in 2018 was the record-breaking precipitation the region experience. The National Weather Service gage at National Airport recorded 61.34 inches of rain as of December 15, 2018. With increased stormwater discharges, and the resulting increase in turbidity and flow, SAV was not able to obtain the nutrients needed (sunlight, etc.) to grow and flourish when looked at on a District-wide basis. Continued effects of heavy rainfall in 2018 were seen during the 2019 SAV ground truthing survey. All SAV found in the District since 2019 is within the Anacostia River – 2019 (92.6 acres), 2020 (67.2 acres), and 2021 (6.9 acres).

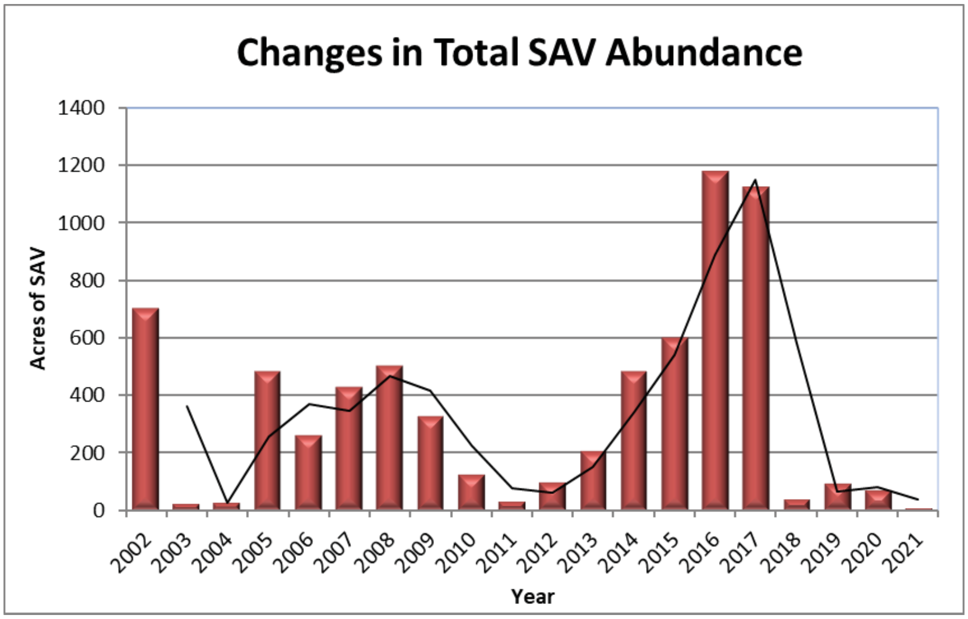


Figure 3.2 SAV abundance by year.

Aquatic Habitat Restoration

SAV also provides vital ecosystem functions in river systems, including improving water quality, stabilizing sediment, and serving as habitat and forage for fish and wildlife species. The District's waters have historically supported large SAV beds in shallow areas of the Potomac and Anacostia Rivers, but because of urban development in the watershed and resulting water quality degradation, these beds have been compromised or even lost. To combat these losses, DOEE has begun a restoration program in the Anacostia and Potomac Rivers. Because of its historical dominance, Chesapeake Bay *Vallinsneria americana* (wild celery) was designated the most suitable native SAV for the restoration efforts (Davis, 1985). Three (3) sites were selected based on historical maps, water quality, and the guidelines set forth in the Second Technical Synthesis for SAV Restoration (Batiuk, 2000). DOEE used wild harvested plants and seeds from the Potomac River in Maryland to establish new beds in the designated planting areas. Once sites are planted, biologists will monitor the sites for percent crown cover of plants as well as fish community data to determine if SAV plantings are influencing the fish community.

In 2019, the healthy growth of SAV at the Buzzards Point/James Creek site continued. Cover density was measured seventy to one hundred percent (70-100%). The lack of active replanting of adult *V. americana* every year was determined to contribute to the site success. In 2019, the Anacostia River was the only water body in the District where SAV grew. In fact, it was the highest amount of SAV ever recorded in the Anacostia at 92.6 acres. A cover density score of 0 at the Buzzard Point/James Creek restoration site was measured in 2020. Only 6.9 acres of SAV was recorded District-wide in 2021. No SAV was found outside of the Anacostia River. Although the District experienced the lowest amount of SAV in over a decade, the restoration site at Buzzards Point/James Creek scored a cover density forty to seventy percent (40%-70%) comprised one hundred percent (100%) of *V. americana*.

Initial plantings of *V. americana* at the Oxon Cove site on the Anacostia River began in 2016. Two (2) exclosures were installed at the Oxon Cove site for the 2017 planting season. These exclosures were indispensable to the survivability of the *V. americana* plants at this site. For the second year, no adult V. americana were installed at the Oxon Cove site due to the previously stated reasons. Although no adult plants were installed at the Oxon Cove site in 2018, a healthy bed was observed during the 2019 ground-truthing survey with a cover density seventy to one hundred percent (70-100%). However, this bed was comprised of *H. verticillata* forty percent (40%), *N. minor* fifty percent (50%), and *V. americana* (10 percent). This was the first year in which other species of SAV have been found inside the exclosure at this site. Flower stalks were not observed at the Oxon Cove site in the late summer of 2019. Similar to the Buzzards Point/James Creek site, the lack of yearly adult plantings of *V. americana* for the past two (2) years directly relates to the success of SAV inside the exclosures. Mirroring the Buzzards Point/James Creek restoration site, there was no SAV found within the exclosure in 2020. During the 2021 ground truthing survey, the Oxon Cove restoration site received a cover density forty to seventy percent (40-70%) and was completely comprised of *V. americana*. Oxon Cove's seclusion from the main stem of the river may add additional protection and serve as a "bank" of SAV in years when SAV is sparse in the District, including years in which the District receives record-breaking precipitation. For this reason, biologists believe this site to be significant to the overall success of SAV growing efforts in the District waters. Continued monitoring and planting will continue at this site in 2022. DC Fisheries will be expanding restoration efforts in Oxon Cove in 2022 by installing thirty (30) exclosures and planting adult *V. americana* during the spring sampling season. This expansion is a result of a grant awarded from USACE and NPS.

Fish data collection at the Buzzards Point/James Creek restoration site began in March 2021 and ended in November 2021. This is the ninth year in which DOEE FWD staff have collected fish data at this site. A total of two hundred and seventeen (217) fish were caught representing fifteen (15) different species between May and November 2021. This period represents the period of the year in which SAV may be present. Biomass in grams per repetition (g/rep) has steadily increased at the Buzzards Point/James Creek site until 2019 when a drastic decline in biomass was experienced (Figure 3.3). Biomass continued to decrease in 2020 in the absence of SAV. This may be due in part to the fact that sampling only occurred between September-November 2020 due to the pandemic. A slight increase in biomass was recorded during the 2021 sampling season. For biomass, DOEE used data collected only during periods when SAV may be present (May-November). This is the same method used when calculating biomass in the District SAV report.

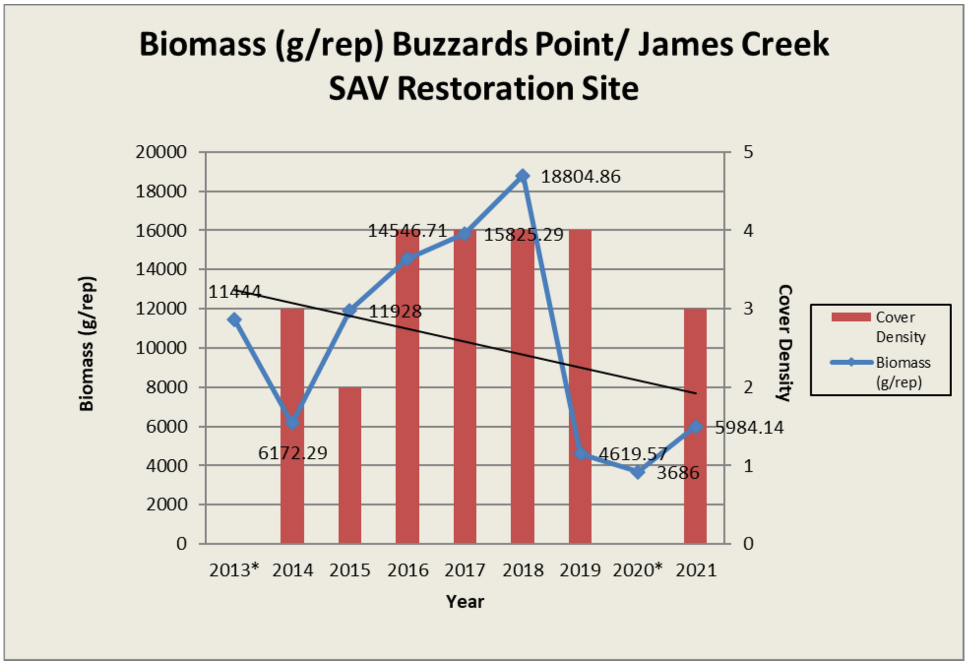


Figure 3.3 Biomass (g/rep) at Buzzards Point/James Creek site, from May-November, 2013-2021.

Using biomass as indicator for fish community monitoring is helpful in visualizing the overall impact SAV is having on the area. Since 2013 when monitoring began at Buzzards Point/ James Creek, there has been a substantial increase in fish biomass every year until 2019. There was a large decrease in biomass at the Buzzards Point/James Creek site in 2019, 4619.57 g/rep, which continued into 2020 with 3686 g/rep. Biomass increased to 5981.14 g/rep in 2021, which is the highest recorded amount since 2018. Overall, in 2021, fish abundance and total SAV acreage were down, which may also have contributed to lower biomass numbers.

Although the District SAV has not fully recovered from the heavy rains of 2018, it is hoped re-growth will occur in the years to come. While grazing is still a problem at all restoration sites, it is hoped that the growth of *V. americana* will soon outpace the destruction due to grazing. If this occurs, enclosures can eventually be removed, and sites could be self-sustaining. Restoration efforts will continue to be a priority for DOEE’s FWD in 2022.

Monitoring Heavy Metals and Organic Compounds in the Air

Air toxics, or hazardous air pollutants (HAPs), are pollutants known or suspected to cause cancer, other serious health impacts, and adverse environmental effects. The federal Clean Air Act (CAA) currently regulates one hundred and eighty-eight (188) HAPs. EPA’s Government Performance Results Act (GPRA) set a goal of reducing HAP emissions by seventy-five percent (75%) nationwide between 1993 and 2010 to significantly reduce the risks to human health from air pollution. EPA is working to further refine this goal to protect human health and the environment by reducing the risks from air toxic emissions, and particularly focusing on populations and areas disproportionately impacted by air pollution, which include, for example, urban areas, children at risk, and populations whose water and food are affected by persistent, bio-accumulating toxics. Assessing progress in reducing cumulative risk from HAPs will require

EPA to move away from a focus on assessing reductions from tons per year emitted toward a focus on estimating reductions in cancer and non-cancer risks associated with lower emissions.

The National Air Toxics Trends Station (NATTS) Network was developed to fulfill the need for long-term HAP monitoring data of consistent quality. The goal of ambient air toxics monitoring is to support the reduction of public exposure to HAPs. Ambient data play a critical role by characterizing HAPs concentrations to support three objectives – assessing trends, exposure assessments, and air quality model evaluation. The NATTS Network was initiated in 2003 and the current network configuration includes twenty-six (26) sites (twenty-one (21) urban, and five (5) rural) across the United States. There are typically over one hundred (100) pollutants monitored at each NATTS. Target HAPs include volatile organic compounds (VOCs), carbonyls, heavy metals, and polycyclic aromatic hydrocarbons (PAHs).

Since 2004, DOEE's Air Quality Division has been operating a special purpose NATTS site for ambient measurement of air toxics of primary concern, including heavy metals in the District's air. The NATTS monitoring site is located on the grounds of the McMillan Reservoir.

Table 3.13 DOEE NATTS Monitoring Site

Site Name Air Quality System ID	Street Address	City, State, ZIP	Latitude, Longitude
McMillan 11-001-0043	2500 First Street, NW	Washington, DC 20001	38.921847 deg N, 77.013178 deg W

Daily (24-hour) air samples are collected on a one-in-six-day (1-in-6-day) schedule throughout the year. The collected samples are sent for laboratory analysis. The District's NATTS site also includes an Aethalometer for continuous sampling of black carbon and diesel particulate matter in the ambient air.

DOEE reports the quality assured air monitoring data from its NATTS site to EPA's national air database: https://www.epa.gov/outdoor-air-quality-data. Additionally, EPA coordinates the development of a detailed annual report for NATTS and other special purpose monitoring programs. The 2015-2016 National Monitoring Programs Annual Report - UATMP, NATTS, CSATAM (EPA Contract No. EP-D-14-030, July 2018) provides data summaries and air toxics trends measured in recent years at the national network including the District's NATTS air monitoring site.

Road Salt Reduction Pilot

The District's MS4 permit requires the District to pilot road salt alternatives and incorporate its findings into the District's snow removal strategy. This project, developed in collaboration with the Department of Public Works (DPW), will be implemented during the FY 2022 Snow Season, provided favorable weather conditions occur. Specifically, the project will compare the effectiveness of alternative de-icing practices, including the use of a salt alternative, Calcium

Magnesium Acetate, and the use of a pre-wetting technology to wet road salt as it is being applied, with the existing deicing practice of dry road salt application (control scenario). To best target the effectiveness of each deicing treatment scenario, the pilot will be deployed during events for which plowing is not needed. Qualifying weather events will include ice, freezing rain, slush, and snow accumulations of less than two (2) inches.

Pre- and Post-restoration Stream Water Quality Monitoring

In 2017, DOEE first awarded funds to MWCOG to conduct water quality monitoring at several streams to assess conditions both before and after stream restorations were executed. Since that time, MWCOG has monitored a variety of parameters to assist DOEE in evaluating stream restoration projects, including water quality (flow, temperature, dissolved oxygen, and pH), macroinvertebrates, fish, geomorphology, and vegetation. Monitoring conducted for this program has occurred for projects at Nash Run, Pope Branch, Watts Branch, Fort Dupont, Fort Davis (near Park Drive), Stickfoot Branch, Springhouse Run, Broad Branch, Linnean Park, Milkhouse Ford, Bingham Run, Texas Avenue Tributary (at Alger Park and near Park Drive), and Spring Valley. Monitoring is expected to continue at each site for five (5) years after restoration is complete. New monitoring sites will be added when new restoration projects are selected.

RiverSmart Washington Monitoring

The RiverSmart Washington project began in FY 2015 when the District retrofitted two neighborhoods with stormwater retention practices to reduce stormwater runoff volume in Northwest Washington. DDOT, DC Water, and DOEE formed a partnership to complete the project, which was partially funded by a grant from the National Fish and Wildlife Foundation. The practices installed included various types of permeable and porous surfaces (permeable pavers, permeable pavement panels, porous concrete, and porous asphalt) in alleys, roads, and parking lanes; and bioretention (raingardens) within the roadside right of way.

Prior to the project, the District monitored the area for a year to determine the amount of stormwater runoff from the neighborhoods. In FY 2016 and FY 2017, DOEE monitored the project areas and one control area to calculate the stormwater runoff reduction from the installed projects. The results of the monitoring were inconclusive. There are a few potential reasons for this result, including:

- Active construction in one of the neighborhoods during the post-restoration monitoring time period;
- Lack of proper BMP maintenance;
- Inaccuracy of the flow meters installed during periods of low flows; and
- No rainfall data from the control monitoring area.

In 2019, a second phase of monitoring occurred before and after maintenance and deep cleaning/rehabilitation was conducted by DDOT contractors. Monitoring efforts, which occurred from June 2019 through July 2020, included end-of-the-pipe flow monitoring of the sewersheds as well as practice-level monitoring of individual GSI locations using meters and moisture sensors to sample the various types of practices.

As is often the case in field experiments, it was difficult to control all the experimental variables. Factors such as rainfall, construction, equipment failures, and differences in maintenance varied between sewersheds and between monitoring years. These factors, along with limitations in the precision of monitoring equipment, resulted in the sewershed level monitoring being largely inconclusive. The RiverSmart Washington results are similar to those that both Philadelphia Water and DC Water have had in monitoring their Long-Term Control Plan implementation. Contrary to predicted results, end-of-pipe flows from the experimental sewersheds may have increased after GSI was installed, though increases were less than observed in the control site. However, the data also indicate that peak flow response at the sewershed scale was reduced after practices were rehabilitated.

Unlike the sewershed scale monitoring, the practice-level monitoring did provide more conclusive results and indicated that practices were functioning as designed, capturing stormwater flows and, in some cases, filtered stormwater passing quickly through practices and back into the storm sewer systems. Monitoring also showed that practices responded well to deep cleaning and rehabilitation. There was definitive improvement in performance in most monitored practices in post-rehabilitation monitoring. However, for some permeable surfaces, the improvement in performance was short-lived as those surfaces quickly re-clogged. Bioretention practices maintained undiminished functionality for the entire post-rehabilitation monitoring period. Across the spectrum of permeable and pervious surfaces, permeable pavers demonstrated greater infiltration capacity, responded better to maintenance cleaning, and retained effectiveness for longer duration in between maintenance intervals.

Hickey Run Trash BMP Monitoring

Utilizing federal funds provided under the American Recovery and Reinvestment Act (ARRA), DOEE installed a BMP at an outfall to Hickey Run to capture trash and sediment. In mid-FY 2017, DOEE contracted to maintain the BMP and monitor the pollutant loads captured. Since July 2017, there have been seven quantifications of trash removed from the BMP. During the removal process, plastic and glass bottles and cans were set aside and bagged separately. Figure 3.4 demonstrates how trash capture has changed over time.

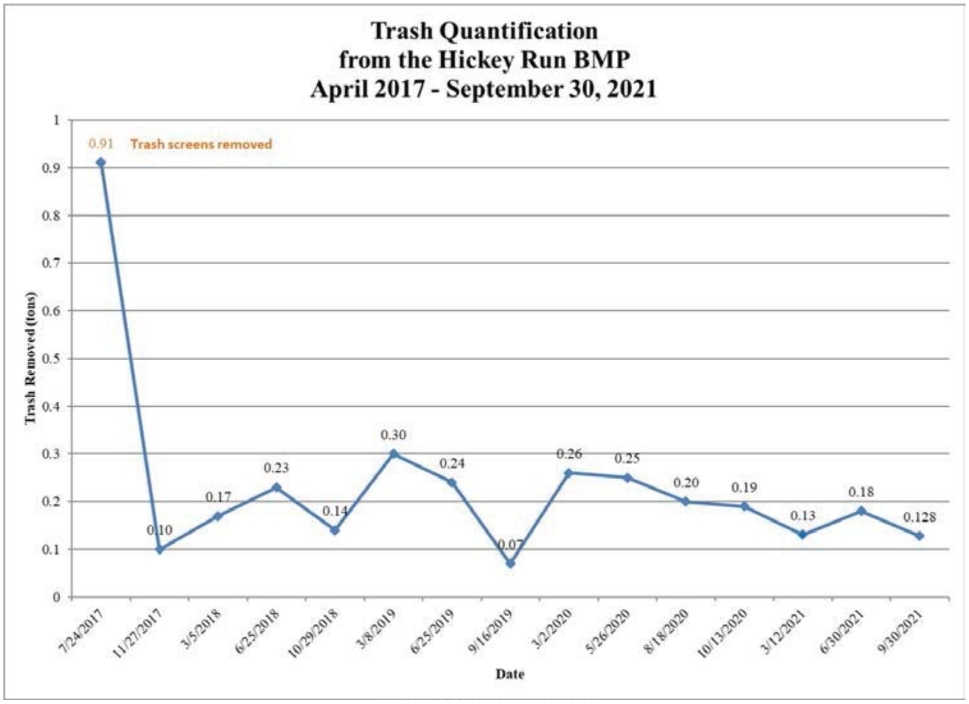


Figure 3.4 Trash Capture by the Hickey Run BMP from April 2017 through September 2021.

The BMP was originally outfitted with screens at the downstream discharge location, presumably to enhance trash removal performance. However, the screens clogged rapidly, which raised the water surface elevation within the BMP structure, forcing flows through the trash box openings, and thereby negating the sediment capture achieved by the BMP. Screens from the trash BMP were removed in April 2017 to correct the bypass issue and as can be seen in Figure 3.4, this adjustment reduced the quantity of trash that the BMP captures.

DOEE is actively considering a retrofit solution for this BMP that will maximize both sediment and trash capture.

Sediment removal occurred five times over the same period. The contractor removed a total of 330.16 tons (660,320 pounds) of sediment that had accumulated in the BMP between April 2017 and November 2020 (Figure 3.5).

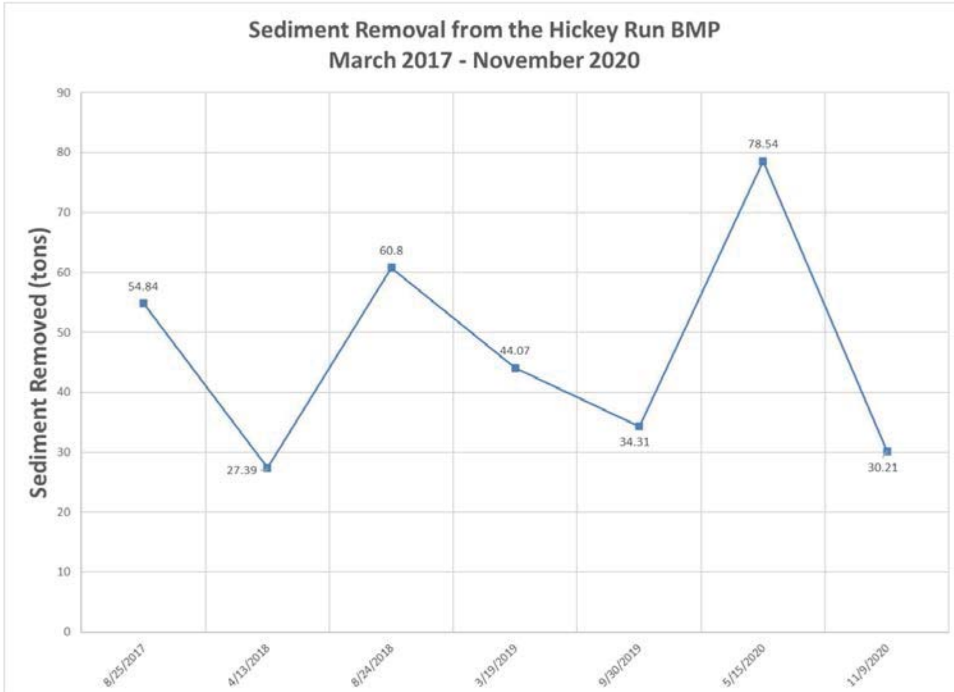


Figure 3.5 Sediment Removal from the Hickey Run BMP from March 2017 through September 2019.

Real-Time Controls for Bioretention

In 2019, DOEE commissioned a monitoring study to assess the efficacy of integrating adaptive controllers that regulate the amount of stormwater retained and released in LID facilities for the purposes of improving green stormwater infrastructure performance in the District.

Adaptive control allows an existing facility to meet water quality improvement and flood mitigation objectives by both capturing smaller, more frequent wet weather events to provide water quality retention benefits and managing flows from large events for flood and stream erosion protection (i.e., the system modulates the flow rate out of the LID facility during large events to continuously avoid overflowing). Cloud-based software compares the near-term forecasted rainfall from the National Weather Service with the current volume in the LID facility and drains the excess forecasted runoff amount of water from the LID facility in advance of the forecasted rain event to expand stormwater retention capture and increase performance of a BMP.

The project included the retrofit of an existing public right of way (PROW) bioretention facility that drained to the Watts Branch tributary of the Anacostia River Watershed with a Continuous Monitoring and Adaptive Control (CMAC) system. The project assessed the design, permitting, and installation of the CMAC system into the existing BMP as well as conducting monitoring and analysis to assess BMP performance before and after the retrofit.

Results of the study were that measured retention out-performed design metrics by nearly a factor of two (2), which was consistent with results from previous DOEE monitoring studies of bioretention performance. Initial outcomes indicated outfitting under-drained bioretention with passive valves will improve retention performance.

Wetland Mapping and Assessment Activities

Wetlands are among the most productive ecosystems in the world and are vital to the ecology of healthy watersheds. They provide a wealth of benefits to humans, water quality, and wildlife through their functions including storage of floodwater; shoreline erosion protection; recharge of groundwater that sustains river and stream baseflow; and retentions, assimilation, or transformation of nutrients and pollutants that can degrade downstream water quality. In addition, wetlands are integral components of food webs, providing nursery habitat for breeding fish, amphibians, and birds; habitat for wildlife; and exportation of organisms to downstream waters. Wetlands also act as buffers to protect downstream waters from pollution.

Wetlands are the primary habitat used by most species selected for vulnerability consideration in the District's 2015 Wildlife Action Plan. Protection and restoration of the District's wetlands is also vital to the health of the Chesapeake Bay ecosystem.

A mapping effort associated with the 2020 Wetland Conservation Plan (WCP) update identified 291 individual wetlands located within District boundaries, totaling two hundred and eighty-nine acres (289). Seventy-six percent (76%) of these wetlands are less than a half-acre (0.5 acre) in size, and sixty-six percent (66%) are less than a quarter-acre (.25 acre) in size. One-hundred and sixty-nine (169) acres are tidal wetlands, and one hundred and twenty (120) acres are non-tidal. Seventy-four percent (74%) of District wetlands are located within National Park Service land. The District's Aquatic Resources Registry is a publicly available, interactive map of the baseline data containing wetland, streamlines, and submerged aquatic vegetation (SAV) survey results for the last five (5) years.

Over ninety-two percent (92%) of the District's wetlands are located within five hundred (500) feet or less of urban development. These urban wetlands face constant challenges, such as habitat loss from development, fragmentation, and altered hydrology, as well as degraded water quality from stormwater runoff, scour from heavy rain events, and invasive plant colonization. Conservation of these important natural resources is vital to the ecology and health of the District's residents, watersheds, wildlife, and economy.

DOEE was awarded a United States Environmental Protection Agency (EPA) Regional Wetland Program Development Grant in October 2020. The scope of this two-year grant included the development of a strategic three-to-five-year (3-5-year) Wetland Program Plan (WPP) and a Wetland Monitoring Program. The WPP provides DOEE with a framework and direction for the next five (5) years to strengthen and improve the District's Wetland Program. The EPA approved the WPP in December 2021. DOEE has selected urban-appropriate wetland function and condition assessment methods and is projected to implement the Wetland Monitoring Program in spring 2022.

Wetlands Protection Activities

On May 14, 2021, DOEE published a final rulemaking to add new Chapters 25 (Critical Area – General Rules) and 26 (Critical Area – Wetlands and Streams) to Title 21 of the District of Columbia Municipal Regulations (DCMR).

Chapters 25 and 26 establish the process for a project that proposes to impact wetlands and streams in the District. These regulations establish the permit application and review process for regulated activities that require either a District wetland and stream permit or a Clean Water Act Section 401 (33 U.S.C. § 1341) water quality certification. They establish the criteria to determine if a proposed project is water-dependent, or if the proposed project is not water-dependent and has no practicable alternative. They also detail the planning process to avoid and minimize wetland and stream impacts to the maximum extent practicable. Finally, the regulations describe the mitigation requirements for impacts to wetlands and streams that are necessary to ensure lost wetland and stream functions are replaced, and to ensure no net loss of wetland and stream acreage occurs.

3.7 Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (Section 303(d) "New Vision"

On December 5, 2013, EPA announced a new collaborative framework to manage program responsibilities and to identify and prioritize waterbodies for restoration and protection, entitled *A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program*. This new Vision has six pillars to be addressed in stages as follows:

1. 2016 – Engagement
1. 2016 – Prioritization, Protection, Integration
2. 2018 – Alternatives
3. 2020 – Assessment (Site-specific)
4. 2022 – Evaluate accomplishments of the Vision and Goals

The engagement pillar recommends that the District actively engage stakeholders to improve and protect water quality demonstrated by documented, inclusive, transparent, and consistent communication, including requesting and sharing feedback on proposed approaches and enhanced understanding of program objectives. The prioritization, protection, and integration pillar recommend the District identify its long-term CWA Section 303(d) Program priorities in the context of its overall water quality goals.

The District's *303(d) Program New Vision Stakeholder Engagement Strategy and 303(d) Program New Vision Prioritization Strategy* documents (Appendix 3.5, 303(d) Program New Vision: Stakeholders Engagement Strategy and Prioritization Strategy) was finalized and incorporated as part of the revised 2016 Integrated Report, which was approved by EPA on February 2, 2017. Accomplishments from implementing these strategies across the District's Section 106 and Section 319 programs include the following since FY 2017:

1. Collaboration with EPA to implement the 303(d) New Vision pillars and elements.
2. Continuation of its *Prioritization Strategy* for the 2016–2022 period:
    a. Priority #1 - Revise TMDLs subject to court order deadlines or consent decree agreement(s) (see toxics "the TMDLs revisions" subsection above). For example, the District and EPA successfully collaborated and finalized the Rock Creek Toxics revisions. Ongoing efforts to collect additional data for the Anacostia Watershed toxics TMDLs revision are also co-funded by EPA and the District (DOEE); and
    b. Priority #2 - Identify new TMDL projects in which DOEE's and EPA's national and/or regional priorities intersect, and where opportunities for collaboration exist.
3. Engagement of relevant stakeholders across its 319 and 303(d) Programs (stream restoration efforts, TMDL development and implementation planning activities). [See, for example, the development of the "Consolidated TMDLs Implementation Plan," which is elaborated upon elsewhere in this report].
4. Encouraged the participation of the following in implementing the Plan:
    a. DOEE staff, through various meetings, workshops, and trainings to acquire new knowledge, data and information and share these widely to empower stakeholders.
    b. Engage stakeholders (e.g., DC Water, MWCOG, federal government facilities or their respective representatives) in the Chesapeake TMDLs program-related conference calls and meetings. These meetings are meant to improve stakeholders' knowledge and help them understand DOEE's expectations in terms of implementing projects and providing feedback.

Chapter 4 Public Health-Related Assessments

Drinking Water Program Monitoring and Assessments

Drinking water for the District is treated by the Washington Aqueduct, which is federally-owned and operated by the USACE. The Aqueduct is responsible for compliance with all the regulations that pertain to water treatment such as filtration, disinfection and chemical contaminant removal, and corrosion control. DC Water purchases the treated water and distributes it to District residents. Drinking water quality is regulated by EPA Region 3. DC Water collaborates with the USACE Washington Aqueduct to control corrosion of pipes and plumbing throughout the District to minimize the release of lead into water. DC Water monitors for lead at the tap and helps customers identify lead sources on their property by testing for lead in drinking water samples.

Lead Pipe Replacement

The Lead Service Line Priority Replacement and Disclosure Amendment Act of 2018, D.C. Law 22-241 (Lead Service Line Act) prohibits DC Water from replacing the public portion of a lead service line without replacing the portion on private property, unless DC Water requests and is unable to obtain consent of the owner. The cost of replacement is paid by DC Water using appropriated funds. If funding to replace the private portion is not available, DC Water may only replace the public portion if necessary to repair a damaged line or to comply with federal regulations after exceedance of a lead action level. If the property owner decides to pay to replace the private portion of a lead water line, DC Water may replace the public portion at the same time.

The Lead Service Line Act also creates a payment assistance program for property owners who seek to replace the private portion of a lead service line when the public portion is not lead. Payment assistance is awarded on a sliding scale as a percentage of the replacement cost depending on the owner's income. DOEE created a payment assistance application form and notifies an applicant of approval or denial of each application. DOEE transfers funding for replacements to DC Water.

DOEE and DC Water have partnered to implement two (2)new programs to ensure that the entire lead service pipe is replaced in full:

1) Full Lead Water Service Line Replacement Program - District funds cover the cost of the lead water service pipe replacement on private property when DC Water replaces the portion of the pipe in public space; and

2) Lead Pipe Replacement Assistance Program (LPRAP) – District funds are provided to assist with the cost to replace the lead service lines on private property when the service pipe in public space is not lead. Under this program, fifty percent (50%) of the replacement costs will be paid from District funds up to two thousand five hundred dollars ($2,500), regardless of income.

Residents who meet specific income requirement can qualify for up to one hundred percent (100%) of the replacement cost to be covered by them.

Lead in Water in Multiple Dwellings

The Multiple Dwelling Residence Water Lead Level Test Act of 2004, D.C. Law 15-303, requires owners of multi-family buildings and unit owner's associations for condominiums to request lead test kits from DC Water and provide them to tenants or owner-occupants upon request.

DC Water provides the test kit, and the owner or association must, within fifteen (15) days of receipt of the test kit, provide the test kit to the tenant or occupant. The tenant or occupant collects the sample and sends it to DC Water to be tested. DC Water tests the lead level and mails the results to the owner or association and the tenant or occupant who requested the test. The owner or association is required, within fifteen (15) days of receipt of the results, to provide a copy of the result to any tenant who requests the result, post a copy in a conspicuous place, and send a certification to the Mayor that the owner has complied with the tenant notification requirements.

Lead in Drinking Water in Schools and Daycare Centers

DOEE addresses lead in drinking water in all licensed child development facilities (CDF). To that end, the District's City Council passed the Childhood Lead Exposure Prevention Amendment Act of 2017, D.C. Law 22-21 (Act), which requires public schools and public charter schools to, among other things:

- Locate all drinking water sources and install and maintain filters for reducing lead at all drinking water sources.
- Post conspicuous signs on water sources that are not drinking water sources that communicate that the water should not be used for cooking or consuming.
- Test all drinking water sources for lead annually and, if a test result shows that a drinking water source's lead concentration exceeds five (5) parts per billion (ppb):
    - shut off the drinking water source within twenty-four (24) hours after receiving the test result;
    - determine in writing remediation steps;
    - publicize the test results and remediation steps by sending an email or written correspondence to parent within five (5) days and posting information about the test results and remediation efforts online the DC Public Schools website; and
    - publish a list of drinking water sources with information about filters, testing, and maintenance on the DGS website.

DOEE conducts quarterly Quality Assurance and Primary Prevention Webinars for all Childcare Centers to ensure compliance and standard operating procedures are followed. The Act defines drinking water sources as "a source of water from which a person can reasonably be expected to consume or cook with the water originating from the source".

The District's sampling protocol includes kitchen sinks, water fountains/bubblers, and sinks within the classrooms and bathrooms because those sinks are often used to wash food, to wash bottles used for nursing infants, and to teach children to brush their teeth.

There is no documented safe level of lead in children. The current lead activation level in the District is five (5) ppb of lead in water. However, the goal of the District is for all drinking water sources to contain less than one (1) ppb of lead.

Fish Consumption Advisory

In September 2018, United States Fish and Wildlife Service (US FWS) completed a study of fish tissue for contaminants of concern for DOEE on fish caught in District waters. The results of the study revealed decreases in the concentrations of total DDTs and total PAHs – neither organochlorine pesticide exceeded EPA's screen values. Additionally, for most fish species, recommended consumption limits increased over the recommended limits in the fish consumption advisory issued in 2016. To view the current fish consumption advisory, visit the DOEE website (https://doee.dc.gov/node/9582).

Although some contaminant concentrations continue to decrease, DOEE has decided not to issue an updated consumption advisory until more data is collected. DOEE has selected US FWS to conduct a fish tissue study for contaminants of concern, projected to be completed in 2022.

Chapter 5 Groundwater Assessment

5.1 Groundwater Protection

Introduction

This section updates the District's groundwater protection efforts for July 1, 2019 to June 30, 2021. DOEE's Water Quality Division continues to be responsible for groundwater policy, planning, research, and some regulatory oversight. Through a Joint Funding Agreement with USGS, DOEE collects data from the District's groundwater monitoring network and conducts investigations to assess groundwater quantity and quality, evaluate groundwater/surface water interactions and inform groundwater protection strategies. Data from these studies are available at the USGS website: https://waterdata.usgs.gov/dc/nwis/gw.

During the reporting period, groundwater quality sampling was delayed by mandatory lockdowns and other difficulties related to the COVID 19 pandemic. Significant laboratory delays also occurred. Unfortunately, the sample analytical results were not available while this Integrated Report was in development. However, the full dataset will be uploaded to the USGS NWIS website once it is received and reviewed for publication.

Ground water levels in the shallow aquifers are consistent with previous years. Seasonal variations also appear to follow normal trends. The deeper Patuxent Aquifer continues to slowly recover (Figure 5.1) from the extensive dewatering events linked to the construction of tunnels and drop shafts for the DC Long Term Control Plan.

Summary of Groundwater Quality

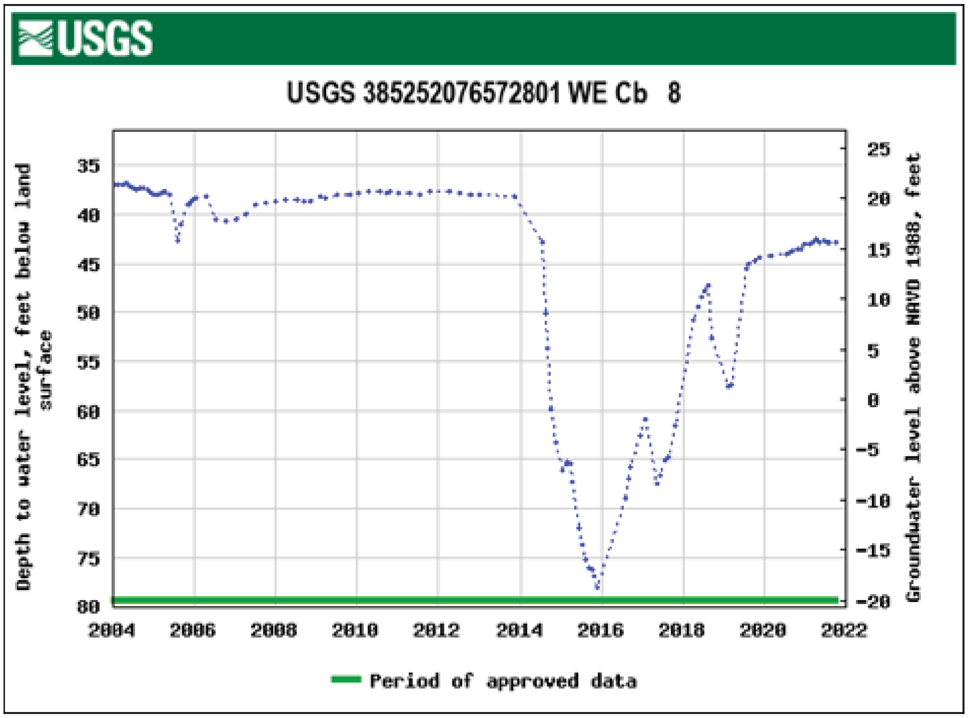
DOEE maintains groundwater monitoring networks in the Anacostia River and Rock Creek watersheds. All existing wells are listed in Appendix 5.1, Groundwater Monitoring Wells, and their mapped locations are presented in Appendix 5.2. Many of the wells are relatively shallow and intercept groundwater flowing to streams while several are in the recharge area for the Patuxent Aquifer (Appendix 5.2). A few deep wells extend into the Patuxent Aquifer. Well construction details are listed in Appendix 5.3.

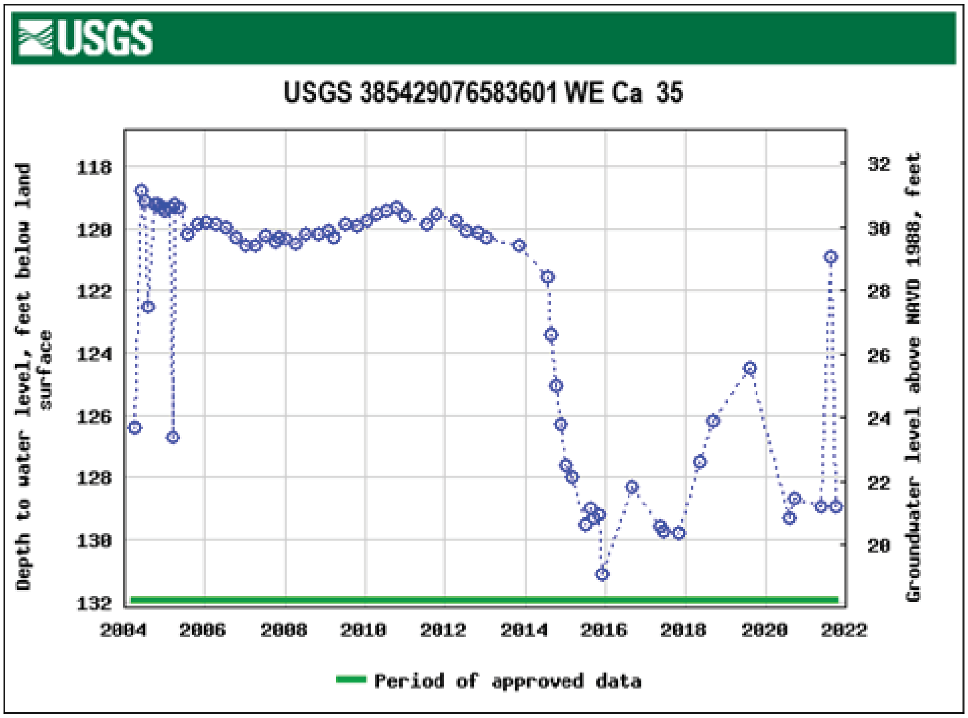
Due to the COVID 19 pandemic, groundwater quality sampling results are unavailable. There were unforeseen delays in collecting samples during the reporting period and some samples had to be collected twice. Laboratories also extended their analytical turnaround times by several months. USGS expects to receive all the data packages by the end of the first quarter of 2022 and is committed to releasing the new data through their NWIS website once it is reviewed. Historic data can be found in the USGS Annual Water Data Reports and were referred to by DOEE in previous Integrated Reports submitted to EPA and Congress.

Groundwater Quantity Issues

Through a cooperative agreement with USGS, DOEE collects discrete and continuous groundwater elevation data from the groundwater monitoring network. The latest discrete data are presented with measurements collected from previous years in Appendix 5.4, Manual Water Level Measurements for Monitoring Wells.

Several deep wells on both sides of the Anacostia River continue to show the effects of the massive dewatering needed to construct the tunnels and drop shafts for the District's LTCP. These wells are screened in the Patuxent Aquifer. Overall groundwater levels are recovering, albeit at a slow rate, and the fluctuations of the curves on the hydrographs indicate when the effects of dewatering operations at various locations reached the wells. Data trends at monitoring well WE Cb 8 at Fort Dupont Park, wells WE Ca 35 and 36 at the U.S. National Arboretum, and well WW Cc 38 at the Capitol Hill Day School show that potentiometric surfaces are plateauing approximately five (5) feet below previous levels. The plateauing suggests that there is a long-term impact to the aquifer that will be recharge dependent.




USGS
USGS 385429076583601 WE Ca 35
Depth to water level, feet below land surface
Groundwater level above NAVD 1988, feet
118
120
122
124
126
128
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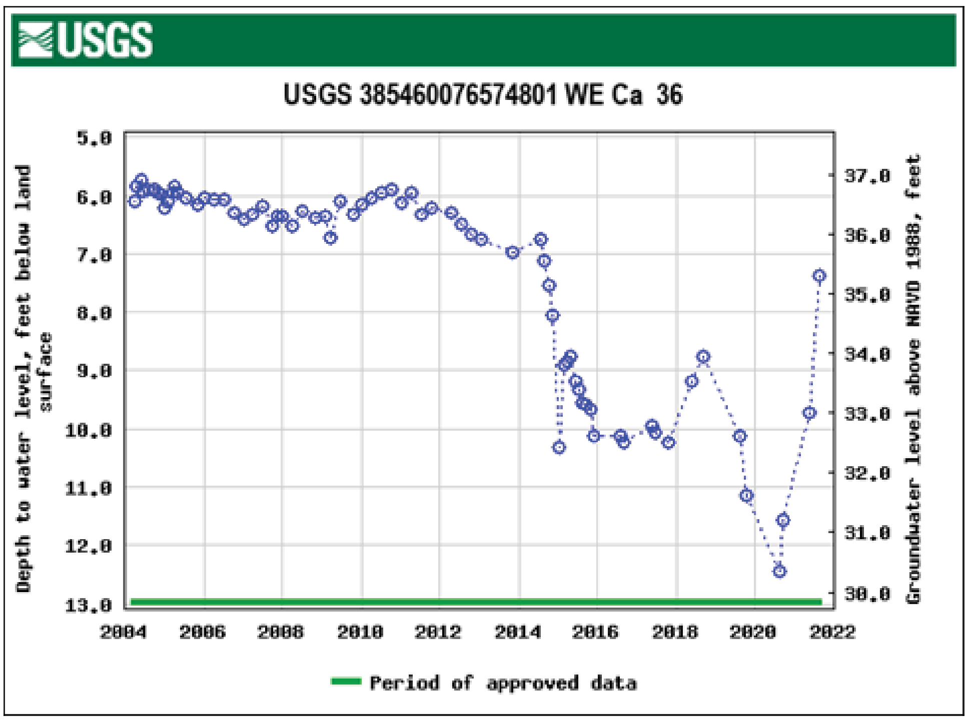
132
32
30
28
26
24
22
20
2004 2006 2008 2010 2012 2014 2016 2018 2020 2022
Period of approved data


USGS
USGS 385460076574801 WE Ca 36
Depth to water level, feet below land surface
Groundwater level above NAVD 1988, feet
5.0
6.0
7.0
8.0
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10.0
11.0
12.0
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2004 2006 2008 2010 2012 2014 2016 2018 2020 2022
Period of approved data

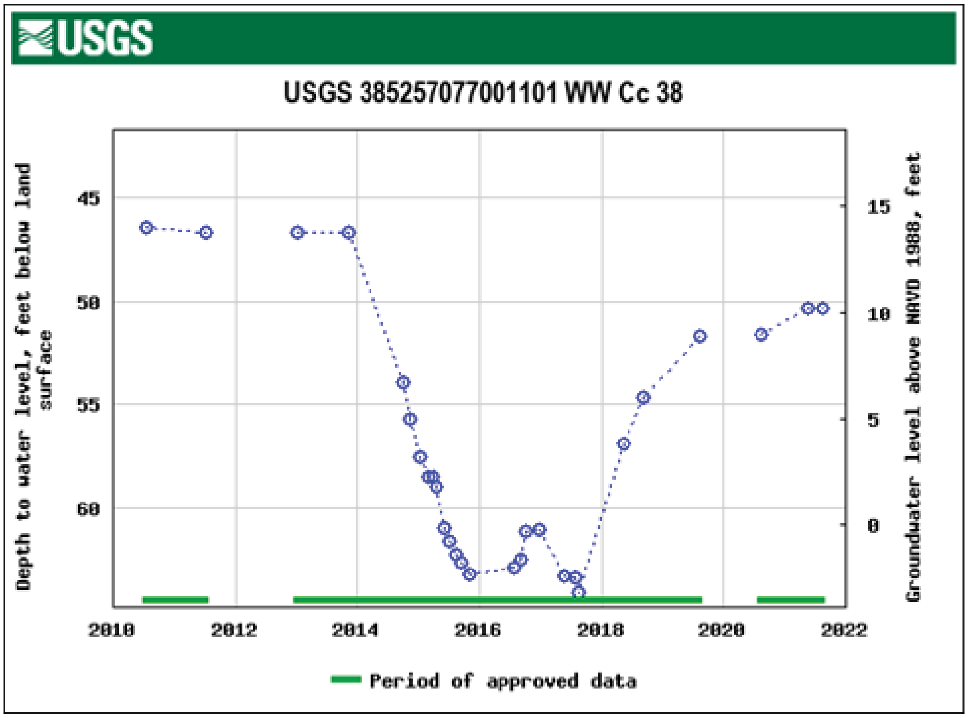


Figure 5.1 Hydrographs showing impacts of extensive dewatering at wells in the Patuxent Aquifer from 2014 to present.

Overview of Groundwater Contamination Sources

Appendix 5.5 summarizes contaminant sources to the shallow groundwater aquifer and identifies programs with regulatory oversight over groundwater pollution and the number of open cases with shallow groundwater contamination under each program. No new major sources have been identified since the last Integrated Report.

Overview of Programs Related to Groundwater Protection

WQD is charged with administration of the District's Water Pollution Control Act, which defines the District's waters as including both groundwater and surface water. In 1993, the District promulgated groundwater regulations. These regulations established numerical criteria and enforcement standards for forty-seven (47) chemical constituents. Subsequently, the District also developed water quality monitoring regulations that set standards for groundwater monitoring supporting preventive as well as remedial activities. Well regulations were enacted in September 2016. DOEE is preparing a guidebook to supplement the well regulations. DOEE processes hundreds of well permit applications each year.

An updated list of DOEE groundwater-related programs or branches that can impact groundwater and their functions follows:

- Construction Grants Program: Pursuant to the federal Clean Water and Safe Drinking Water Acts and various appropriations acts, EPA funds the District for the construction and/or improvement of wastewater facilities, drinking water distribution and storage facilities, and other water related structures that will protect water quality. The projects identified for use of the funds meet a variety of needs, such as those related to the LTCP, the Municipal Sanitary Storm Sewer Monitoring Network, and the implementation of pollution control measures.

- Construction and Maintenance Branch: Performs compliance inspection and enforcement for sediment erosion controls and stormwater management at construction sites. The Branch also inspects permitted stormwater management devices to ensure that they are being properly maintained.

- Federal Facilities Program: Oversees the cleanup of Formerly Used Defense Sites (FUDS) and active defense facilities that are contaminated.

- Groundwater Protection Program: Coordinates and implements groundwater protection in the District including developing groundwater strategies, policies, and regulations to protect groundwater; engaging in groundwater quality planning and research; collecting, analyzing, storing, and sharing groundwater monitoring data; collaborating on regulatory oversight at contaminated sites; reviewing applications for withdrawal and injection of substances into groundwater for remediation or well maintenance; providing technical expertise on groundwater-related permits; and promoting groundwater protection with internal and external stakeholders engaged in groundwater- related activities.

- Hazardous Waste Management Program: Regulates hazardous waste from small and large quantity generators.

- Integrated Pest Management Program: Conducts public education for pesticide use.

- Illicit Discharge and NPDES Branch, Inspection and Enforcement Division: Conducts inspections and enforcement related to well construction, use, maintenance, and abandonment. The Branch also performs the same functions for pollutant spills, releases, or other discharge violations that lead to the degradation of groundwater resources.

- Nonpoint Source Program: Plans and implements BMPs to address nonpoint source pollution, restore aquatic habitat, and provide oversight of nonpoint source studies.

- Pesticide Certification and Enforcement Program: Processes registration of pesticide products for use in the District of Columbia, certifies applicators, and performs application inspections.

- Remediation and Site Response Program (RSRP): Investigates and remediates sites where historic contaminant releases have occurred. The program exercises state CERCLA-like authority and focuses on historic hazardous releases to soil and water.

- Total Maximum Daily Load (TMDL) Program: Develops point and nonpoint source load allocations to meet WQS in impaired waterbodies.

- Underground Storage Tank Management Program: Provides oversight for installation and removal of underground storage tanks as well as remediation activities for leaking tanks.

- Voluntary Cleanup Program (VCP): Oversees owner or developer initiated voluntary remediation of contaminated lands and buildings. The goal is to return actual or potentially contaminated properties to productive uses.

- The Regulatory Review Division: Processes well construction and abandonment permits in private and public space. The Branch also collects and maintains records of all permitted wells in the District.

Appendix 5.6 lists the various groundwater protection activities in the District, their implementation status, and the District agencies responsible for implementation, Appendix 5.6, Groundwater Protection Programs

Aquifer Vulnerability Assessment

The DC Water Resources Research Center (WRRC) assessed the District's groundwater vulnerability to contamination in 1992 in a report entitled *Urban Land Use Activities and The Ground Water: A Background Survey of the District of Columbia* (WRRC, 1992). The report mapped the probability of groundwater contamination and ranked areas accordingly. The District recognizes that this report is old and when funds become available, it will be revised. See Appendix 5.5 for an updated list of groundwater contamination sources primarily under EPA oversight.

Aquifer Mapping

Several years ago, the District, in conjunction with the USGS, developed a steady-state, three-dimensional, groundwater flow model of the shallow aquifers in the Anacostia River watershed. The model contains layers to represent the aquifers in the District. However, the model did not distinguish between the Upper and Lower Patapsco Aquifers and the confining Arundel Clay, all of which overlay the Patuxent Aquifer on the eastern side of the Anacostia River. Therefore, flow values do not truly accurately represent groundwater flux in any of the individual units. This issue highlights the need for sound aquifer mapping in the area. The Upper and Lower Patapsco Aquifers also are vulnerable to urban activities as they appear to outcrop in mixed use areas, may be relatively thin, and underlie areas slated for urban development. Additional field work will help to resolve the boundaries of the relevant geologic units and ultimately, these shallow aquifers.

Comprehensive Data Management System

The USGS maintains and manages all data collected during joint District-USGS projects since 2002. This data is readily available on the USGS website (www.usgs.gov) and the date entered will continue to grow as funding for more projects becomes available. This data includes chemical, locational, and geological information. USGS includes monitoring well data in the regional groundwater database maintained for the District and other states. The data will be available in GIS formats soon. Monitoring well location data for boring/well locations for all

District-permitted wells in both private and public space can be found at http://atlasplus.dcgis.dc.gov/ in the Environmental Layer.

Groundwater/Surface Water Interaction

Recently, DOEE began exploring the use of groundwater age-dating techniques to look for indicators of possible surface water intrusion into aquifers. Powars (2016) noted paleochannel downcutting or erosion through the Arundel Clay, the Cretaceous-aged confining unit overlying the Patuxent Aquifer, in several parts of the District (Figure 5.2 and 5.3), suggesting that a stream, such as the Anacostia River, may be in direct hydraulic communication with the Patuxent Aquifer thereby causing pollutants in the surface water column to reach and negatively impact the groundwater resource.

When two waterbodies are in hydraulic communication, the differences in hydraulic pressure between them will dictate the direction of flow. With surface water/groundwater interactions, if the surface waterbody has a higher hydraulic pressure than the groundwater in the aquifer, the surface water will intrude into the aquifer and change the groundwater quality. In the District, the opposite usually occurs, and groundwater discharge provides the baseflow for perennial streams. Except for arid areas or where an aquifer is depleted, surface water intrusion into an aquifer is less desirable than groundwater discharge into a river since surface water contains pathogens and other micro-organisms that are not present in natural groundwater.

Surface water also has another distinctive signature that can be used for groundwater age-dating. It contains higher concentrations of certain dissolved manmade gases, such as chlorofluorocarbons, CFC-11, CFC-12, and CFC-113, (CFCs) and sulfur hexafluoride (SF_6) that have been widely distributed in the atmosphere for many years. However, as groundwater from a deep well in a confined aquifer typically takes many years to travel slowly through the subsurface, it is not expected to contain modern manmade gases unless it was exposed to the atmosphere or surface water since those gases were released. Therefore, the residence time or age of a groundwater sample from an aquifer can be determined based on the concentration of those gases in the groundwater after adjusting for certain assumptions.

The presence of CFCs in ground water indicates recharge after 1940 or mixing of older waters with post-1940 water (Busenberg et al., 1993). A relatively young or modern groundwater age typically indicates that there may be a problem with the well's structural integrity, or that the confining unit is leaking, thereby allowing the atmosphere or surface water to mix with the groundwater. Excessive pumping also can increase the groundwater flow rate through the aquifer so that relatively young groundwater can reach the monitoring well faster than normally would occur.

To investigate whether the Patuxent Aquifer is in direct hydraulic communication with the Anacostia River, a groundwater sample was collected for age-dating purposes from a monitoring well. The analytical suite covered CFCs, SF_6, dissolved carbon dioxide (CO_2), nitrogen (N_2), arsenic (Ar), and Hydrogen/Helium (H/He) isotopes. The monitoring well is located at the District's Aquatic Resources Education Center (AREC), and is three hundred and eighty-eight feet (388 feet) deep, screened in the Patuxent Aquifer, and located approximately two hundred feet (200 feet) away from the River on its eastern bank (Appendix 5.2). The well's recharge area is approximately three (3) miles to the northwest.   The well also is across the river from the location of DC CSO 019, a large combined sewer outfall, where millions of gallons of groundwater were removed to construct the tunnel, shaft, and diversion structures as part of the LTCP. Dewatering started at CSO 019 in 2013, and the age-dating sample was collected in 2021.

Due to delays caused by the pandemic, DOEE only received results from the CFC and SF_6 analyses. According to preliminary interpretations, CFC data show that the water is older than the CFC method can reliably date while SF_6 data indicate that the groundwater is more than fifty-five (55) years old. Results of the other laboratory analyses are expected to provide a more definitive age for the samples. Complete results and analyses will be available later in 2022.

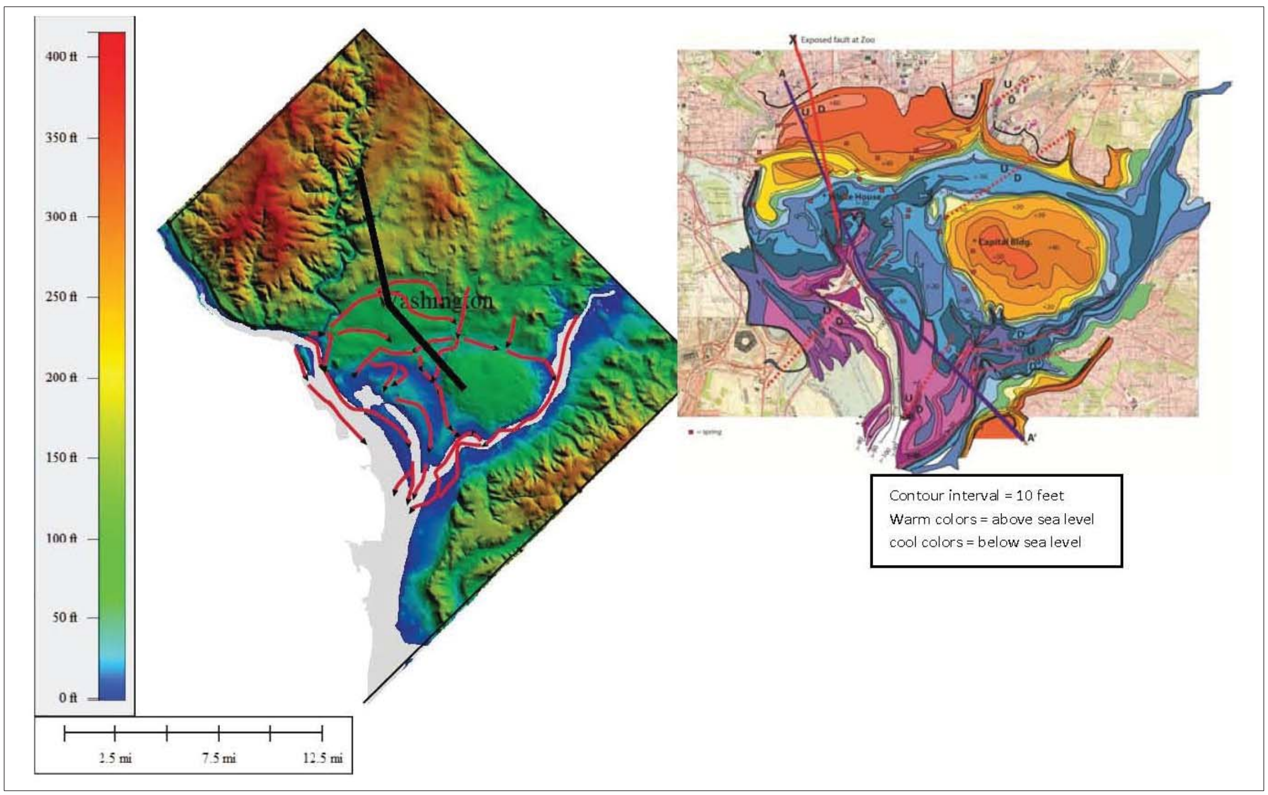


Figure 5.2 (Left) LiDAR elevation map of Washington D.C. and the paleochannels found in the current joint USGS-DOEE study (arrows pointing downriver). (Right) Structure contour map of base of Quaternary sediments showing numerous paleochannels and locations of proposed faults (red dashed lines) and documented fault (solid red line).

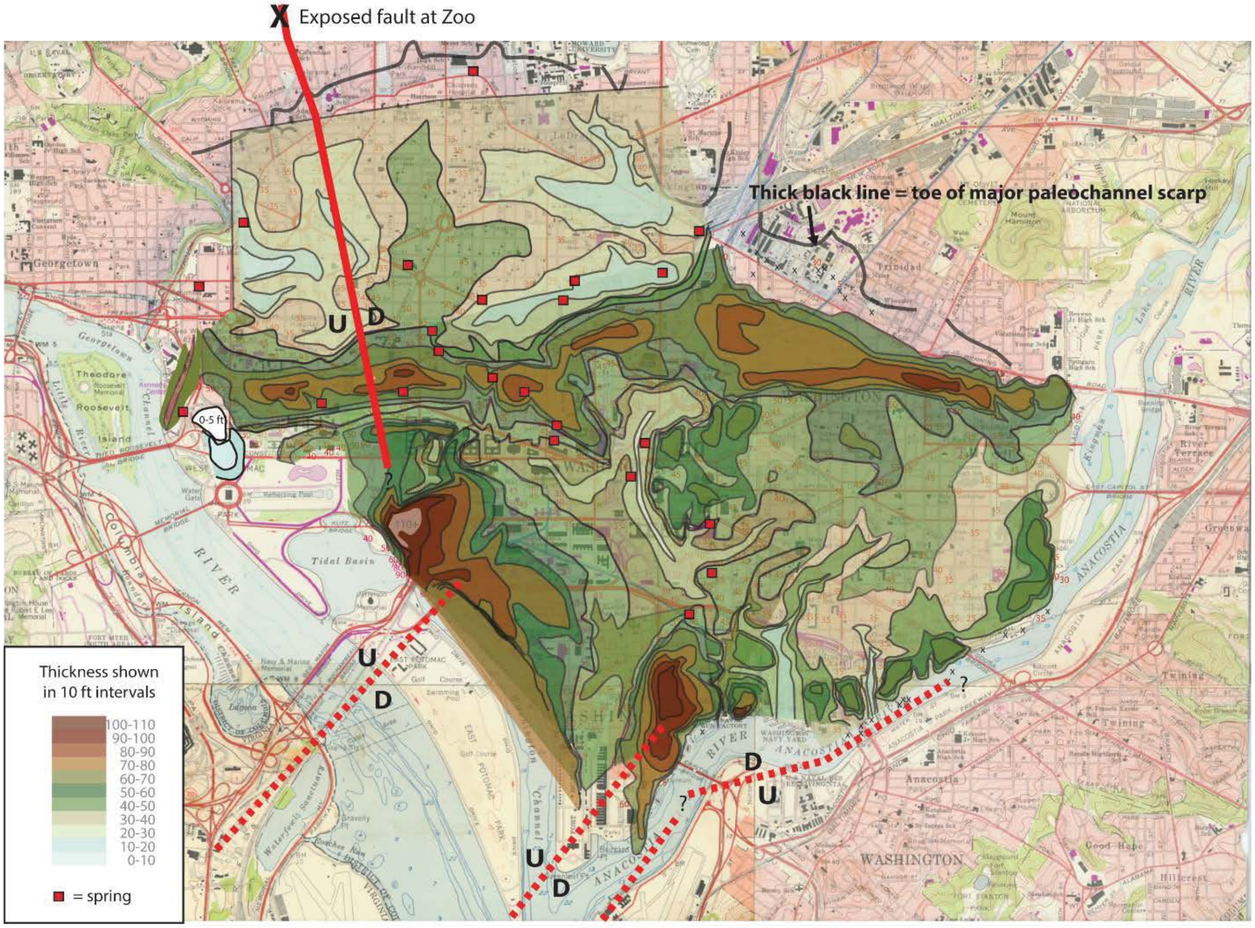


Figure 5.3 Map of the thickness of the Quaternary deposits beneath downtown Washington D.C. Thicker areas are sandy infillings of paleochannels and are groundwater reservoirs and conduits. The locations of most springs coincide with steep gradients where younger channel erosion cuts into older paleochannel deposits.

5.2 Groundwater Evaluation

Quantity of groundwater discharging to surface water and groundwater modeling activities is focused on quantification of the flow, distribution, recharge, and discharge to surface water, and quality is focused on water quality of groundwater resources within the District. The intent is to provide detailed and quantitative knowledge of the groundwater resources in the District to understand the contribution of groundwater to the surface water base flow, to address the seepage of nonpoint source pollution in the District, and to evaluate the groundwater resources as a potential water supply reserve. Some examples of the tools used to support the goals include: groundwater modeling, three-dimensional (3D) visualization of the District Aquifer Units, GIS layers of hydrogeologic unit distribution, analysis of all the existing subsurface information, construction of 3D geologic models, and the characterization and definition of the conceptual model of the multiple aquifer units present in the District. Information from the models is starting to be made available to other DOEE programs. The second stage of the modeling activities is focused on the northeast and central part of the city and the Tidal Anacostia River Watershed.

The groundwater evaluation team continues to integrate the existing geological and hydrogeological information available to create a new map of the surface geology of the District. A map of the distribution of the hydrogeologic units of the District is in its final stage. The subsurface data processed for the construction of the groundwater models also will be used in specialized software to construct geologic cross sections. A 3D geological model is under preparation to define the distribution of the District's aquifers and their interactions. A collection of references and maps were used to create a detailed Hydrogeological Conceptual Model of the District that served as the basis to design the discretization of the detailed 3D flow Groundwater Model for the District. The model is running, and further calibration was completed for the review of dewatering permits currently conducting depressurization of the main Patuxent Formation Aquifer.

A detailed 3D flow and transport groundwater model for the Tidal Anacostia River has been constructed using a finer grid with data from the collection and analysis of all the available hydrogeological information, including deep, representative soil borings. Currently the flow model is calibrated and will be included in the Tidal Anacostia River Groundwater Modeling Report.

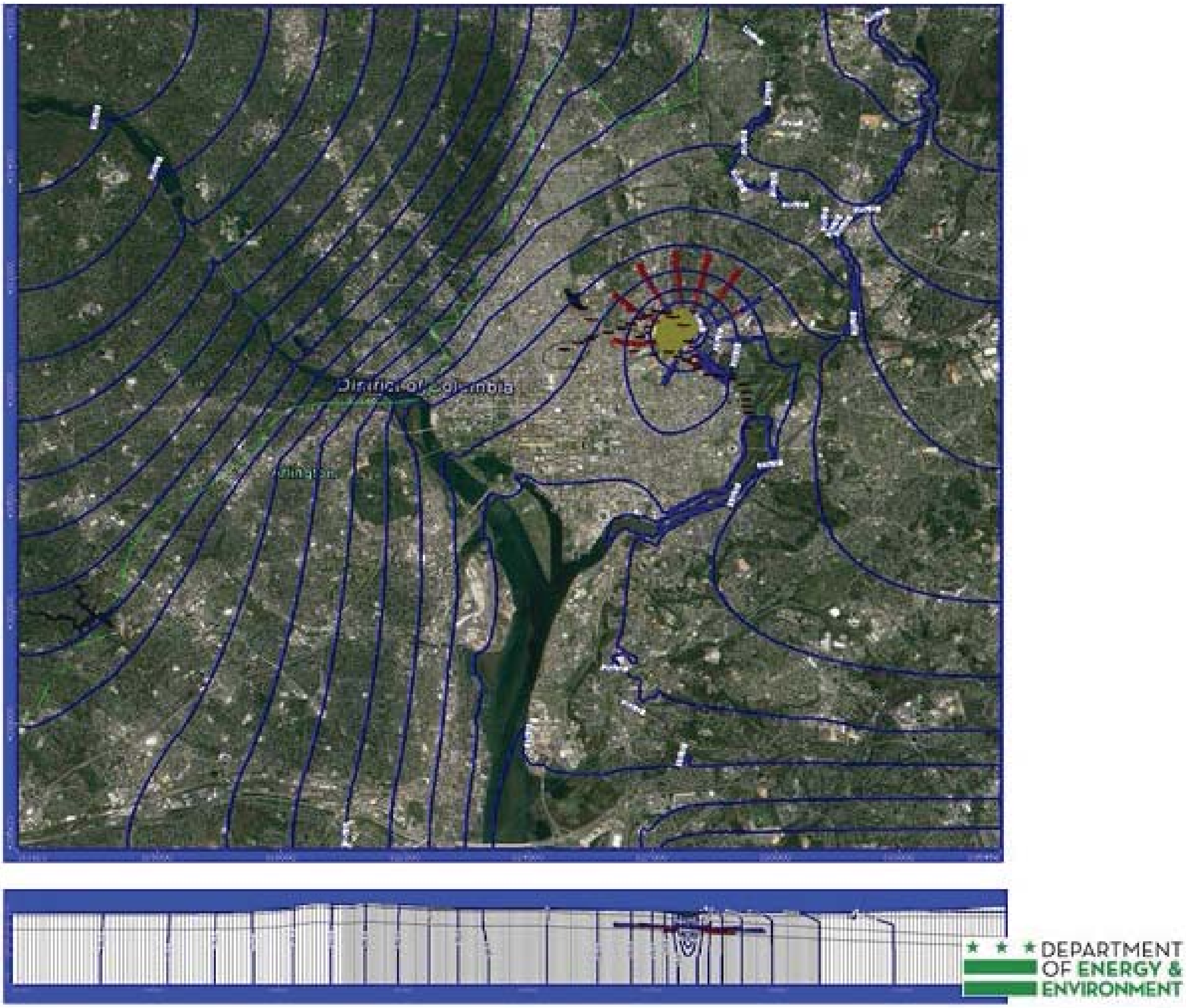


Figure 5.4 Figure 5.4 Groundwater Model and its Use for Dewatering Permits and Evaluation.

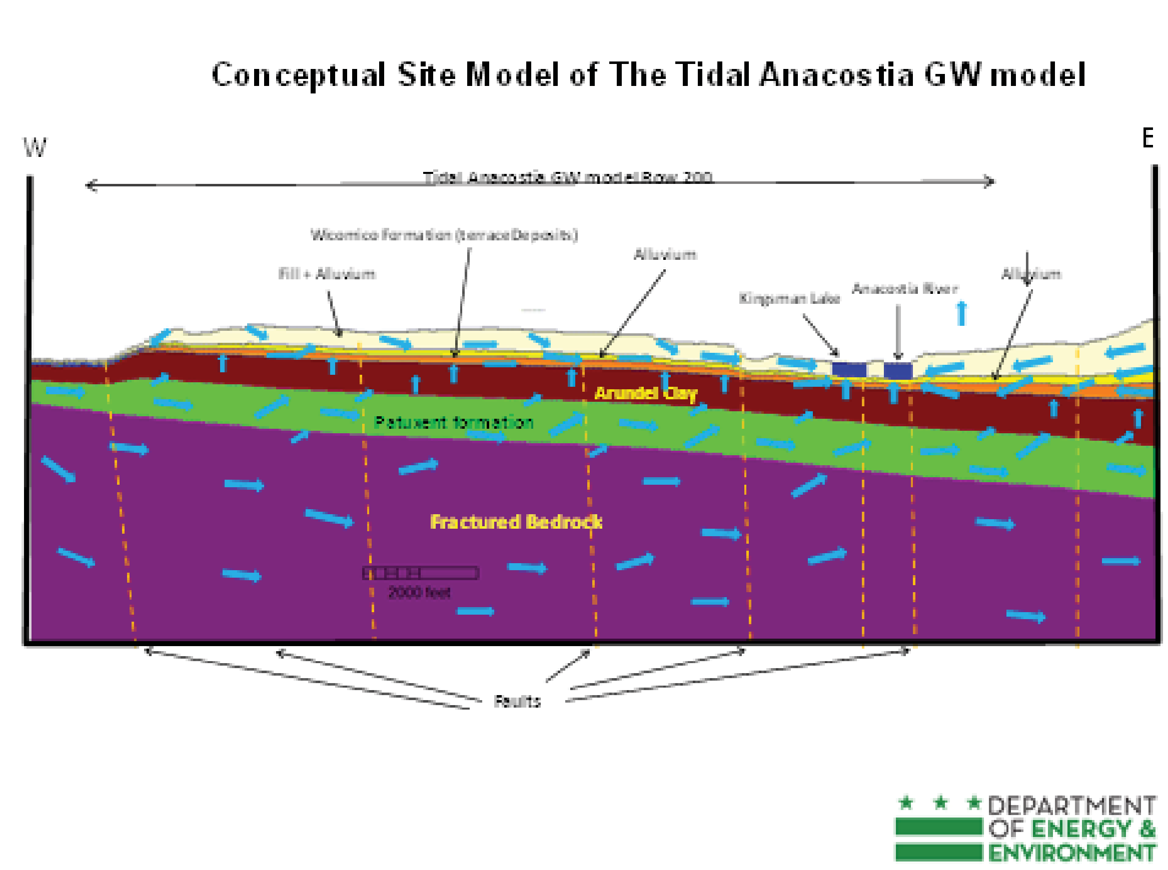


Figure 5.5 Tidal Anacostia River Groundwater Model Conceptual Site Model.

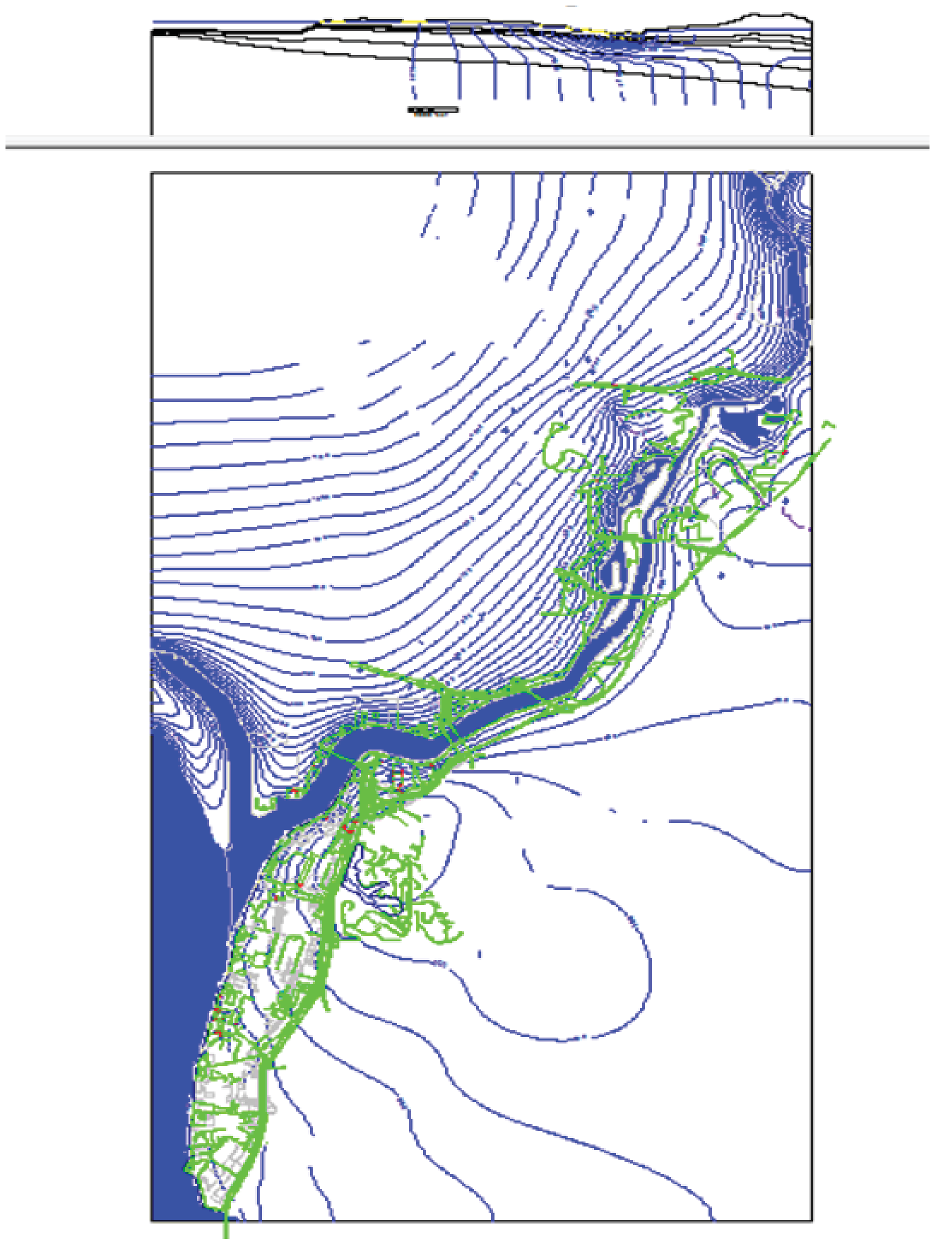
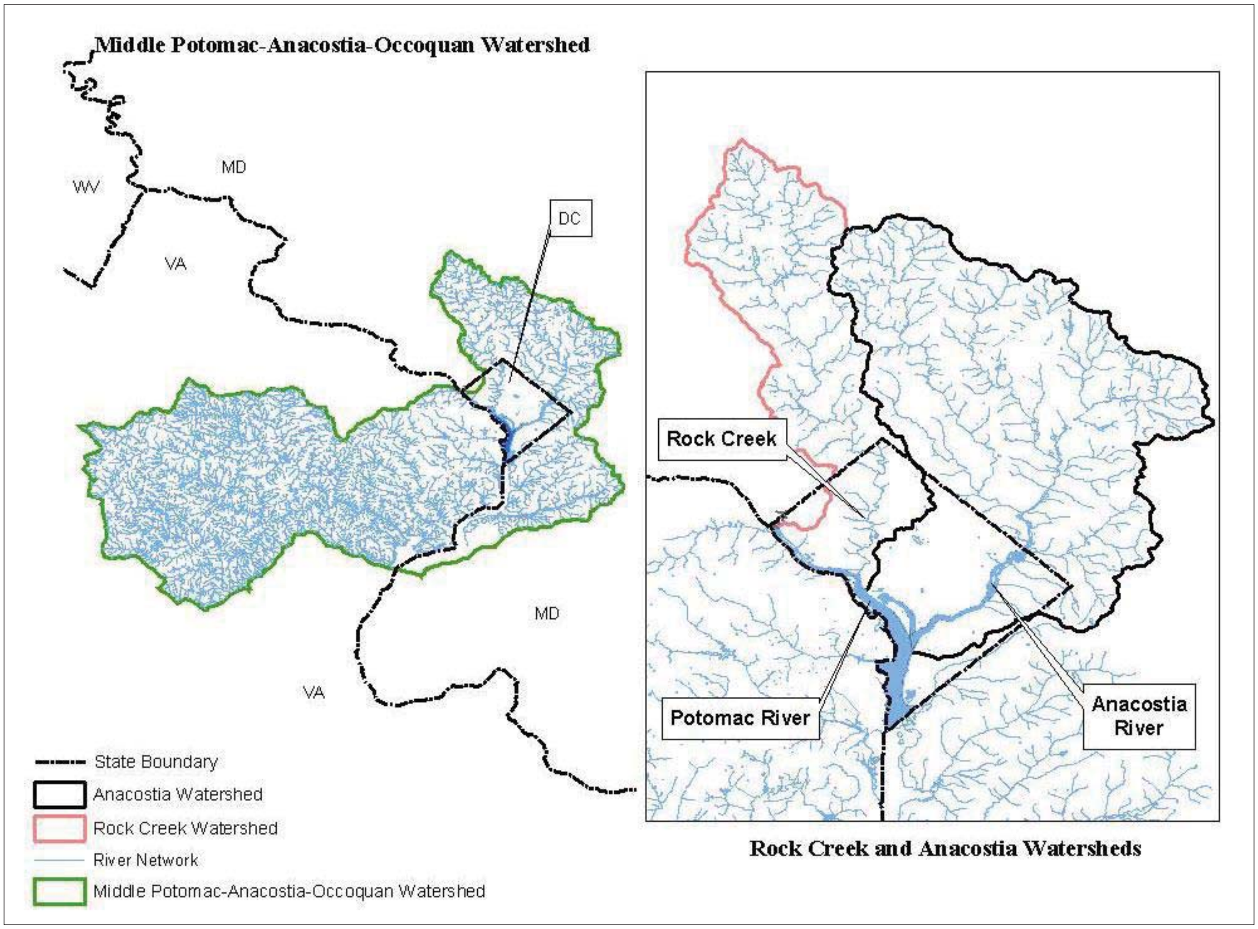


Figure 5.6 Tidal Anacostia River Model Results.

Appendix 2.1 Major District of Columbia Watersheds



Appendix 3.1 2022 Assessment and Listing Methodology, Use Support and Cause by Pollutant

District of Columbia Surface Water Assessment and Listing Methodology

Prepared for District Department of Energy and the Environment

August 2023

DEPARTMENT OF ENERGY & ENVIRONMENT

GOVERNMENT OF THE DISTRICT OF COLUMBIA

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District of Columbia Surface Water Assessment and Listing Methodology

AUGUST, 2023

Prepared on behalf of DOEE by

LimnoTech
Water Environment | Scientists Engineers

Michael P. Sullivan LLC
Environmental Consulting in Hydrology and Urban Water Quality

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DISTRICT OF COLUMBIA SURFACE WATER ASSESSMENT AND LISTING METHODOLOGY

BACKGROUND AND PURPOSE

The Clean Water Act (CWA) requires states - including the District of Columbia (the District) - to report on the quality of the Nation's waters. CWA Section 305(b) requires states to prepare a comprehensive biennial water quality assessment report and CWA Section 303(d) requires a list of waters for which effluent limitations are not sufficient to meet water quality standards (WQS). As part of WQS, waters are assigned designated uses, which define the types of uses that the waters are expected to support (i.e., primary contact recreation, secondary contact recreation etc.). Criteria and indicators for determining if these uses are attained are established for each designated use by waterbody or waterbody segment (e.g., bacteria concentrations to determine if a water is safe for swimming; chemical pollutant concentrations to determine if water can support aquatic life, etc.). Waters undergo a regular assessment process every other year to determine if criteria are met and individual designated uses are attained. Waters that meet the criteria for a given use "support" that designated use. Waters that do not meet the criteria for a given use do not support that designated use, and they are placed on the 303(d) list of impaired waters. Results are then reported through the Integrated Report (IR).

This document summarizes the District's methods for assessing attainment of designated uses, categorizing waterbodies based on attainment of uses, listing and delisting waterbodies on the 303(d) list, and reporting results through the IR. The District implements these methods to make impairment determinations and listing/delisting decisions, to determine categorizations, and to prepare the IR.

INTRODUCTION

Beginning in 2004, EPA recommended that states prepare a single water quality monitoring and assessment report (the IR) every even-numbered year that combines the Section 305(b) report and the Section 303(d) list of impaired waters (U.S. EPA, 2002). The District began to produce Section 305(b) reports in 1992 and Integrated Reports in 2004. The assessment of waterbody segments in the District is undertaken with a combination of physical/chemical water quality data, physical habitat data, benthic macroinvertebrate assessment data, fish tissue data, and observations related to narrative criteria[1].

EPA provides comprehensive information and guidance on WQS, water quality compliance, and water quality assessment and reporting. According to EPA,

> ***Water quality assessment*** *begins with water quality standards. After setting standards, states assess their waters to determine the degree to which these standards are being met. To do so, states may take biological, chemical, and physical measures of their waters; sample fish tissue and sediments; and evaluate land use data, predictive models, and surveys (U.S. EPA, 2021a).*

[1] Note that this assessment methodology establishes an approach for assessment that includes narrative criteria. Prior to the implementation of this assessment methodology, the District did not explicitly integrate narrative criteria into assessment.

In general terms,

> **Assessment** of an individual waterbody segment means analyzing physical/chemical water quality data, physical habitat data, benthic macroinvertebrate data, fish tissue data, observations related to narrative criteria, and other information to determine designated use support.
>
> **Designated use** is the use (or uses) specified for a waterbody whether it is attained or not.
>
> **Impaired waters** are those waterbodies that do not meet WQS.
>
> **Categorization** is used to organize and report on the assessment of waterbodies in the IR according to use attainment.
>
> A **303(d) list** is a compilation of impaired waterbodies.
>
> **Listing** is the process of placing an impaired waterbody on the 303(d) list.
>
> **Delisting** is the process of removing an impaired waterbody from the 303(d) list where the assessment methods and decision rules indicate that the condition causing the impairment is no longer present or not present.

EPA recognizes that states may use different methods to determine whether a waterbody meets WQS as long as they use “all existing and readily available information” in developing their 303(d) lists (40 C.F.R. §130.7(b) (5)). Accordingly, EPA’s regulations require states to submit a summary description of the methodology used to develop the list and to make a copy of the entire methodology available for review. In general, an assessment methodology constitutes the “decision rules” that will be used when assessing water quality to determine the impairment status and categorization for a particular waterbody (U.S. EPA, 2003).

Regarding content (U.S. EPA, 2005), EPA suggests that:

> *The assessment methodology should be consistent with the state’s WQSs and include a description of the following as part of their section 303(d) list submissions:*
>
> - *What data and information were used to make attainment determinations (e.g., results from site-specific and probabilistic monitoring and other predictive tools).*
> - *How the data and information were used to make attainment determinations and place surface water segments in the five reporting categories.*
> - *Rationales for any decision to not use any existing and readily available data and information.*
> - *Changes in the assessment methodology since the last reporting cycle.*

On balance, EPA guidance provides the District and other states with considerable latitude in designing and implementing methods to assess, categorize, and list and delist waterbodies.

DATA

The District considers all existing and readily available data to assess attainment of designated uses.

In general, the main sources of data used for assessment purposes are:

- District ambient water quality monitoring data
- Ambient monitoring data from other agencies (EPA, USGS, Corps of Engineers, DC Water, etc.)
- Monitoring data from other sources (universities, non-governmental organizations, citizen scientists, etc.)
- District phytoplankton, zooplankton, and benthic macroinvertebrate data
- District fish tissue data
- District physical habitat data
- District special monitoring studies
- Compliance monitoring
- Observations from District staff related to narrative criteria (see footnote #1 regarding the use of narrative criteria)
- TMDL documents for DC waterbodies including the Chesapeake Bay Total Daily Maximum Load for Nitrogen, Phosphorus and Sediment, 2010.

To maintain data quality, the District ensures that the data utilized for assessment is unbiased and based on scientifically sound data collection and analytical methods. The District's Water Quality Monitoring Regulations (District of Columbia Municipal Regulations [DCMR] Title 21, Chapter 19) were developed to ensure accurate, consistent, and reproducible water quality monitoring data for decision making purposes. These regulations include Quality Assurance Project Plan (QAPP) requirements and specific quality assurance procedures. Any data – including data collected by the District or data collected by others – that do not satisfy quality requirements are not utilized for assessment purposes.

The specific data utilized for assessment might vary from one reporting cycle to the next because of the implementation of special studies, the implementation of projects that include relevant data collection, or other reasons. The data used for assessment is documented in the individual IRs.

ASSESSMENT METHODOLOGY

During the assessment process, data are used to determine if a waterbody supports each of its designated uses. In general, data are compared against numeric water quality criteria, narrative criteria, and other benthic macroinvertebrate, fish tissue, and physical habitat metrics to determine if a given use is supported. If a waterbody meets criteria for a given use, that use is supported in that waterbody. If some or all criteria are not met, the waterbody does not support that designated use and it is considered impaired for that designated use.

Water Quality Standards

As described in the District's WQS (DCMR Title 21, Chapter 11), the categories of designated uses for the surface waters of the District of Columbia are:

- Class A – Primary contact recreation (swimmable)
- Class B – Secondary contact recreation and aesthetic enjoyment (wadeable)
- Class C – Protection and propagation of fish, shellfish, and wildlife (aquatic life)
- Class D – Protection of human health related to consumption of fish and shellfish (fish consumption)

- Class E – Navigation (ability to travel freely up and down the river using assorted watercraft and absent of man-made objects that impede free movement)

Assessment Criteria

The assessment criteria for each use class are summarized as follows:

- Class A: District WQS include narrative criteria and numeric criteria for E. coli, pH, and turbidity that apply to Class A waters for the protection of primary contact recreation.
- Class B: District WQS include narrative criteria and numeric criteria for pH and turbidity that apply to Class B waters for the protection of secondary contact recreation and aesthetic enjoyment.
- Class C: District WQS include narrative criteria, numeric criteria for dissolved oxygen, temperature, pH, turbidity, secchi depth, total dissolved gases, hydrogen sulfide, oil & grease, Chlorophyll-*a*, inorganic compounds (mostly metals but including ammonia), and organic constituents; physical habitat assessment metrics; and benthic macroinvertebrate metrics that apply to Class C waters for the protection of aquatic life.
- Class D: District WQS include narrative criteria and numeric criteria for metals and organic constituents that apply to Class D waters for the protection of human health. The District also uses EPA fish tissue screening values (U.S. EPA 2000) to identify contaminants in fish tissue that may pose risks to human health. Operationally, for the specific waterbodies or segments from which fish tissue is collected and found to be contaminated, the presence of a fish consumption advisory is considered in assessment (U.S. EPA, 2005).
- Class E: District WQS include narrative criteria that apply to Class E waters for the protection of navigation.

Assessment and Reporting Period

The District uses data from the most recent five-year period for assessment (the assessment period). Reporting (and 303(d) listing and delisting) is completed every other year in a biennial IR.

Assessment Units

Surface waters in the District are divided into waterbody segments (sometimes referred to as waterbodies or segments) that are used as assessment units (Table 1). As shown in the "Type" column, waterbody segments are distinguished as tidal or non-tidal. Each waterbody segment is assessed independently. A waterbody segment that does not support a designated use is considered impaired for that use.

Table 1. ***Waterbody Segments Used as Assessment Units***

Waterbody Name	Waterbody ID	Watershed	Type
Anacostia DC Seg 01 (Lower Anacostia)	DCANA00E SEG1	Anacostia	Tidal
Anacostia DC Seg 02 (Upper Anacostia)	DCANA00E SEG2	Anacostia	Tidal
Fort Chaplin Run	DCTFC01R	Anacostia	Non-tidal
Fort Davis Tributary	DCTFD01R	Anacostia	Non-tidal

Table 1. ***Waterbody Segments Used as Assessment Units***			
Waterbody Name	Waterbody ID	Watershed	Type
Fort Dupont	DCTDU01R	Anacostia	Non-tidal
Fort Stanton Tributary	DCTFS01R	Anacostia	Non-tidal
Hickey Run	DCTHR01R	Anacostia	Non-tidal
Nash Run	DCTNA01R	Anacostia	Non-tidal
Pope Branch (Hawes Run)	DCTPB01R	Anacostia	Non-tidal
Texas Avenue Tributary	DCTTX27R	Anacostia	Non-tidal
Watts Branch DC Seg 01 (Lower Watts Branch)	DCTWB00R SEG1	Anacostia	Non-tidal
Watts Branch DC Seg 02 (Upper Watts Branch)	DCTWB00R SEG2	Anacostia	Non-tidal
Kingman Lake	DCAKL00L	Anacostia	Tidal
Washington Ship Channel	DCPWC04E	Anacostia	Tidal
Potomac DC Seg 01 (Lower Potomac)	DCPMS00E SEG1	Potomac	Tidal
Potomac DC Seg 02 (Middle Potomac)	DCPMS00E SEG2	Potomac	Tidal
Potomac DC Seg 03 (Upper Potomac)	DCPMS00E SEG3	Potomac	Tidal
Battery Kemble Creek	DCTBK01R	Potomac	Non-tidal
Dalecarlia Tributary	DCTDA01R	Potomac	Non-tidal
Foundry Branch	DCTFB02R	Potomac	Non-tidal
Oxon Run	DCTOR01R	Potomac	Non-tidal
Chesapeake & Ohio Canal	DCTCO01L	Potomac	Non-tidal
Tidal Basin	DCPTB01L	Potomac	Tidal
Rock Creek DC Seg 01 (Lower Rock Creek)	DCRCR00R SEG1	Rock Creek	Non-tidal
Rock Creek DC Seg 02 (Upper Rock Creek)	DCRCR00R SEG2	Rock Creek	Non-tidal
Broad Branch	DCTBR01R	Rock Creek	Non-tidal
Dumbarton Oaks	DCTDO01R	Rock Creek	Non-tidal
Fenwick Branch	DCTFE01R	Rock Creek	Non-tidal
Klingle Valley	DCTKV01R	Rock Creek	Non-tidal
Luzon Branch	DCTLU01R	Rock Creek	Non-tidal
Melvin Hazen Valley Branch	DCTMH01R	Rock Creek	Non-tidal
Normanstone Creek	DCTNS01R	Rock Creek	Non-tidal
Pinehurst Branch	DCTPI01R	Rock Creek	Non-tidal
Piney Branch	DCTPY01R	Rock Creek	Non-tidal
Portal Branch	DCTPO01R	Rock Creek	Non-tidal
Soapstone Creek	DCTSO01R	Rock Creek	Non-tidal

Water Quality Assessment

Water Quality Data

The District models its assessment methods for water quality data and its decision rules for designated use attainment on recommendations made by EPA in its Consolidated Assessment and Listing Methodology (CALM) guidance (U.S. EPA, 2002). Specific assessment methods for individual constituents and the associated numeric criteria for constituents as found in the District's WQS (Title 21, Chapter 11 – District of Columbia Municipal Regulations) are described in Table 2. Waters that do not meet water quality criteria over the assessment period do not attain WQS and are considered to be impaired.

All of the water quality data collected during the assessment period is consolidated and organized by waterbody segment (the assessment unit) for assessment purposes. This can include data from multiple stations within a waterbody segment and, in some instances, multiple data samples and/or duplicate samples (e.g., QA/QC samples) collected on the same day. For all data used in the assessment, field and laboratory notes on data and data collection and laboratory-based data qualifier flags are used to determine the usability of data.

The assessment of conventional constituents generally follows the "ten percent" rule. That is, waters are impaired for 303(d) when:

> *More than 10% of the samples exceed the criterion* (U.S.EPA 2002)

Exceptions are the assessment of secchi depth and chlorophyll-*a* where seasonal segment averages instead of the ten percent rule are used for assessment. Consideration is given to criteria that are expressed to describe weekly, monthly, and seasonal averaging periods (e.g., weekly dissolved oxygen means, monthly *E. coli* geomeans seasonal segment average chlorophyll a measurements).

The assessment of toxic constituents (ammonia, metals, and organic constituents) is based on the "no more than once every three years" rule (U.S. EPA, 1997). This rule is used for the assessment of Class C aquatic life and Class D human health/fish consumption uses. Under this rule, non-attainment occurs where there is more than one exceedance of the water quality criteria within a three-year period based on grab or composite samples. Operationally, a single sample exceedance of Class C aquatic life or Class D human health/fish consumption criteria within a three-year period is assessed as insufficient information to make a use support decision. Two or more exceedances of the same criteria within a three-year period using grab or composite samples indicates an impaired condition where the use is not supported. EPA typically recommends that the "no more than once every three years" rule be applied on some minimal sample size – such as when 10 or more samples are collected within the 3-year period. However, 10 or more samples for a given toxic pollutant are rarely collected over any given 3-year period. Therefore, DOEE uses the "no more than once every three years" rule combined with its best professional judgment to evaluate whether toxic pollutants cause non-attainment in individual waterbodies.

Given that the District uses data from the most recent five-year period for biennial assessment and reporting, the three-year requirement of the no more than once every three years rule requires special treatment. This is accomplished by applying the one-in-three rule separately to data from years one through three, years two through four, and years three through five. Two or more exceedances within any of the three-year periods indicates an impaired condition where the use is not supported.

Table 2. *Assessment Methods for Numeric Water Quality Criteria*[1]				
Constituent	**DU Class**	**Water Quality Criterion (WQC)**	**Assessment Metric**	**Non-Attainment of Water Quality Criteria**
E. coli 30-day Geomean[2] (126) (Maximum 30-day geometric mean for 5 samples)	A	126 MPN/100 mL	Calendar month geomeans	Any monthly geomean exceedance of the WQC.
E. coli SSV (410)	A	410 MPN/100mL	All individual samples	>10% of the individual samples exceed the WQC.
Dissolved oxygen in non-tidal waters: Instantaneous Minimum year-round in non-tidal waters.	C	5 mg/L	All individual samples	>10% of the individual samples exceed the WQC.
Dissolved oxygen in tidal waters Feb 1 through May 31: 7-day mean[3].	C	6 mg/L	7-day means. Use successive weeks beginning Feb 1, Feb 8, etc.	>10% of assessment metric (7-day means) exceed the WQC.
Dissolved oxygen in tidal waters Feb 1 through May 31: Instantaneous minimum.	C	5 mg/L	All individual samples	>10% of the individual samples (instantaneous minimums) exceed the WQC.
Dissolved oxygen in tidal waters June 1 through Jan 31: 30-day mean[4].	C	5.5 mg/L	Calendar month means	>10% of assessment metric (calendar month means) exceed the WQC.
Dissolved oxygen in tidal waters June 1 through Jan 31: 7-day mean.	C	4 mg/L	7-day means. Use successive weeks beginning June 1, June 8, etc.	>10% of assessment metric (7-day means) exceed the WQC.
Dissolved oxygen in tidal waters June 1 through Jan 31:	C	3.2 mg/L Use 4.3 mg/l if water temperature is ≥ 29 degrees C	All individual samples. Adjust criteria where temperature is ≥ 29 degrees C	>10% of the individual samples exceed the WQC.

Table 2. *Assessment Methods for Numeric Water Quality Criteria*[1]				
Constituent	**DU Class**	**Water Quality Criterion (WQC)**	**Assessment Metric**	**Non-Attainment of Water Quality Criteria**
Instantaneous minimum.				
Temperature: maximum	C	32.2 degrees C	All individual samples	>10% of the individual samples exceed the WQC.
Temperature: Maximum change above ambient.	C	2.8 degrees C	All individual samples	>10% of the individual samples exceed the WQC.
pH	A, B, C	> 6.0 and < 8.5	Individual samples	>10% of the individual samples exceed the WQC
Oil and Grease	C	10 mg/L	Individual samples	>10% of the individual samples exceed the WQC
Turbidity Increase above ambient	A, B, C	20 NTUs	Individual samples	>10% of the individual samples exceed the WQC
Secchi depth: seasonal segment average in tidal waters April 1 through October 31	C	0.8 m	Seasonal segment averages (April 1 through October 31) over the five-year assessment period.	Mean of seasonal segment averages exceeds the WQC
Chlorophyll-*a*: Seasonal average in tidal waters from July 1 to September 30	C	25 ug/L	Seasonal segment averages (July 1 through Sept 30) over the five-year assessment period.	Mean of seasonal segment averages exceeds the WQC
Ammonia	C	Specific chronic (CCC) 4-day avg concentration depending upon pH, temperature and season	All calculated CCC Values. For CCC, the highest 4-day avg concentration within a calendar month shall not exceed 2.5 times the CCC.	Two or more exceedances of the CCC aquatic life criterion within a three-year period[5]
	C	Specific acute (CMC) 1-hour avg concentration depending upon pH and temperature	All calculated CMC values	Two or more exceedances of the CMC aquatic life criterion within a three-year period[5]

Table 2. *Assessment Methods for Numeric Water Quality Criteria*[1]				
Constituent	**DU Class**	**Water Quality Criterion (WQC)**	**Assessment Metric**	**Non-Attainment of Water Quality Criteria**
Metals	C	Specific chronic (CCC) 4-day avg concentration for each metal	All calculated CCC concentrations (converted to appropriate dissolved or total fraction as needed for comparison to criteria)	Two or more exceedances of a CCC aquatic life criterion within a three-year period[5]
	C	Specific acute (CMC) 1-hour avg concentration for each metal	All calculated CMC concentrations (converted to appropriate dissolved or total fraction as needed for comparison to criteria)	Two or more exceedances of a CMC aquatic life criterion within a three-year period[5]
	D	Specific 30-day human health concentration for each metal	Calendar month 30-day average concentrations	Two or more exceedances of a human health criterion within a three-year period[5]
Organic constituents	C	Specific chronic (CCC) 4-day avg concentration for each metal	All calculated CCC concentrations (converted to appropriate dissolved or total fraction as needed for comparison to criteria)	Two or more exceedances of a CCC aquatic life criterion within a three-year period[5]
	C	Specific acute (CMC) 1-hour avg concentration for each metal	All calculated CMC concentrations (converted to appropriate dissolved or total fraction as needed for comparison to criteria)	Two or more exceedances of a CMC aquatic life criterion within a three-year period[5]
	D	Specific 30-day human health concentration for each metal	Calendar month 30-day average concentrations	Two or more exceedances of a human health criterion within a three-year period[5].

[1] Use support decisions for most constituents are based on a five-year statistical evaluation of ambient water quality data. Assessment occurs at the waterbody segment level. Consideration can be given to the recentness of data, extreme weather conditions, and other factors in assessing non-attainment.

[2] The 30-day geometric mean is a calendar month geomean.

[3] The 7-day mean refers to a calendar date mean for successive seven-day periods (e.g., January 1-7, January 8-14, etc.).

[4] The 30-day mean is a calendar month mean.

[5] Best professional judgment and potential use of the ten percent rule are considered for metals and organic constituents if the number of samples is abundant relative to the number of exceedances (e.g., two exceedances out of fifty samples in a three-year reporting period, or 4%, might be interpreted as attainment). In addition, best professional judgment is also used when the sample size is low (e.g., when the sample size is less than 10).

Treatment of Non-detect (ND) Values

ND values occur when a water quality sample is analyzed but the pollutant of interest is not found (not detected) above the detection limit. Detection limits represent the lowest concentrations of the constituent that can be measured reliably. For the purposes of water quality assessment, ND values are treated as follows:

- Pollutants of interest are not assumed to be present when reported as ND.
- NDs are not replaced or substituted with estimates such as the Method Detection Limit [MDL] or one-half the MDL in assessment.
- In cases where a calculated value is required for comparison with a criterion that is a measure of central tendency (e.g., a mean, geomean, or average) NDs are not included in the calculation.
- In cases where the number of samples is considered in the analysis (e.g., for parameters assessed using the "the ten percent rule"- see Table 2), NDs are used as part of the sample count but they are not interpreted as exceedances.
- In the case of metals and organic constituents where the number of exceedances within a three-year time period are evaluated, NDs are not considered exceedances.

Physical Habitat Assessment

The District is studying its physical habitat assessment metrics and protocol in 2023. The objective is to develop new metrics and a protocol that reflect the urban nature of tributary streams in the District. The District expects to add the revised metrics and protocol to the Assessment Methodology when they become available.

Benthic Macroinvertebrate Assessment

The District is studying its benthic macroinvertebrate assessment metrics and protocol in 2023. The objective is to develop new metrics and a protocol that reflect the urban nature of tributary streams in the District. The District expects to add the revised metrics and protocol to the Assessment Methodology when they become available.

Fish Tissue Analysis and Assessment

The District uses the results of fish tissue analysis to assess Class D use and the safety of eating fish caught in District waters (e.g., U.S. Fish and Wildlife Service. 2018). Assessment is based on a comparison of the concentration of chemical contaminants found in fish tissue with U.S. EPA fish tissue screening values, which are concentrations above which fish tissue contaminants may pose risks to human consumers (U.S. EPA, 2000).

Operationally, fish tissue analysis and assessment includes the following steps:

- Fish tissue samples for up to 12 or more different fish species are collected at multiple sampling locations in the mainstem Anacostia and Potomac River (currently two stations in the tidal Anacostia River and two in the tidal Potomac River).

- One composite sample for individual fish species (e.g., American eel, American shad, etc.) is produced for each sampling location based on at least two individual fish from that species.

- The concentration of metals and organic constituents in the fish tissue is determined for each of these composite samples for each species (e.g., American eel) at each location (e.g., Upper Anacostia).

- The composite samples from each location for each species are combined into one sample set and summary statistics for the fish tissue concentrations within that sample set are developed (i.e., minimum, maximum, and median concentrations of total PCBs from American eel).
- For assessment purposes, an individual sample exceedance occurs when the median value of the samples for any of the fish species sampled exceeds the screening value for a metal or organic constituent.
- An overall violation of the Class D fish consumption use occurs when at least one fish species exceeds a screening value, as described in the previous bullet.

Given limited monitoring resources, fish tissue collection and analysis is focused on the mainstem tidal waters of the Anacostia and Potomac rivers. These waters are deemed to be the most likely to have chemically contaminated water and sediment quality, and the most likely to support subsistence and sport fishing activities. The assessment results based on mainstem Anacostia and Potomac river fish tissue sampling stations are applied to all tidal waterbody segments (see Table 1).

The District uses results from the fish tissue analysis to develop a fish consumption advisory. For example, the 2016 DC Fish Consumption Advisory (DOEE, 2016) recommends:

> *Do not eat eel, carp, or striped bass (rockfish, striper) caught in District waters because they are the most contaminated by chemicals like polychlorinated biphenyls (PCBs).*

While the fish consumption advisory is based on fish tissue results, its primary purpose is as a public health warning.

Narrative Criteria

In addition to numeric WQS, physical habitat, benthic macroinvertebrate, and fish tissue analysis and assessment, the District has narrative criteria that are assessed to determine attainment of designated uses. The narrative criteria are statements that describe the desired water quality goal, such as waters being “free from” pollutants like oil and scum, color and odor, and other substances that can harm people and fish. The principal narrative criteria in the District found in the District’s WQS Standards (DCMR Title 21, Chapter 11) that inform assessment are summarized in Table 3.

Table 3. Narrative Criteria	
1104.1	The surface waters of the District shall be free from substances in amounts or combinations that do any one of the following: (a) Settle to form objectionable deposits; (b) Float as debris, scum, oil, or other matter to create a nuisance; (c) Produce objectionable odor, color, taste, or turbidity; (d) Cause injury to, are toxic to, or produce adverse physiological or behavioral changes in humans, plants, or animals; (e) Produce undesirable or nuisance aquatic life or result in the dominance of nuisance species; or (f) Impair the biological community that naturally occurs in the waters or depends upon the waters for its survival and propagation.
1104.3	Class A waters shall be free of discharges of untreated sewage, litter and unmarked submerged or partially submerged man-made structures that would constitute a hazard to the users of Class A waters.

Table 3. Narrative Criteria	
1104.4	The aesthetic qualities of Class B waters shall be maintained. Construction, placement or mooring of facilities not primarily and directly water oriented is prohibited in, on, or over Class B waters unless: (a) The facility is for the general public benefit and service, and (b) Land based alternatives are not available.
1104.5	Class C streams shall be maintained to support aquatic life and shall not be placed in pipes.
1104.6	Within tidally influenced Class C waters, concentrations of chlorophyll a in free floating microscopic aquatic plants (algae) shall not exceed levels that result in ecologically undesirable consequences such as reduced water clarity, low dissolved oxygen, food supply imbalances, proliferation of species deemed potentially harmful to aquatic life or humans or aesthetically objectionable conditions or otherwise render tidal waters unsuitable for designated uses.
1104.7	Class E waters shall be free of unmarked submerged or partially submerged man-made objects that pose a hazard to users of these waters.

Narrative criteria provide blanket protection for all waters. They can also protect waterbodies from pollutants for which numeric criteria are difficult to specify. The attainment of narrative criteria is typically evaluated through field observation and best professional judgment of monitoring and assessment staff. Reported conditions that might affect support of a designated use related to narrative criteria (the “free from”) are documented over the assessment and reporting period and evaluated as a component of the Assessment Methodology. Use support based on the narrative criteria is assessed with the questions provided in Table 4.

Table 4. Assessment Using Narrative Criteria			
Name of affected waterbody/segment:			
What is the reported condition?			
What uses are potentially impacted by the reported condition?			
	Yes	No	Comment
Is the reported condition substantial? (e.g., Is it significant and sizeable?)			
Is the reported condition widespread? (e.g., Does it widely impact the waterbody/segment?)			
Are any visual impacts seen? (e.g., Nuisance conditions, biological impairment, etc.)			
Is the rereported condition persistent? (e.g., Has it occurred over a long period of time or continuously?)			
Has the reported condition been remediated?			
Does the available water quality data meet the numeric criteria and support the designated use?			
Does the reported condition preclude the waterbody from supporting a designated use?			
Use support Determination: Fully Supporting _________ Not Supporting _________			

Completion of Table 4 with a use support determination based on narrative criteria is conducted by the assessment staff based on experience, knowledge of the local waterbodies, and best professional judgment.

Decision Rules for Attaining Designated Uses

The District's Assessment Methodology is governed by a set of decision rules that are intended for use support determination, categorizing waterbodies, and listing and delisting impaired waterbodies on the 303(d) list. These rules incorporate EPA's Independent Application Policy on the use of multiple types of data to assess attainment (U.S. EPA, 2005).

For Purposes of WQS Attainment/Nonattainment Determinations

Policy of independent applicability says:

- When evaluating multiple types of data (e.g., biological, chemical) and any one type of data indicates an element of a WQS is not attained, the segment should most likely be identified as impaired.

- If there is reason to doubt the nonattainment finding, re-evaluate all of the data sets to resolve discrepancies. In some cases, this may lead to modification of applicable WQS to account for site-specific information.

Policy of independent applicability does not say:

- Always assume that a single sample result showing impairment outweighs all other data showing attainment.
- Accept all differences in data findings at face value.

The decision rules for attaining designated uses in a waterbody are presented in Table 5.

Table 5. Decision Rules for Attaining Designated Uses

Use Class	Decision	Criterion	Decision Rule
A	Fully Supporting	E. coli	No exceedance of monthly geomean during assessment period. **AND**
			≤10% of samples exceed SSV **AND**
		Conventional pollutants (pH, turbidity)	≤10% of the individual samples exceed the WQC **AND**
		Narrative criteria	Water meets all relevant narrative criteria, including DC WQS §1104.3
	Not supporting	E. coli	Any exceedances of monthly geomean during assessment period **OR**
			>10% of samples exceed SSV **OR**
		Conventional pollutants (pH, turbidity)	>10% of the individual samples exceed the WQC **OR**
		Narrative criteria	Water does not meet all relevant narrative criteria, including DC WQS §1104.3
B	Fully Supporting	Conventional pollutants (pH, turbidity)	≤10% of the individual samples exceed the WQC **AND**

Table 5. Decision Rules for Attaining Designated Uses			
Use Class	Decision	Criterion	Decision Rule
		Narrative criteria	Water meets all relevant narrative criteria, including DC WQS §1104.4
	Not supporting	Conventional pollutants (pH, turbidity)	>10% of the individual samples exceed the WQC **OR**
		Narrative criteria	Water does not meet all relevant narrative criteria, including DC WQS §1104.3
C	Fully Supporting	Conventional pollutants (other than secchi depth and chlorophyll a)	≤10% of the individual samples exceed the WQC **AND**
		Secchi depth	Mean of seasonal segment averages does not exceed the WQC **AND**
		Chlorophyll a	Mean of seasonal segment averages does not exceed the WQC **AND**
		Ammonia	No more than one exceedance of the CCC WQC every three years. **AND**
			No more than one exceedance of the CMC WQC within three years **AND**
		Toxic pollutants (e.g., metals, organic constituents)	No more than one exceedance of the CCC within three years. **AND**
			No more than one exceedance of the CMC within three years. **AND**
		Bioassessment Protocols[1]	Macroinvertebrate results indicate “Fair” to “Good” water quality **AND**
		Physical habitat assessment Protocols[1]	Physical habitat assessment results indicate “Fair” to “Good” water quality

Table 5. Decision Rules for Attaining Designated Uses			
Use Class	Decision	Criterion	Decision Rule
			AND
		Narrative criteria	Water meets all relevant narrative criteria, including DC WQS §1104.6
C	Not Supporting	Conventional pollutants (e.g., pH, turbidity, DO, temperature, etc.)	>10% of the individual samples exceed the WQC **OR**
		Secchi depth	Mean of seasonal segment averages (n≤5) exceeds the WQC **OR**
		Chlorophyll a	Mean of seasonal segment averages (n≤5) exceeds the WQC **OR**
		Ammonia	More than one exceedance of the CCC WQC every three years. **OR**
			More than one exceedance of the CMC WQC every three years. **OR**
		Toxic pollutants (e.g., metals, organic constituents)	More than one exceedance of the CCC WQC within three years. **OR**
			More than one exceedance of the CMC WQC within three years[2] **OR**
		Bioassessment Protocols[1]	Macroinvertebrate results indicate "Poor" water quality **OR**
		Physical habitat assessment Protocols[1]	Physical habitat assessment results indicate "Poor" water quality **OR**
		Narrative criteria	Water does not meet all relevant narrative criteria, including DC WQS §1104.6

Table 5. Decision Rules for Attaining Designated Uses			
Use Class	Decision	Criterion	Decision Rule
D	Fully Supporting	Toxic pollutants (e.g., metals, organic constituents)	No more than one exceedance of the human health WQC within three years **AND**
		Fish tissue (e.g., metals, organic constituents)	No exceedance of EPA fish tissue screening values **AND**
		Narrative	Water meets all relevant narrative criteria
	Not Supporting	Toxic pollutants (e.g., metals, organic constituents)	More than one exceedance of the human health WQC within three years[2] **OR**
		Fish tissue (e.g., metals, organic constituents)	One or more exceedances of an EPA fish tissue screening value for a metal or organic constituent **OR**
		Narrative	Water does not meet all relevant narrative criteria
E	Fully Supporting	Narrative	Water meets all relevant narrative criteria, including DC WQS §1104.7
	Not Supporting	Narrative	Water does not meet all relevant narrative criteria, including DC WQS §1104.7

[1]Bioassessment and physical habitat assessment protocols will be used when updated metrics and protocol are approved.

[2]Best professional judgment and potential use of the ten percent rule are considered for metals and organic constituents if the number of samples is abundant relative to the number of exceedances (e.g., two exceedances out of fifty samples in a three-year reporting period, or 4%, might be interpreted as attainment). In addition, best professional judgment is also used when the sample size is low (e.g., when the sample size is less than 10).

Note that sometimes evaluations of individual criteria can fail to definitively determine use support (e.g., the evaluation may be indeterminate if there is insufficient available data/information to make a use support determination). An example is toxics analysis, where low sample sizes or high detection limits may not yield a definitive result as to whether toxics impair a use or whether that use is not supported.

In cases where other there are other data and criteria that definitively establish that a use is not supported, those other data and criteria are used and the criteria that do not provide a definitive result are not needed for the use support determination. However, the metric or metrics that do not provide a definitive result are important in cases where other criteria indicate that the use is supported. In these cases, the decision is that there is insufficient available data/information to make a use support determination. This case is covered under Category 3 in the section below on “Categorization”.

CAUSES OF IMPAIRMENT

Using the decision rules for attaining designated uses in Table 10, the District identifies and records the cause for each designated use impairment in Categories 4 and 5 of the IR (See next section on Categorization). The identification of cause is based on the type of data and metrics used to make the assessment.

The District typically addresses the cause of impairment in one of three ways, as summarized below:

1. In the most typical case, where non-attainment is a result of the violation of a numeric water quality criterion, the cause is the specific pollutant violating the criterion (e.g., *E. coli* or arsenic in the water column or PCBs in fish tissue).
2. In the second case, DOEE can use the results of the physical habitat or benthic macroinvertebrate metric to indicate non-attainment. However, the specific pollutant causing the failure of the physical habitat or benthic macroinvertebrate metric may not be known. Consistent with guidance provided for EPA’s Assessment and Total Maximum Daily Load Tracking and Implementation System (ATTAINS) (U.S. EPA, 2015), the District can report physical habitat assessment or benthic macroinvertebrate assessment as a cause of non-attainment.
3. In the third case, where impacts to stream flows or habitats are observed through physical observations, DOEE may attribute impairment to a non-pollutant cause. For reporting purposes in the IR and ATTAINS, the District can use impairment parameters such as flow alteration and habitat alteration to denote non-pollutant causes where documentation that narrative criteria are not supported is available.

In these latter two types of circumstances, where impairment is not attributed to a specific pollutant, it is sufficient for the purposes of 305(b) reporting to list the non-pollutant observed impairment deficiency as the cause. In these cases, further investigation to assess whether a specific pollutant is the cause of impairment with a stressor analysis may be warranted. The District plans to develop full stressor analysis procedures to identify specific causes of aquatic life use impairments identified through macroinvertebrate or physical habitat assessment protocols and for other situations where specific causes are not identified through the assessment process.

As shown in Table 6, the methods for identifying the causes of impairment are specific to the criteria type that is exceeded or transgressed.

Table 6. Methods for Identifying Cause of Impairment		
Designated use class	Criterion Type	Method for Identifying Cause of Impairment
Class A Primary contact recreation	Numeric criteria for individual pollutants (e.g., E. coli, pH, turbidity)	Cause is the specific pollutant or pollutants that exceed numeric criteria.
	Narrative criteria	Cause is identified by best professional judgment of assessment staff.
Class B Secondary contact recreation and aesthetic uses	Numeric criteria for individual pollutants (e.g., pH, turbidity)	Cause is the specific pollutant or pollutants that exceed numeric criteria
	Narrative criteria	Cause is identified by best professional judgment of assessment staff.
Class C Aquatic Life	Numeric criteria (e.g., pH, turbidity, DO, trace metals, organic constituents, etc.)	Cause is the specific pollutant or pollutants that exceed numeric criteria.
	Benthic macroinvertebrate and physical habitat assessment protocols[1]	Cause is identified through assessment protocols or a stressor analysis. The cause may be a pollutant or a non-pollutant.
	Narrative criteria	Cause is identified by best professional judgment of assessment staff (e.g., flow alteration).
Class D Fish Consumption	Numeric criteria for individual pollutants (e.g., trace metals and organic constituents)	Cause is the specific pollutant or pollutants that exceed numeric criteria.
	Fish tissue screening values	Cause is the specific pollutant or pollutants that exceed fish tissue screening values.
	Narrative criteria	Cause is identified by best professional judgment of assessment staff.
Class E Navigation	Narrative criteria	Cause of impairment is due to unmarked submerged or partially submerged man-made objects that pose a hazard to users of these waters as determined by best professional judgment of assessment staff
[1]Bioassessment and physical habitat assessment protocols will be used when updated metrics and protocol are approved.		

CATEGORIZATION

The District follows the five-category approach for classifying WQS attainment using the guidelines for category placement established by EPA (U.S. EPA, 2005). Following assessment, the District places every waterbody into one or more of the five IR categories based on the attainment of each designated use for that waterbody as shown in Table 7. The decision logic that the District applies to document use attainment and categorization is presented in Figure 1. The emphasis within this logic is on concurrent evaluation of all available and applicable metrics/criteria for a given use. As the results from all available/applicable metrics are considered together, the results of the most “conservative” decision (i.e., impairment is the most conservative decision; attainment is the least conservative decision) drive the attainment status of any given use in any given waterbody.

Table 7. Categorization of Waterbodies

Category	Definition
1	All designated uses are supported, and no use is threatened.
2	Available data and/or information indicate that some but not all of the designated uses are supported.
3	There is insufficient available data and/or information to make a use support determination.
4	Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed for specified, acceptable reasons. Category 4 and its subcategories may include TMDLs that may or may not need to be revised for one reason or another, including court orders, consent decrees, and availability of new information. The subcategories are:
4a	A State developed TMDL has been approved by EPA or a TMDL has been established by EPA for any segment-pollutant combination.
4b	Other required control measures are expected to result in the attainment of an applicable WQS in a reasonable period of time.
4c	The non-attainment of any applicable WQS for the segment is the result of pollution and is not caused by a pollutant[1].
5	Available data and/or information indicate that at least one designated use is not being supported or is threatened, and a TMDL is needed.

[1]Section 502(19) of the Clean Water Act defines pollution as “the man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.” Section 1199 of the District’s WQS defines “pollution” the same way and defines “pollutant” as any “substance that may alter or interfere with the restoration or maintenance of the chemical, physical, radiological, or biological integrity of the waters of the District.”

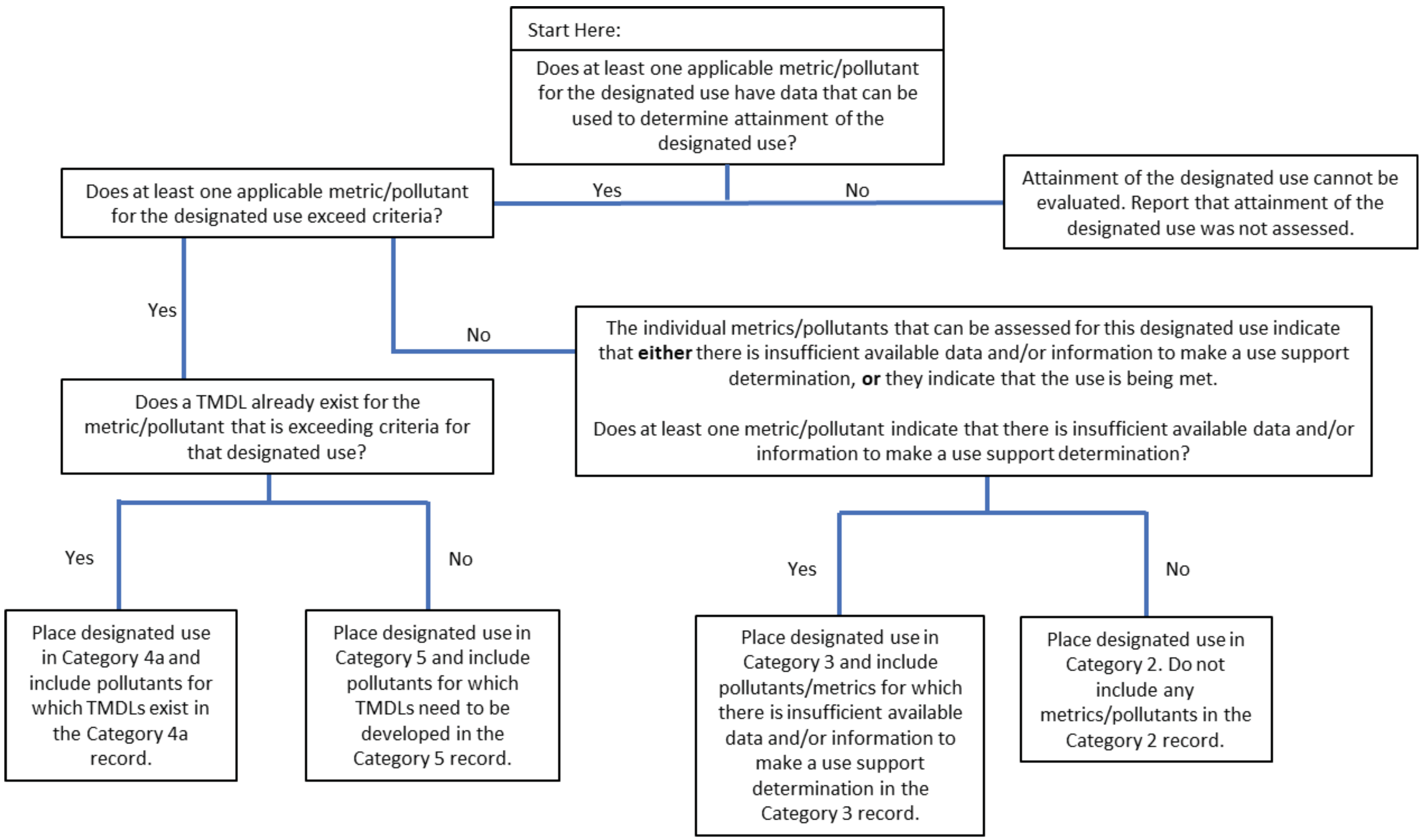

Figure 1. Decision Logic for Use Attainment and Categorization

Categorization allows the District to track progress as waterbodies incrementally or entirely attain WQS; demonstrate advancement in the development and implementation of TMDLs and other required control measures; and target monitoring for those waterbodies where additional data and information is needed to assess WQS attainment. In general,

- Waterbodies are placed in Category 1 when the assessment process indicates that all WQS are attained, and all designated uses are supported.
- Waterbodies/use classes within waterbodies are placed in Category 2 when the assessment process indicates that one or more designated use is supported but the data and information available is insufficient to determine that other designated uses are supported.
- Waterbodies/use classes within waterbodies are placed in Category 3 where insufficient data and information are available to make a use support determination. This insufficiency can be due to not having enough data or to not having the right quality of data to rigorously evaluate a waterbody's attainment status. Pollutants are not identified for this category because the impairment is uncertain.
- Waterbodies/use classes within waterbodies are placed in Category 4 when the impairment is recognized and either a TMDL or another control program aimed at attainment of WQS is in place, or where non-attainment is not causally linked to a pollutant.
- Waterbodies/use classes within waterbodies are placed in Category 5 when the impairment is recognized and a TMDL is needed. The waterbody/pollutant combinations in Category 5 constitute the 303(d) list. Category 5 is governed by 40 CFR 130.7(b)(1) where it is stated that:

  > *Segments must be placed in Category 5 when, based on existing and readily available data and/or information, technology-based effluent limitations required by the Act, more stringent effluent limitations, and other pollution control requirements are not sufficient to implement an applicable water quality standard and a TMDL is needed.*

Category 5 listings also contain a priority ranking for TMDLs (low, medium, high) and a targeted date for TMDL development.

It should be noted that waterbodies can be placed in more than one category based on the evaluation of individual designated uses. For example, a waterbody might be in Category 4a because it has a TMDL for E. coli and also in Category 5 because of impairment due to pH that requires a TMDL.

It should also be noted that there may be multiple pollutants and/or non-pollutants included in Categories 4a or 5 for an individual waterbody. This can occur if multiple pollutants/non-pollutants are identified as causing impairment in a waterbody (Category 5) or if TMDLs for multiple pollutants have been done for that waterbody (Category 4a). The inclusion of multiple pollutants/non-pollutants in Categories 4a and 5 is important for tracking the specific causes of the impairment (see "Causes of Impairment" section above).

303(d) LISTING

The 303(d) list is developed following assessment for water quality criteria, physical habitat and benthic macroinvertebrate metrics, fish tissue analysis, and narrative criteria. The term "303(d) list" is short for the list of impaired and threatened waters (e.g., stream/river waterbody segments) that are identified and reported to EPA (U.S. EPA, 2021b) under Category 5. "Listing" is the process of placing an impaired waterbody on the 303(d) list. Waters on the 303(d) list require development of a TMDL. This distinguishes them from Category 4a impaired waters where TMDLs have already been developed. Listing is undertaken every other year using data from the most recent five-year assessment period so that information on the status of District waterbodies and use support is current.

The listing process addresses key questions on waterbody status, including:

- Are the existing listings from the previous reporting cycle still valid?
- Are there any new impairments based on assessment of available data in the current reporting cycle and/or changes in WQS that affect current listings since the last reporting cycle?
- Are the pollutant and non-pollutant causes of impairment known and clearly documented?
- Are the waterbodies categorized correctly based on known and/or documented impairments and causes?

When the District adds waters to the 303(d) list, it also begins developing a plan and a schedule for developing the required TMDL. This information is included in the IR.

303(d) DELISTING

Delisting is the process of removing a waterbody/pollutant combination from the 303(d) list. This process is used when evidence, in the form of available data and information, indicates that the waterbody is not impaired or no longer impaired for a given designated use. Note that this process is specifically used to remove a pollutant or a waterbody/pollutant combination from Category 5 before a TMDL is completed. If data indicates that a waterbody in another category is no longer impaired but a TMDL has already been completed for that pollutant (i.e., a pollutant in Category 4a where a TMDL already exists), a process of recategorization is used. This process is discussed in sections on the "Removal of Specific Pollutant Causes" and "TMDL Withdrawal" below.

Authority for Delisting

States (including the District) are legally allowed to delist waterbodies or pollutants from their 303(d) list if the original listings are no longer supported. Specifically, 40 CFR §130.7 (b)(6)(iv)) states that:

> *Upon request by the Regional Administrator, each State must demonstrate good cause for not including a water or waters on the list. Good cause includes, but is not limited to, more recent or accurate data; more sophisticated water quality modeling; flaws in the original analysis that led to the water being listed in the categories in § 130.7(b)(5); or changes in conditions, e.g., new control equipment, or elimination of discharges.*

EPA's *Assessment Guidance on the 2002 Integrated Report* (U.S. EPA 2001) further clarifies this and states that:

> *The existing regulation requires states, territories, and authorized tribes, at the request of the Regional Administrator, to demonstrate good cause for not including waterbodies on the 303(d) list that were included on previous 303(d) lists (pursuant to 40 CFR 130.7(b)(6)(iv))…Where a waterbody was previously listed based on certain data or information, and the state removes the waterbody without developing or obtaining any new information, EPA will carefully evaluate the state's or territory's re-evaluation of the available information, and will not approve such*

approvals unless the state's or territory's submission describes why it is appropriate under the current regulations to remove each affected waterbody.

This statement emphasizes the fact that waterbodies and specific pollutants can be removed from the 303(d) list through analysis of "more recent and accurate data" or if there are "flaws in the original analysis that led to the waterbody being listed."

The District recognizes that it has authority to delist waterbody/pollutant combinations where justified and documented.

Reasons for Delisting and WQS Attainment

Guidance on the ATTAINS system for accessing information about the conditions in the Nation's surface waters (U.S. EPA, 2013) explains acceptable reasons for delisting in the context of waterbody changes from the prior reporting cycle.

Reasons for delisting *waters include: TMDL approved or established by EPA (Category 4a), other pollution control requirements (Category 4b), and not caused by a pollutant (Category 4c).*

Reasons for WQS attainment *include:*

- *Applicable WQS attained, original basis for listing was incorrect*
- *Applicable WQS attained due to restoration activities*
- *Applicable WQS attained due to change in WQS*
- *Applicable WQS attained according to new assessment method*
- *Applicable WQS attained threatened water no longer threatened*
- *Applicable WQS attained, reason for recovery unspecified*

Good Cause Justification for Delisting

When waterbodies of waterbody/pollutant combinations are delisted from the 303(d) list, the District will provide a good cause justification for the delisting in the IR. See the "Good Cause Justification" section below.

REMOVAL OF SPECIFIC POLLUTANT CAUSES

The District has a process to remove a specific pollutant identified as a cause of impairment for a waterbody when new evidence indicates that the pollutant is not causing impairment. In cases where this occurs, individual pollutants (but not necessarily all pollutants) previously reported as a cause of impairment in various tables in the IR (including in the Appendix 3.3 2022 Use Support and Cause by Pollutant table and in the Appendix 3.6 District of Columbia 303(d) List table in the "Pollutant(s) or Pollutant Categories Causing Impairment" column) can be removed when good cause justification for removal is demonstrated. This process allows the District to update and better characterize the causes of impairment in waterbodies as new and/or better information is obtained.

In terms of implementing the removal of specific pollutant causes from Category 4a waters, this is documented in the IR by no longer including those pollutants in tables summarizing causes of impairment in a given waterbody (e.g., Appendix 3.3 "2022 Use Support and Cause by Pollutant") or in the 303(d) list. These removals are supported by a Good Cause Justification write-up, which is also included in the IR (see "Good Cause Justification" section below).

TMDL WITHDRAWAL

The District has a process to recommend withdrawal of existing TMDLs in circumstances where the TMDL for a specific waterbody/pollutant combination is not needed, and its existence might be confusing for permit writers or stakeholders. EPA identifies three scenarios where TMDL withdrawal might be warranted (U.S. EPA, 2017):

1. State-established TMDL replaces an earlier EPA-established TMDL: EPA approves the state-established TMDL and indicates that the previous TMDL is "withdrawn" or superseded by state TMDL.

2. Incorrect 303(d) listing (EPA notification recommended).

3. Revised WQS; water no longer impaired (EPA notification recommended).

TMDL withdrawal recommendations are made when good cause justification for the withdrawal is demonstrated. Once decided, TMDL withdrawal recommendations are included in IR. EPA has the responsibility to approve TMDL withdrawal recommendations.

GOOD CAUSE JUSTIFICATION

As noted earlier under 303(d) delisting, EPA requires states to provide good cause justification for delisting. The recommendation to delist a waterbody/pollutant combination is based on one or more of the good cause justifications outlined in 40 CFR §130.7 (b)(6)(iv)) to support the regulatory requirements of the delisting recommendation. Under this requirement, good cause includes, but is not limited to:

- More recent or accurate data
- More sophisticated water quality modeling
- Flaws in the original analysis that led to the water being listed/pollutant being identified as a cause of impairment in the categories in § 130.7(b)(5)
- Changes in conditions (e.g., new control equipment, or elimination of discharges)

Internally, the District also uses good cause to justify other actions, including removal of a specific pollutant as a cause of impairment in a waterbody segment, recategorization of waterbodies, and development of recommendations for TMDL withdrawal. As an example, the Good Cause Justification can include identification of cases where the TMDL for a given pollutant is no longer needed because the pollutant is no longer identified as cause of impairment. In this type of case, DOEE interprets "more recent or accurate data" to be equivalent to "incorrect 303(d) listing" as described "TMDL Withdrawal" section above for justification for removing a TMDL.

The District uses a "weight of evidence" approach to support good cause justification. A weight of evidence approach does not rely on just one piece of evidence. Instead, it relies on evaluating multiple pieces of evidence simultaneously to make decisions and recommendations. The weight of evidence approach provides the assessment staff with the flexibility to evaluate the evidence and assign more or less weight to individual pieces of evidence, as appropriate, to come to conclusions about the causes of impairment, delisting, recategorization, and TMDL withdrawal.

The weight of evidence approach is conducted according to the following steps:

- Identify all available relevant evidence.
- Review/analyze evidence against WQS or other decision-making criteria.
- Consider the age of the available data – is it recent or older? Recent data may merit more weight than older data, particularly if more recent data points to different conclusions than older data.
- Make recommendations based on the evidence.
- Develop a written good cause justification rationale that includes a summary of the evidence and the recommendation.

The types of evidence considered during the weight of evidence approach are summarized in Table 8.

Table 8. Types of Data used in the Weight of Evidence Approach

Data Type	Discussion
Water Quality Data	Water quality analysis is used to determine whether recent data continue to support the earlier decisions about impairment and categorization. This type of analysis aligns with a 40 CFR §130.7 (b)(6)(iv)) statement that evaluation of "more recent or accurate data" is one way to delist a waterbody from the 303(d) list. A similar understanding is used to remove individual pollutants as causes of impairment, for recategorization, and for recommended TMDL withdrawal.
Non-Water Quality Data	Non-water quality data is used to determine whether recent findings support previous listings and categorization. For example, recent macroinvertebrate or physical habitat assessments or fish tissue analysis and assessment can be used to determine if existing listings and categorization remain applicable and/or if TMDL withdrawal is recommended.
Historical Data	Examination of the original water quality data or non-water quality data that identified impairment and led specific pollutants to be listed as causing designated use impairment is used to identify data gaps, unsubstantiated assumptions, inconsistencies, or other errors in the original listings. This type of analysis provides evidence to support findings of "flaws in the original analysis that led to the water being listed," one of the "good cause justifications" endorsed in 40 CFR to support delisting a 303(d) listing or removal of individual pollutants as causes of impairment and TMDL withdrawal.
IRs	Examination of IRs is used to review what was understood about designated use support and pollutant causes across the decades. The IRs summarize data, describe water quality assessment, and document use support decisions.
TMDL Data	Examination of the water quality and non-water quality data referenced in TMDL documents is used to review the causes of impairment, the

Table 8. Types of Data used in the Weight of Evidence Approach	
Data Type	**Discussion**
	historical data used to assess impairment, and the historical data used to develop TMDL models and model inputs. In addition, review of the applicable WQS at the time of TMDL development can link impairment to specific violations of those WQS. In some cases, TMDL write-ups provide more information on the impairment than what is provided in the IR.

A weight of evidence analysis is developed for each recommendation for delisting, removal of a pollutant as a cause of impairment, recategorization, and TMDL withdrawal. This analysis supports good cause justification as it uses the evidence available in the data categories described above in the aggregate to draw conclusions. The overall accumulation of evidence backed up by best professional judgment provides good cause justification and sufficient reason to act and make recommendations.

REPORTING

The assessment results and any good cause justification for each recommendation for delisting, removal of a pollutant as a cause of impairment, recategorization, or TMDL withdrawal for all waterbodies are reported in the IR. Tabular summaries are utilized to document waterbodies placed in Categories 1, 2 and 3 with basic information on waterbody name, waterbody ID, the designated uses supported, and, in the case of Category 3, the designated use where the data and information available is insufficient to determine use support. Tabular summaries are also utilized for Category 4 and 5 listings that include the 303(d) listing year, waterbody name, waterbody ID, and pollutants or non-pollutants causing impairment. Other information - such as the TMDL establishment date, priority rankings, and targeted TMDL development date - are included where applicable on a category-by-category basis. A good cause justification rationale is provided for each delisting, removal of a pollutant as a cause of impairment, recategorization, or recommendation to withdraw a TMDL.

The District follows EPA guidance on reporting outlined in *Information Concerning 2022 Clean Water Act Section 303(d), 305(b), and 314 Integrated Reporting and Listing Decisions* (EPA, 2021c). The information reported on the District's assessment methodology and assessment results are prepared in a format that allows uploading to ATTAINS. The specific information uploaded to ATTAINS is:

Assessment Methodology (ATTAINS)

- Description of data and information used to make attainment determinations (40 CFR 130.7(b)(6)(ii))
- Description of how data and information was used to make attainment determinations (40 CFR 130.7(b)(6)(i))
- A rationale for any decision to not use any existing and readily available data and information (40 CFR 130.7(b)(6)(iii))
- Description of changes in assessment methodology since the last reporting cycle

Assessment Results (ATTAINS)

- Five-part categorization of waters

- Description of water quality of all waters of the US and the extent to which the quality of waters provides for protection and propagation of a balanced population of shellfish, fish, and wildlife and allows recreational activities in and on the water (e.g., results of probability-based/statistical surveys) (40 CFR 130.8 (b)(1))
- Changes from previous CWA 303(d) list (e.g., the waterbodies/pollutants that have been added and the waterbodies/pollutants that have been delisted and the reason for their delisting)
- A list of water quality-limited waters (impaired and threatened) still requiring a TMDL, pollutants causing the impairment, priority ranking for TMDL development (including waters targeted for TMDL development within the next two years) (40 CFR 130.7(b))
- Status of TMDL development
- Summaries of designated use support
- Any other reasonable information requested by the EPA Regional Administrator (40 CFR 130.7(b)(6)(iv))

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2022
Use Support and Cause by Pollutant

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Anacostia DC (Lower) Segment 01	DCANA00E SEG1	Not Supporting Causes: Water Quality *E. coli*	Not Supporting Causes: Water Quality Trash	Not Supporting Causes: Water Quality DDD DDT TSS[2,3] Phosphorus (Total)[2] Nitrogen (Total)[2] BOD[4] Chlorophyll-a	Not Supporting Causes: Fish Tissue Dieldrin Total PCBs Water Quality Arsenic DDD DDT Chlordane Dieldrin Heptachlor Epoxide Benzo_a_anthracene (PAH2) Chrysene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	Fully Supporting

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Anacostia DC (Upper) Segment 02	DCANA00E SEG2	Not Supporting Causes: <u>Water Quality</u> *E. coli* Turbidity	Not Supporting Causes: <u>Water Quality</u> Trash Turbidity	Not Supporting Causes: <u>Water Quality</u> DO TSS[2,3] Turbidity Oil & Grease Phosphorus (Total)[2] Nitrogen (Total)[2] BOD[4] Chlorophyll a DDD DDE DDT Heptachlor epoxide Total PCBs	Not Supporting Causes: <u>Fish Tissue</u> Dieldrin Total PCBs <u>Water Quality</u> Arsenic DDD DDE DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	Fully Supporting
Potomac DC (Lower) Segment 01	DCPMS00E SEG1	Not Supporting Causes: <u>Water Quality</u> *E. coli*	Fully Supporting	Not Supporting <u>Water Quality</u> Phosphorus (Total)[2] Nitrogen (Total)[2] TSS[2] Chlorophyll-a	Not Supporting Causes: <u>Fish Tissue</u> Dieldrin Total PCBs <u>Water Quality</u> Arsenic Total PCBs	Fully Supporting

Waterbody Name	**Waterbody ID**	**Class A Swimming Use**	**Class B Secondary Contact Recreation Use**	**Class C Aquatic Life Use***	**Class D Fish Consumption Use**	**Class E Navigation Use**
Potomac DC (Middle) Segment 02	DCPMS00E SEG2	Not Supporting Causes: <u>Water Quality</u> *E. coli* Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity	Not Supporting Causes: <u>Water Quality</u> Chlorophyll a TSS[2] Turbidity Phosphorus (Total)[2] Nitrogen (Total)[2]	Not Supporting Causes: <u>Fish Tissue</u> Dieldrin Total PCBs <u>Water Quality</u> Arsenic Dieldrin Total PCBs	Fully Supporting
Potomac DC (Upper) Segment 03	DCPMS00E SEG3	Not Supporting Causes: <u>Water Quality</u> *E. coli* Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity	Not Supporting Causes: <u>Water Quality</u> TSS[2] Turbidity Phosphorus (Total)[2] Nitrogen (Total)[2] Chlorophyll a	Not Supporting Causes: <u>Fish Tissue</u> Dieldrin Total PCBs <u>Water Quality</u> Arsenic Total PCBs	Fully Supporting
Rock Creek (Lower) Segment 01	DCRCR00R SEG1	Not Supporting Causes: <u>Water Quality</u> *E. coli* Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity DDE	Not Supporting Causes: <u>Water Quality</u> Arsenic DDE Dieldrin Heptachlor Epoxide Total PCBs	Fully Supporting

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Rock Creek (Upper) Segment 02	DCRCR00R SEG2	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Insufficient evidence to determine use support	Fully Supporting
Battery Kemble Creek	DCTBK01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support*	Fully Supporting	NDU
Broad Branch	DCTBR01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Not Supporting Causes: Water Quality Heptachlor epoxide	Not Supporting Causes: Water Quality Arsenic DDT Dieldrin Heptachlor Epoxide Total PCBs	Fully Supporting
Chesapeake & Ohio Canal	DCTCO01L	Fully Supporting	Fully Supporting	Insufficient evidence to determine use support	Insufficient evidence to determine use support	Fully Supporting
Dalecarlia Tributary	DCTDA01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: Water Quality Dieldrin Heptachlor epoxide Total PCBs	NDU

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Dumbarton Oaks	DCTDO01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Not Supporting Causes: Water Quality Chlordane DDT Heptachlor Epoxide	Not Supporting Causes: Water Quality Arsenic Chlordane DDT Dieldrin Heptachlor Epoxide Total PCBs	Fully Supporting
Fenwick Branch	DCTFE01R	Not Supporting Cause: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: Water Quality DDT Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Fort Chaplin Run	DCTFC01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic	NDU
Fort Davis Tributary	DCTFD01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic	NDU

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Fort Dupont	DCTDU01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic Total PCBs	NDU
Fort Stanton Tributary	DCTFS01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Total PCBs	NDU
Foundry Branch	DCTFB02R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Fully Supporting	NDU
Hickey Run	DCTHR01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity Residual Chlorine	Not Supporting Causes: Water Quality DDE Benzo_a_anthracene (PAH2) Total PCBs	NDU

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Kingman Lake	DCAKL00L	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality DO TSS[2,3] Turbidity Oil & Grease DDT Phosphorus (Total)[2] Nitrogen (Total)[2] BOD[4]	Not Supporting Causes: Fish Tissue Dieldrin Total PCBs Water Quality Arsenic DDD DDT Chlordane Dieldrin Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	Fully Supporting
Klingle Valley	DCTKV01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: Water Quality Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Luzon Branch	DCTLU01	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Water Quality Turbidity	Not Supporting Causes: Water Quality Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Melvin Hazen Valley Branch	DCTMH01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity DDT	Not Supporting Causes: Water Quality Arsenic DDT Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Nash Run	DCTNA01R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	NDU

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Normanstone Creek	DCTNS01R	Not Supporting Causes: <u>Water Quality</u> *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: <u>Water Quality</u> Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Oxon Run	DCTOR01R	Not Supporting Causes: <u>Water Quality</u> *E. coli* Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity	Not Supporting Causes: <u>Water Quality</u> Turbidity	Not Supporting Causes: <u>Water Quality</u> Dieldrin	NDU
Pinehurst Branch	DCTPI01R	Not Supporting Causes: <u>Water Quality</u> *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: <u>Water Quality</u> Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Piney Branch	DCTPY01R	Not Supporting Cause: <u>Water Quality</u> *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: <u>Water Quality</u> Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Pope Branch (Hawes Run)	DCTPB01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Not Supporting Causes: Water Quality Chlordane	Not Supporting Causes: Water Quality Chlordane DDE Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	NDU
Portal Branch	DCTPO01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: Water Quality Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting
Soapstone Creek	DCTSO01R	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Insufficient evidence to determine use support	Not Supporting Causes: Water Quality Dieldrin Heptachlor epoxide Total PCBs	Fully Supporting

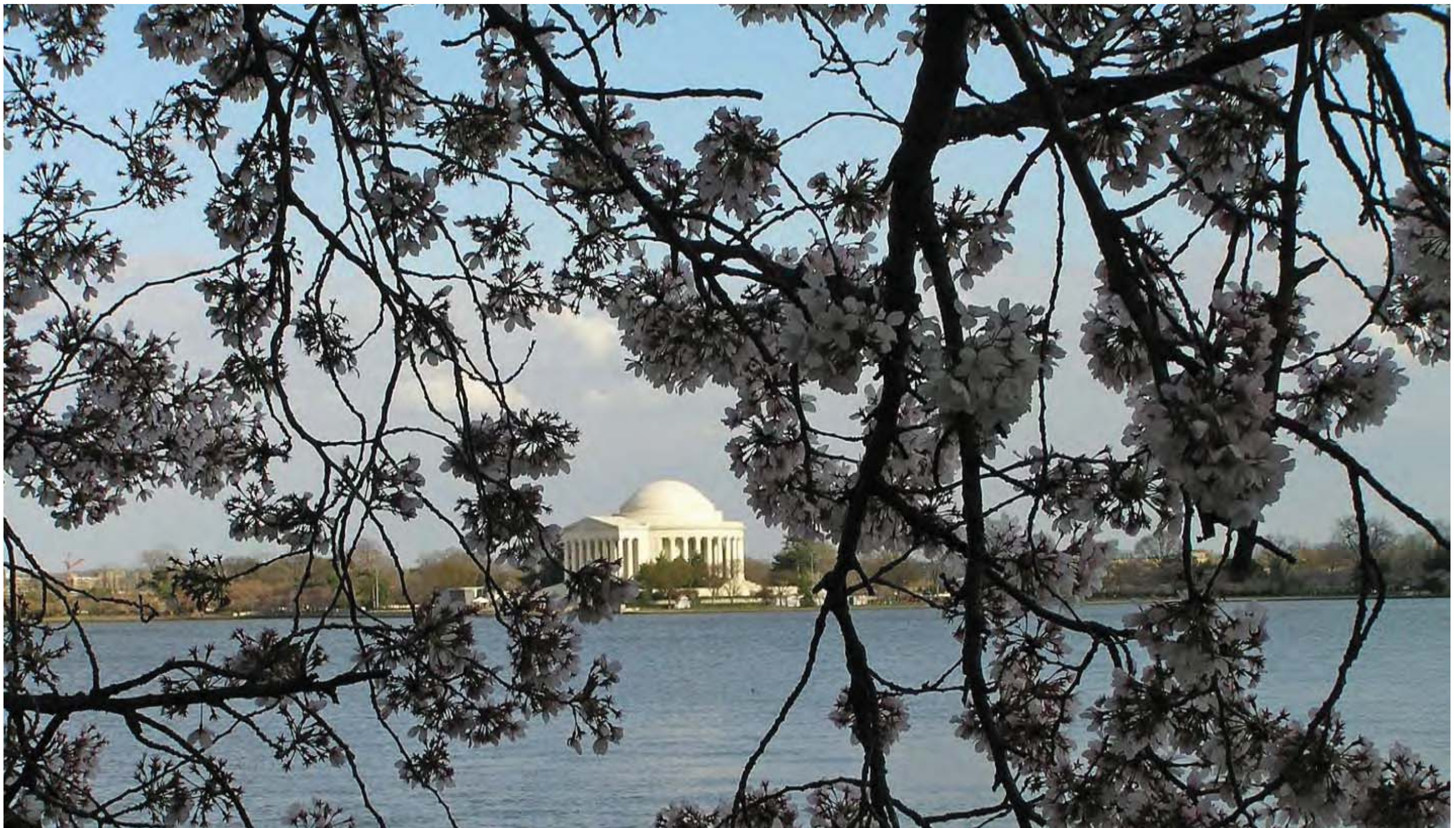
Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Texas Avenue Tributary	DCTTX27R	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity DDD	Not Supporting Causes: Water Quality Arsenic Chlordane DDD DDE DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Total PCBs	NDU
Tidal Basin	DCPTB01L	Not Supporting Causes: Water Quality *E. coli* pH	Not Supporting Causes: Water Quality pH	Not Supporting Causes: Water Quality pH Phosphorus (Total)[2] Nitrogen (Total)[2] TSS[2]	Not Supporting Causes: Fish Tissue Dieldrin Total PCBs	Fully Supporting

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
Washington Ship Channel	DCPWC04E	Not Supporting Causes: Water Quality *E. coli*	Fully Supporting	Not Supporting Water Quality Phosphorus (Total)[2] Nitrogen (Total)[2] TSS[2]	Not Supporting Causes: Fish Tissue Dieldrin Total PCBs Water Quality Arsenic Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	Fully Supporting
Watts Branch DC (Lower) Seg 01	DCTWB00R SEG1	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic Dieldrin Total PCBs	NDU
Watts Branch DC (Upper) Seg 02	DCTWB00R SEG2	Not Supporting Causes: Water Quality *E. coli* Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Turbidity	Not Supporting Causes: Water Quality Arsenic Dieldrin Total PCBs	NDU

Waterbody Name	Waterbody ID	Class A Swimming Use	Class B Secondary Contact Recreation Use	Class C Aquatic Life Use*	Class D Fish Consumption Use	Class E Navigation Use
* Note that there is currently no approved methodology for benthic and macroinvertebrate evaluations for the 2022 IR. However, in the vast majority of cases, evaluation of use attainment for Class C was able to be made based on other pollutants/metrics. In some cases, other pollutants/metrics showed that the Class C use was not supported. In other cases, findings from the toxics reevaluation showed that there was insufficient evidence to determine use support. In only one case (Battery Kemble Creek) were there no other metrics that showed either non-attainment or insufficient evidence of attainment. Therefore, in the case of Battery Kemble Creek, the Class C use was classified as "insufficient evidence to determine use support" based on the lack of current benthic and macroinvertebrate evaluations. [1]All findings based on DOEE data collection unless otherwise noted. [2]Based on Chesapeake Bay Program analysis. [3]Based on Anacostia watershed TSS TMDL. [4]Based on Anacostia watershed BOD TMDL.						

FULLY = Fully supporting designated use
NOT = Not supporting designated use
NDU = Not a designated use

Appendix 3.2 Reevaluation of Impairment Causes and TMDLs for Toxics in the District of Columbia Waterbodies



Reevaluation of Impairment Causes and TMDLs for Toxics in District of Columbia Waterbodies

Final - June 2023

Prepared by

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Water Environment | Scientists Engineers

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Executive Summary

This reevaluation of impairment caused by toxic pollutants (metals and organic compounds) and the associated Total Maximum Daily Loads (TMDLs) developed to control these pollutants was undertaken to resolve long-standing issues surrounding water quality assessment, causes of impairment, categorization, and reporting in the District of Columbia. The primary objective of the reevaluation presented in this report is to review current and past impairment causes attributed to toxics in the District to determine if they are supported by adequate data. A related objective is to use the results of the reevaluation of impairment causes to determine the necessity of TMDLs for toxics in individual waterbodies.

Data

A review of the original impairment listings from the late 1990s and onward revealed that widespread impairment due to toxics was presumed to be present based on physical habitat and macroinvertebrate assessment findings (Banta, 1993). Very little water column data for toxics was available to support this presumption. Nevertheless, TMDLs for a broad variety of metals and organic compounds were developed for mainstem and tributary segments during 2003 and 2004.

Data collection focused on toxics was initiated by DOEE and EPA in 2013 when it was recognized that many TMDLs for toxics were based on very limited data. This led to the revision of TMDLs in the Potomac and Rock Creek tributaries (DOEE, 2017) as well as to a draft revision of TMDLs in the Anacostia watershed (DOEE, 2021). However, the water quality assessment methods (e.g., the methods for confirming existing impairments) supporting these TMDL revisions were not consistent with best practices. In many instances it appears that impairment was “confirmed” by one sample exceeding the water quality criterion, while EPA guidance and DOEE’s updated impairment assessment methodology indicate that impairment or non-attainment occurs where there is more than one exceedance of the water quality criteria within a three-year period.

In order to reevaluate existing toxics impairments, the entire historical dataset of toxics data from 1990 through 2021 was compiled and analyzed. This process was aided by the presence of a large body of toxics data collected during the assessment period for the 2022 Integrated Report (IR) (2016-2021) by DOEE, EPA and the USGS. The relative abundance of this data and its broad availability across mainstem and tributary segments enabled a detailed assessment of toxic impairment that could not have been undertaken previously. The recent adoption of the *District of Columbia Surface Water Assessment and Listing Methodology* (DOEE, 2023) provided an improved framework and decision rules for determining impairment and designated use support.

Key Findings

The reevaluation of toxics identified waterbody/pollutant combinations where there is clear evidence of impairment caused by toxic pollutants. It provides a data-driven assessment of where and when impairment and non-support of designated uses occurs due to toxic pollutants. The reevaluation found that a substantial amount of impairment of Class D uses – and, to a lesser extent, Class C uses - was caused by toxics. Nevertheless, much of the widespread impairment attributed to toxics that was presumed to be present based on previous 303(d) listings was found to be unsubstantiated.

Key findings are:

- Impairment caused by toxic pollutants was confirmed in 122 of 217 (56%) of the waterbody/pollutant combinations previously recorded in Category 4a in the 2020 IR.
- There was no evidence of impairment caused by toxic pollutants in 58 of 217 (27%) of the waterbody/pollutant combinations previously recorded in Category 4a in the 2020 IR.
- There was insufficient available data/information to make a use support determination in 37 of 217 (18%) of the waterbody/pollutant combinations previously recorded in Category 4a in the 2020 IR.
- Impairment caused by toxic pollutants was also confirmed in 28 waterbody/pollutant combinations that were not previously included in Category 5 in the 2020 IR - the Section 303(d) list of impaired waterbodies that require a TMDL.

The importance of these findings is broad, and it has major ramifications for the 2022 IR. On a city-wide basis, fewer instances of impairment were found than previously believed. This suggests that there is good cause to remove pollutant causes in the IR and potentially withdraw many of the TMDLs documented under Category 4a in the 2020 IR. However, the reevaluation also found a new set of impairments that are candidates for the Category 5 list of impaired waters where a TMDL is needed.

In summary, these findings bring together good data and evidenced-based assessment, a combination that adds clarity and confidence to the 303(d) listing and the impaired waters restoration process.

Introduction

Under Section 305(b) of the CWA, states, territories, and other jurisdictions of the United States are required to submit reports on the quality of their waters to the U.S. Environmental Protection Agency (EPA) every two years. The District began to submit biennial reports to EPA in 1992 (DCRA, 1992). Beginning in 2004, EPA recommended delivery of a single water quality monitoring and assessment report (the IR) that combines the Section 305(b) report and the Section 303(d) list of impaired waters every even-numbered year (EPA, 2002). The most recent *Water Quality Assessment 2020 Integrated Report* for the District was delivered to EPA in 2020 (DOEE, 2020).

Amongst other things, the IRs include a surface water assessment that evaluates whether designated uses are supported and identifies impaired waterbodies (i.e., waterbodies or waterbody segments that do not meet the appropriate District Water Quality Standards [WQS] for their assigned designated uses). WQS for the District are presented in the District of Columbia Municipal Regulations (DCMR) 21-1104. Key definitions and regulatory language are provided in Appendix A.

Use support determinations are made based primarily on physical, biological, chemical, bacteriological, and fish tissue data. Observations related to narrative criteria also play a role. In addition to the determination of use attainment/identification of impairment, causes and sources of impairment are evaluated and the specific pollutants causing impairment in a waterbody or waterbody segment are identified when possible.

Following EPA guidance (U.S. EPA, 2018), a five-category approach is applied to summarize attainment of designated uses and/or the need for TMDLs. The categories are:

> **Category 1**: All designated uses are supported; no use is threatened.
>
> **Category 2**: Available data and/or information indicate that some, but not all, designated uses are supported.
>
> **Category 3**: There is insufficient available data and/or information to make a use support determination.
>
> **Category 4**: Available data and/or information indicate that at least one designated use is not supported or is threatened, but a TMDL is not needed. Category 4 and its subcategories may include TMDLs that may or may not need to be revised for one reason or another, including court orders, consent decrees, and availability of new information. There are three subcategories of Category 4, as follows:
>
>> Category 4a - A State developed TMDL has been approved by EPA or a TMDL has been established by EPA for any segment-pollutant combination.

Category 4b - Other required control measures are expected to result in the attainment of an applicable WQS in a reasonable period of time.

Category 4c - The non-attainment of any applicable WQS for the segment is the result of pollution and is not caused by a pollutant (for example, non-attainment indicated by habitat assessment results).

Category 5 (the 303 (d) list): Available data and/or information indicate that at least one designated use is not supported or is threatened, and a TMDL is needed.

As described above, Category 4a contains waterbody/pollutant combinations for impaired waters where at least one designated use is not supported or is threatened, and an EPA approved TMDL is in place. In contrast, Category 5 contains waterbody/pollutant combinations for impaired waters where a TMDL is needed. TMDLs are typically completed to determine the load reductions of specific pollutants required to meet WQS. The assumption is that reducing loads of specific pollutants that have been identified as causing impairments will allow the waterbody to attain its designated uses. This presumes that the pollutants causing impairments are known and have been correctly identified. However, over time the District has generally acknowledged in surface water assessments, TMDL documentation, and TMDL modeling reports that its original identification of "toxic" impairments and subsequent toxics TMDLs (e.g., metals, organics, pesticides, PCBs) in the tributaries were based on very limited data.

As discussed previously, the primary objective of the reevaluation presented in this document is to review the current and past impairment causes attributed to toxics in the District to determine if they are supported by adequate data. Waterbody/pollutant combinations where adequate data exists to demonstrate impairment will be included in Categories 4a or 5 in the 2022 IR, depending on whether a TMDL exists or not. Waterbody/pollutant combinations where data do not indicate impairment will be recategorized accordingly in the 2022 IR. This will include recategorizing waterbody/pollutant combinations from Category 4a if impairment is not confirmed, even though there are existing TMDLs for waterbody/pollutant combinations in Category 4a.

A related objective of this reevaluation is to use the results to determine the necessity of TMDLs for toxics in individual waterbodies. If the reevaluation shows that current or historic impairments by specific pollutants are not supported by adequate data, TMDLs can be withdrawn or revised to remove wasteload allocations (WLAs) for those pollutants. This would potentially reduce the burden on DOEE to address pollutants that have not been confirmed as causing impairment and allow DOEE to focus its resources on those pollutants that have been confirmed as causing impairment.

Reevaluation is centered on the water quality data aspect of surface water assessment because water quality data can confirm exceedances of water quality criteria (and thus impairments by toxics) directly. This contrasts with other types of data used in assessments (e.g., biological or physical habitat data) where exceedances of water quality criteria and impairments caused by specific pollutants cannot be evaluated directly.

This reevaluation does not address biological, physical habitat, fish consumption, or narrative data that are also used for assessment. Comprehensive surface water assessment analysis that utilizes a combination of these datasets (e.g., water column data, physical habitat assessment, macroinvertebrate assessment, etc.) is accomplished through implementation of the *District of Columbia Draft Surface Water Assessment and Listing Methodology* (DOEE, 2023) and is reported biennially in the IRs.

The remainder of this report is organized as follows:

- History of Impairment Listings and TMDLs for Toxics
- Inferences Drawn from the History of Impairment Listings and TMDLs for Toxics
- Summary of Recategorization Based on Reevaluation of Toxics for the 2022 IR
- Reevaluation of TMDLs
- Conclusions
- References
- Appendices

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History of Impairment Listings and TMDLs for Toxics

Early Listings and TMDLs

Dating as far back as 1996, each waterbody in the District was identified as impaired for at least one or more of its designated uses (DCRA, 1996). More recently, all 36 waterbody segments assessed for the 2020 IR were found to be impaired for one or more uses (DOEE, 2020). Much of the widespread impairment of Class C and Class D uses over the last 25 plus years has been attributed to toxics.

One of the first suggestions that the tributaries in the District are impaired by toxic pollutants was made by Banta in 1993 (Banta, 1993). Based upon biological and habitat assessment surveys, Banta noted that:

> *"Almost every stream in Washington shows signs of toxic pollution."*

And

> *"Toxic pollution is almost universal."*

Building upon the findings and suggestions reported by Banta, the 1996 *District of Columbia Water Quality Assessment* (DCRA, 1996) summarized that "total toxics" are a major cause of impairment. This document further notes that:

> *"As the focus of water quality studies have shifted to toxic pollutants and biological indicators, waterbodies that were at least partially supporting of some of their designated uses in the past are now not supporting those uses."*

This 1996 Water Quality Assessment document contains individual waterbody water quality assessments for mainstem segments of the Anacostia and Potomac rivers, District tributaries, and other waterbodies like the Chesapeake and Ohio Canal and the Tidal Basin (Refer to Appendix G in the 1996 document). In many instances, the cause of non-attainment of the Class C aquatic life use in tributaries is listed as metals, total toxics, or unknown toxicity. Some instream water quality data for metals was available for assessment against water quality criteria. However, there did not appear to be any instream data available for pesticides and other organic compounds, and there is no discussion of the use of water quality data to support the findings of toxic impairments for any individual waterbody. In the absence of robust instream data, the District used observations of biological indicators to assess impairments of Class C aquatic life use, as noted above. While biological indicators are a powerful tool in assessing attainment of designated uses, they do not provide information on the specific pollutant or pollutants that may be causing or contributing to observed declines in the biological indicators. Thus, the District continued to rely on the statements by Banta and its observations of biological impairment to assume that toxics were impairing Class C aquatic life uses.

The dependency on biological and habitat data for assessment of tributaries remained in place over several biennial reporting cycles. The 2002 *District of Columbia Water Quality Assessment Report* (DOH, 2002) states that:

> *"In some cases, the District relies on biological/habitat data, instead of chemical/physical standards, to make aquatic life use (Class C) decisions. When streams with both conventional pollutant data and biological data are evaluated, the biological data are the overriding factor in aquatic life use decisions."*

Despite the fact that there was no instream data for pesticides or organic compounds, the 303(d) lists for 1996, 1998, and 2002 included organics and toxics as pollutants of concern (e.g., as causes of impairment). It was continually presumed that these toxics were present and impacting the biological community (and aquatic life use) based on Banta's findings. This idea was subsequently reinforced based on fish tissue and sediment analysis from the tidal Anacostia River that was analyzed as part of the development of TMDLs. As discussed under "Chemicals of Concern" in the *District of Columbia Final Total Maximum Daily Loads for organics and metals in Broad Branch, Dumbarton Oaks, Fenwick Branch, Klingle Valley Creek, Luzon Branch, Melvin Hazen Valley Branch, Normanstone Creek, Pinehurst Creek, Piney Branch, Portal Branch, and Soapstone Creek* (DOH, 2004),

> *"Because of general lack of data in the District's tributaries, the list of chemicals of concern for this TMDL were determined from data derived from fish tissue and sediment analysis in the Anacostia River. The contaminants of concern that were discovered above the allowed concentration were identified and were included in this TMDL. Sediment samples were also collected and analyzed for the contaminants of concern. Those that indicated high levels of exceedance above the screening criteria were identified as contaminants of concern and included in the TMDL."*

The TMDL goes on to note that these and other studies had been used to identify

> "*a group of most likely and probable likely chemicals of concern…with the most likely chemicals being cadmium, copper, lead, mercury, and zinc; and the probable likely chemicals being chlordane, DDT, endosulfan, heptachlor epoxide, hexachlorobenzene, total PAHs, and total PCBs."*

This TMDL report documented the development of TMDLs for chlordane, DDT, dieldrin, heptachlor epoxide, total PAHs, and total PCBs. Similar TMDLs for toxics were developed for the Anacostia and Potomac tributaries, each of which included similar statements about the reliance on fish tissue and sediment analysis from the Anacostia River to determine the pollutants to be included in the TMDL.

More Recent Impairment Listings

The assumption of toxics as the cause for observed impairments of Class C and Class D uses was continued in recent IRs, up to and including the 2020 IR. While toxic impairment had primarily been associated with impairments of Class C uses in the older assessments (i.e., pre-2014), more recent assessments (i.e., 2016 IR and forward) list toxics as causes of Class D impairments.

2016 Consolidated TMDL Implementation Plan

DOEE prepared a *Consolidated TMDL Implementation Plan Report* (DOEE, 2016) in 2016 in order to comply with a new municipal separate storm sewer system (MS4) National Pollutant Discharge Elimination System (NPDES) permit requirement. This Plan described how MS4 WLAs for the District's existing TMDLs were going to be achieved. The TMDL/MS4 WLA inventory presented in this report documented 26 TMDL studies and 485 MS4 WLAs covering 23 different pollutants. The majority of these MS4 WLAs were for toxic pollutants.

First Round of TMDL Revisions

In response to a 2006 court case, Friends of the Earth vs. the Environmental Protection Agency, 446 F.3d 140, 144 (D.C. Cir. 2006), EPA was required to establish "daily loads" (i.e., the daily expression of TMDLs) in the District of Columbia. Under contract to EPA, Tetra Tech was tasked with characterizing the environmental condition of the aquatic environment in the District of Columbia and performing data collection in waters impaired for toxic contaminants to support update of the TMDLs. As described in Tetra Tech's summary report (Tetra Tech, 2014):

> *"All waterbodies monitored in this sampling plan are listed as impaired, and TMDLs have already been developed…Because the original listings for the toxic TMDLs are based on very limited data, EPA and DDOE decided to review all available data and, where needed, to conduct a monitoring program to assess the TMDL waters for the toxics of concern."*

Key findings regarding the existing impairments and TMDLs included:

> *"The data review concluded that the quality or quantity of data is not sufficient to assess the current state of TMDL waters. Therefore, additional monitoring data will need to be collected to assess whether the toxic of concern is a possible cause of impairment for these TMDL waters.*

Based on these findings, field work and data collection were undertaken in the Anacostia River and tributaries, in the Potomac tributaries, and in the Rock Creek tributaries. As reported in the 2014 document, dry weather sampling for pollutants of concern was performed once in tributaries to Rock Creek and the Potomac and Anacostia Rivers, as well as in the Anacostia mainstem. Wet weather sampling was performed twice in the Anacostia River and its tributaries to collect wet weather samples.

The stated goal of the sampling effort was to fill data gaps with current information in preparation for converting existing TMDLs for these waterbodies to daily loads. A complementary goal of this work was to use the data to either verify impairment or to indicate the need for additional data to determine the impairment status.

Per these goals, the single dry weather samples for the Potomac and Rock Creek tributaries were used to "verify" existing impairments by toxic pollutants. Tetra Tech "verified" impairment by some toxics in some waterbodies, but was not able to "verify" other toxic impairments. Based on this verification, a set of revised TMDLs (Table 1) were developed for "verified" pollutants, including dieldrin, heptachlor epoxide, chlordane, and DDT for the tributaries in the District's portion of the Rock Creek and Potomac River watersheds (U.S. EPA, 2016).

Table 1. Rock Creek and Potomac Tributaries with Revised TMDLs						
Mainstem	Tributary	Dieldrin	Heptachlor Epoxide	Chlordane	DDT	PCB
Rock Creek	Broad Branch	X	X	X		X
	Dunbarton Oaks	X	X	X		X
	Fenwick Branch	X	X		X	X
	Klingle Valley Creek	X	X			X
	Luzon Branch	X	X	X		X
	Melvin Hazen Valley Branch	X				X
	Normanstone Creek	X	X			X
	Pinehurst Branch	X	X			X
	Piney Branch	X	X	X		X
	Portal Branch	X	X			X
	Soapstone Creek	X	X	X		X
Potomac	Dalecarlia Tributary	X	X			X
	Oxon Run	X				

Second Round of TMDL Revisions

More recently, DOEE and Maryland Department of the Environment (MDE) developed the *Draft Revised Total Maximum Daily Loads for Organics and Metals in the Anacostia River Watershed* (DOEE, 2021). These draft TMDLs are intended to replace TMDLs vacated by *Anacostia Riverkeeper, Inc. v. Jackson*, 713 F. Supp. 2d 50 (D.D.C. 2010). The toxic impairments that informed these replacement TMDLs was based on monitoring conducted by Tetra Tech in 2013-2014 (Tetra Tech, 2014) and additional monitoring conducted by Tetra Tech in 2018-2019 (Tetra Tech, 2021). As with the work in the Rock Creek and Potomac tributaries, some toxic impairments were "verified" by the Tetra Tech sampling, and some were not. The draft revised TMDLs included updated WLAs for pollutants that were verified to be causing impairment. The "current" toxic impairments addressed by the draft revised TMDLs (also referred to as replacement TMDLS) are presented in Table 2.

Table 2. Toxics Impairments Addressed by Draft Revised Anacostia and Tributaries Metals and Organics TMDL[1]										
Waterbody	Arsenic	Copper	Zinc	4,4 DDD	4,4 DDE	4,4 DDT	Chlor-dane	Dieldrin	Heptachlor Epoxide	PAHs
Anacostia Segment 1 (Lower Anacostia)	X	X	X	X	X	X	X	X	X	X
Anacostia Segment 2 (Upper Anacostia)	X	X	X	X	X	X	X	X	X	X
Kingman Lake	X					X	X			X
Nash Run	X						X	X	X	X
Popes Branch					X		X		X	X

Table 2. Toxics Impairments Addressed by Draft Revised Anacostia and Tributaries Metals and Organics TMDL[1]

Waterbody	Arsenic	Copper	Zinc	4,4 DDD	4,4 DDE	4,4 DDT	Chlor-dane	Dieldrin	Heptachlor Epoxide	PAHs
Watts Branch							X	X		
Hickey Run					X		X			X
Fort Dupont Creek	X									
Fort Chaplin Run	X									
Fort Davis Tributary	X									
Fort Stanton Tributary	X									X
Texas Avenue Tributary	X			X	X	X	X	X	X	X
MD-ANATF[1]									X	
NW Branch (MD)[1]									X	

[1]These waterbodies are in Maryland but are included in the revised TMDL. They are presented in this table for completeness.

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Inferences Drawn from the History of Reported Impairment and TMDLs for Toxics

Several inferences can be made based upon review of the District's 305(b) Reports and IRs, the initial TMDLs developed between 2003 and 2014, the 2013-2021 field data collected for toxic pollutants, and recent TMDL revisions.

The initial development of TMDLs in 2003 and 2004 for toxics in tributaries was based on impairment attributed to toxic chemicals that were presumed to be present based on Banta's biological and habitat findings and fish tissue and sediment analysis from the Anacostia River. The available data for the toxics in question to support this presumption was minimal at best, and no comparison of water quality data with the applicable water quality criteria was made (e.g., comparison of instream water column data with the Criterion Maximum Concentration (CMC), the Criterion Continuous Concentration (CCC), and the Human Health (HH) Criterion for each constituent).

As described above, subsequent to the development of the initial TMDLs for toxics in the 2003-2004 timeframe, DOEE acknowledged the limited data on which the impairments and subsequent TMDLs were based. Further evaluations were undertaken to determine what pollutants to include in the 2016 *Revised Pesticide TMDLs for Small Tributaries in the Rock Creek and Potomac River Watersheds* (Table 1). The more recent development of *Draft Revised Total Maximum Daily Loads for Organics and Metals in the Anacostia River Watershed* (Table 2) is based on more robust data but did not include an independent assessment of water quality data vs. water quality criteria.

This decision-making raises questions about the thoroughness of the assessment process – specifically with respect to the assignment of pollutant causes of impairment. Initially, the presumed toxic impairment was based on Banta's biological and habitat findings and recommendations and reinforced based on fish tissue and sediment analysis from the tidal Anacostia River. The presumed existing pollutant causes were then "confirmed" for the revised TMDLs if one water quality sample exceeded criteria (Tetra Tech, 2016). However, determination of impairment when only one sample exceeds a water quality criterion is inconsistent with EPA's "no more than one exceedance every three years rule" (EPA, 1997). Under the "no more than one exceedance every three years rule," a waterbody is fully supporting where:

> "*For any one pollutant, no more than one exceedance of acute criteria (EPA's criteria maximum concentration or applicable State/Tribal criteria) within a 3-year period based on grab or composite samples and no more than one exceedance of chronic criteria (EPA's criteria continuous concentration or applicable State/Tribal criteria) within a 3-year period based on grab or composite samples*".

In summary, one sample exceeding a criterion is not sufficient evidence of impairment, and this method for "confirming" existing pollutants as causes of impairment does not provide sufficient evidence that specific pollutants are causing these impairments.

Another conclusion drawn from the original toxics TMDLs (e.g., 2003 organics and metals TMDL for Anacostia and tributaries; 2004 organics and metals TMDL for Rock Creek tributaries) and subsequent revisions (e.g., *Revised Pesticide TMDLs for Small Tributaries in the Rock Creek and Potomac River Watersheds* and the *Draft Revised Total Maximum Daily Loads for Organics and Metals in the Anacostia River Watershed)* is that some specific pollutants are not included in the revised TMDLs where the updated sampling found no exceedances of criteria. These waterbodies are no longer considered impaired for those pollutants. For example, the revised pesticide TMDLs for organochlorine pesticides and PCBs in the small tributaries in the Rock Creek and Potomac River watersheds (DOEE, 2017) states:

> *"TMDLs were not developed for pollutant(s)-waterbody combinations that did not exceed any numeric water quality criteria. For tributaries hydrologically connected to the Anacostia or Potomac Rivers, where there was no data other than fish tissue data from the mainstem Anacostia or Potomac Rivers, the toxic pollutant(s)-waterbody combinations were placed in Category 3 (insufficient data). For waters that are not hydrologically connected to the Anacostia or Potomac River and have no evidence of a toxic pollutant present, those waters are no longer considered impaired for the specific parameter (although they remain identified as impaired based upon the District-wide fish consumption advisory).*

The draft revised TMDL for Pesticides and PCBs for the Anacostia River and its tributaries (DOEE, 2021) makes a similar statement.

Based on these statements, it is implied that some toxic pollutants were removed as causes of impairment or were otherwise placed in a different category within the IR in concert with TMDL revision.

Reevaluation of Impairment Causes and TMDLs for Toxics

The reevaluation of impairment causes and TMDLs for toxics was undertaken to address long-standing issues and uncertainty surrounding toxic impairment in District waterbodies. The reevaluation was respectful of ongoing data collection and TMDL studies in the Anacostia watershed and used data and information stemming from these studies to the fullest extent possible. These special circumstances, and the attention placed on pollution in general in the Anacostia watershed, required adjustments to assessment as described in the *District of Columbia Surface Water Assessment and Listing Methodology* (DOEE, 2023), including the use of a longer timeframe for reevaluation (see below for further discussion of these adjustment). The main objective was to determine if the pollutant-specific impairment causes included in the 2020 IR are supported by adequate data and are categorized correctly. Determination of the necessity of TMDLs for toxics, the second objective of the evaluation, is derived from the outcome of the assessment of impairments.

Data and Data Analysis

In order to conduct this reevaluation, the complete record of historic water quality monitoring data was compiled on a pollutant-by-pollutant basis to investigate whether water quality data supported the classification of specific toxic pollutants as causes of impairment. This record included data for metals and organic compounds from 1990 to 2021. The pollutants of interest included five metals (arsenic, copper, lead, mercury, zinc) and ten organic compounds (chlordane, DDD, DDE, DDT, dieldrin, heptachlor epoxide, PAH1 (specifically, acenaphthene, anthracene, fluorene, and naphthalene), PAH2 specifically, benzo_a_anthracene, chrysene, fluoranthene, and pyrene), PAH3 (specifically, benzo_a_pyrene, benzo_b_fluoranthene, benzo_k_fluoranthene, dibenzo_a_h_anthracene, and indeno_1_2_3_cd_pyrene, and total PCBs). The analysis consisted of comparing historic and current water quality data to the District's numeric criteria for Class C and Class D uses to identify the occurrence and frequency of exceedances. The numeric criterion for metals were calculated based on the best available data for hardness.

Water quality data were gathered from a range of sources, including the DOEE water quality database, additional special studies performed in the District (including data from the Tetra Tech studies), and an online USGS database. Data rules for use of data points, including evaluation of data qualifiers and method detection limits (MDLs), were developed to ensure all data used in the reevaluation was analytically consistent. A detailed *Technical Memorandum on the Methodology and Data Compilation for Review of Toxics Data from District Waterbodies* (LimnoTech, 2023) is provided in Appendix B.

With respect to the actual data analysis, discrete measurements of individual pollutant concentrations were organized by waterbody and compared to water quality criteria. Exceedance of the water quality criteria occurs when an individual sample concentration is above one or both of the Class C numeric criteria for aquatic life or the Class D numeric criterion for human health.

Adjustments to Assessment

Using best professional judgment (BPJ), several adjustments were made to the *District of Columbia Surface Water Assessment and Listing Methodology* (DOEE, 2023) to adapt to the special circumstances surrounding the reevaluation of toxics. These adjustments led to the development of decision logic to guide the categorization of use support. It is not expected that these adjustments will need to be implemented in future water quality assessments. Rather, they are implemented in the reevaluation to reestablish and strengthen the categorization of use attainment. The chief adjustments to assessment are:

Lengthening the assessment period: Under normal circumstances, the District uses data from the most recent five-year period for assessment (the assessment period). The assessment period for the reevaluation of toxics was lengthened to ten years (July 2011 to June 2021) to address uncertainty about impairment attributed to toxics, and to take advantage of the relative abundance of toxics data within this ten-year period. This adjustment was applied universally in the reevaluation.

Modifying the "no more than once every three years" rule: The "no more than once every three years" rule is recommended by EPA for the assessment of toxics for Class C aquatic life and Class D human health/fish consumption uses (U.S.EPA, 1997). Under this rule, non-attainment occurs where there is more than one exceedance of the water quality criteria within a three-year period based on grab or composite samples. The adjustment for the reevaluation of toxics extends the time period so that non-attainment occurs where there is more than one exceedance of the water quality criteria within a ten-year period. This adjustment imposes a more conservative approach to the identification of designated use attainment vs. non-attainment, making it more difficult to reject previously determined non-attainment. This adjustment was applied universally in the reevaluation.

Interpreting Non-detect (ND) Values. Many of the samples for toxics are reported as ND values. By definition, the detection limit is the lowest concentration of a chemical or substance that can be reliably measured. In general, detected values are compared to water quality criteria and evaluated for exceedance with a high degree of confidence. Comparisons to criterion for samples that are below detection or reported as ND values cannot be made directly. However, some additional interpretation of the ND values was incorporated into the reevaluation. This interpretation hinged upon the ratio of the detection limit (DL) to the water quality criteria (WQC). Specifically,

- When the DL/WQC ratio derived from the data is <1, additional exceedances of WQC for samples reported as ND values are unlikely because the WQC is greater than the DL.
- When the DL/WQC ratio derived from the data is >1, the NDs could mask additional exceedances of WQC because the WQC is less than the DL.

As applied in the reevaluation of toxics, the ratio is used to support categorization decisions. This adjustment also imposes a more conservative method to categorization, making it more difficult to reject instances of previously determined non-attainment. This adjustment was only applied in circumstances where there were no exceedances or one exceedance of water quality criteria.

Assessing Sample Size: The number of samples can be important in assessment. In general, determinations on attainment or non-attainment are stronger as sample size increases. Therefore, in some cases where it was necessary to evaluate situations with no exceedances or one exceedance of water quality criteria, an assessment of sample size was included in the decision logic. This adjustment introduces the threshold of five or more samples in the last ten years as a means to bolster confidence in the assessment determinations.

Utilizing the Recentness of Data: The recentness of data and exceedances of water quality criteria can be important in assessment. As with the assessment of sample size, the inclusion of logic regarding the recentness of data was used in some situations with no exceedances or one exceedance of water quality criteria. This factor places more importance on current data and current exceedances than it does on older data and older exceedances.

Decision Logic Guiding Categorization

The adjustments to assessment were incorporated into decision logic to guide categorization of the reevaluation results. This was particularly important to address the challenging aspects of the data, such as the uncertainty caused by the frequency of ND data. The decision logic provides a systematic way to address data circumstances where there are no exceedances or one exceedance of the criterion and /or where NDs are abundant. As shown in Figures 1, 2, and 3, the starting point is the categorization reported in the 2020 IR (Category 4a, Category 3, and not categorized). Note that each decision of attainment/categorization in Figures 1 through 3 has a “case number” associated with it. This case number is reported in subsequent results tables in this document and allows the reader to use the data included in the tables and follow the logic in the figures to see how the outcome (in terms of attainment/non-attainment and categorization) for that pollutant was determined.

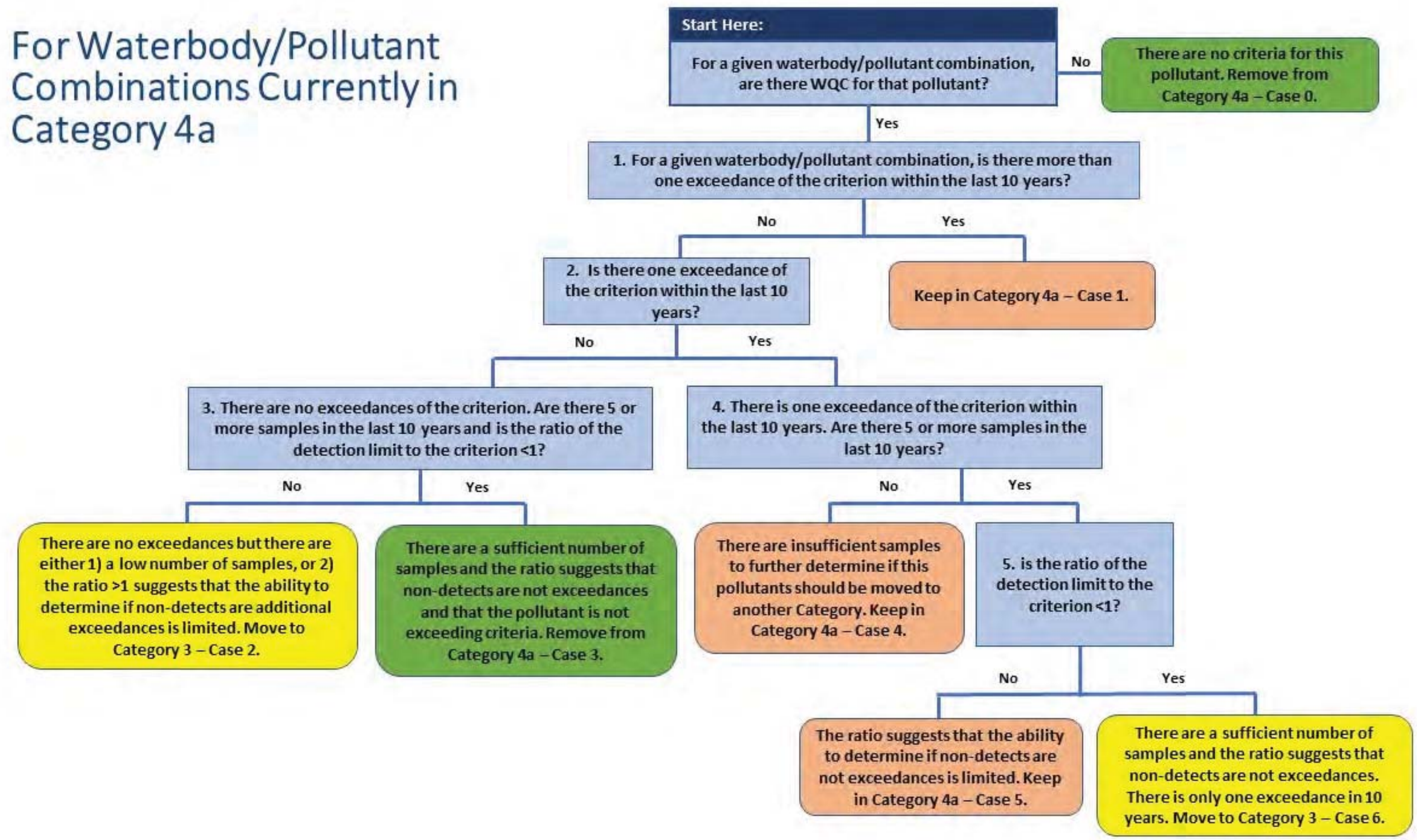

Figure 1: Decision Logic Used to Determine Attainment/Non-attainment for Pollutants in Category 4a in the 2020 IR.

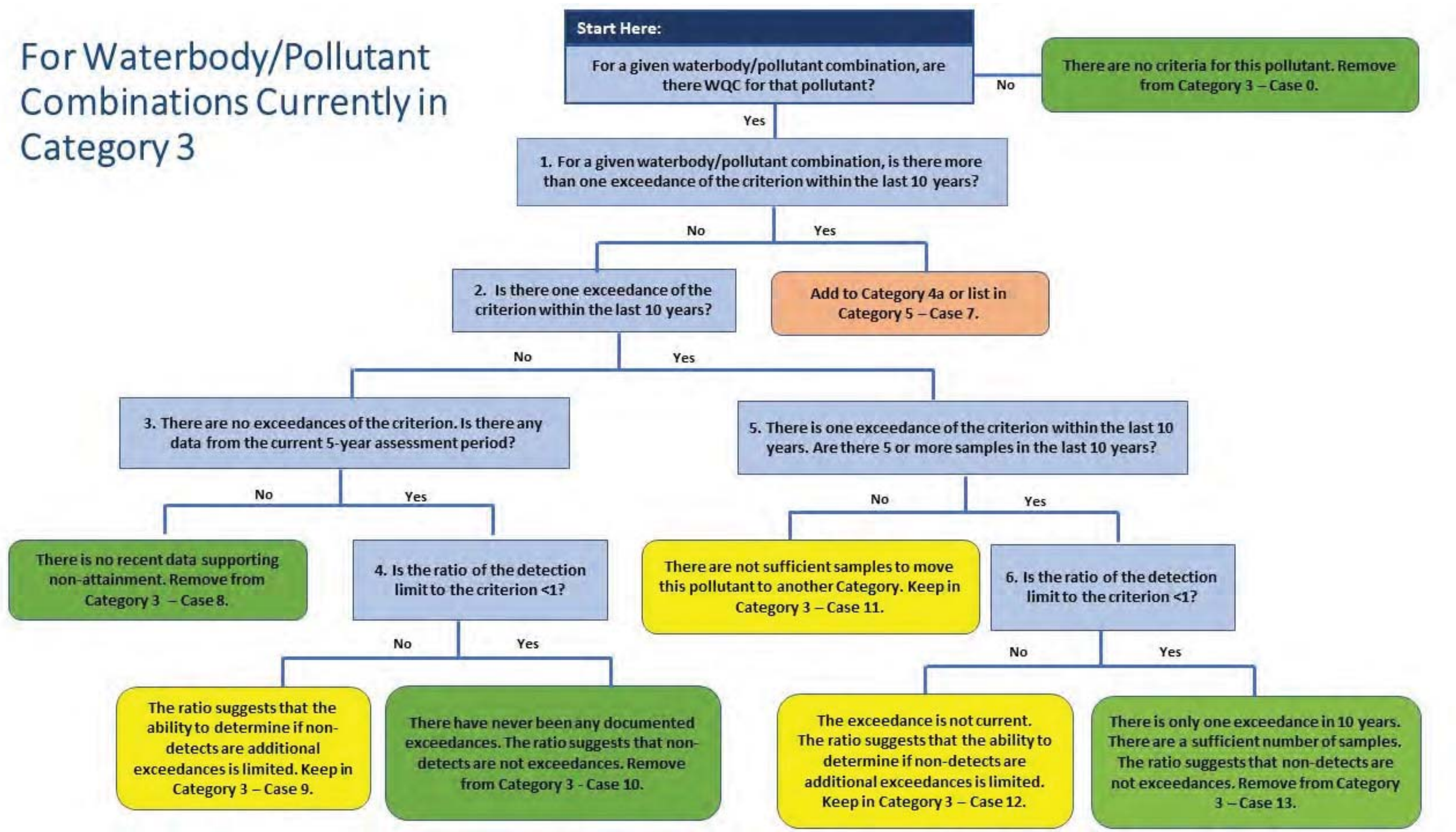

Figure 2: Decision Logic Used to Determine Attainment/Non-attainment for Pollutants in Category 3 in the 2020 IR.

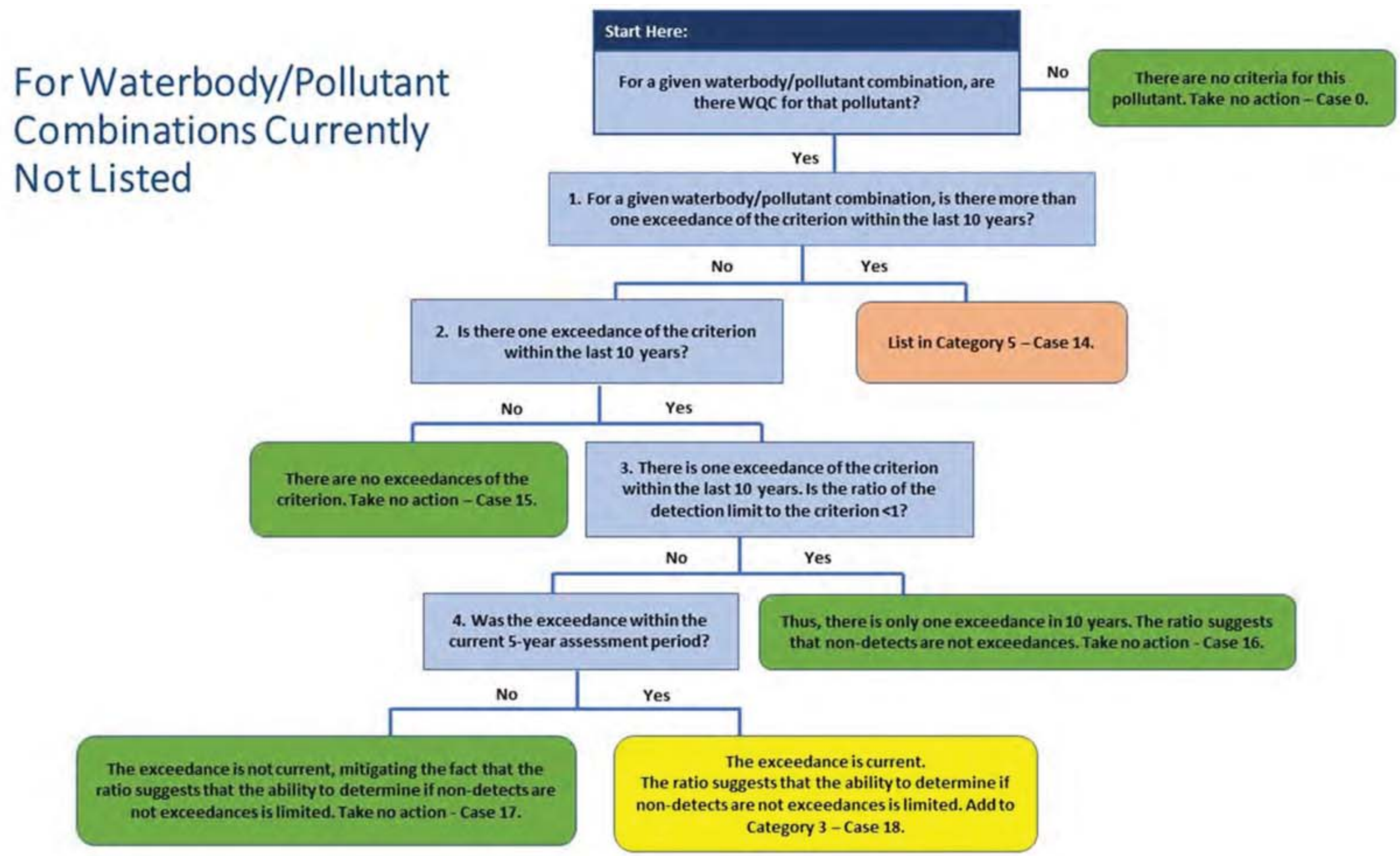

Figure 3: Decision Logic Used to Determine Attainment/Non-attainment for Pollutants Not Listed in 2020 IR.

Reevaluation Findings by Waterbody

The reevaluation of toxics identified the need for a substantial amount of categorization changes for waterbody/pollutant combinations. For ease of review, reevaluation findings for Class C and Class D uses are produced in a standard tabular format for all tributary and mainstem waterbody segments. This summary format highlights the breadth and recentness of the available data, and the detailed information upon which the reevaluation is based. It documents impairment caused by toxics pollutants where it was found to be supported by adequate data. It also documents situations where individual pollutants were not found to cause impairment and/or where the categorization of pollutants needed to be revised. Results for Class C and Class D are provided for Hickey Run in Tables 3 and 4 as examples of how the results are formatted. Both tables use data from the reevaluation of Hickey Run to demonstrate how reevaluation categorization decisions are generated. The tables summarize data from the reevaluation for each waterbody/pollutant combination and the results of the decision logic shown in Figures 1-3. The data provided for each waterbody/pollutant combination is:

- Pollutant
- Current Categorization in 2020 IR
- Impaired Use Class in 2020 IR
- # Samples 1990-2021
- # Detects 1990-2021 (see discussion of detects/non-detects under "Adjustments to Assessment" section above)
- # Exceedances of WQC (1990-2021)
- # of Samples within last 10 years (2011-2021)
- # of Exceedances within last 10 years (2011-2021)
- # of Samples within last 5 years (2016-2021)
- # Samples since last exceedance
- Water Quality Criterion (includes CCC and CMC for Class C)
- Range of Ratios Between Detection Limit and WQC (used in decisions logic)
- Was Last Exceedance within current 5-year Assessment Period (2016-2021)?
- Fish Tissue (used as reference for Class D only but not used in the reevaluation. Based on 2018 USFWS Report)
- Reevaluation Categorization Decision
- Decision Logic Case # (from decision logic)

A complete set of reevaluation findings for Class C and Class D uses for District waterbodies is provided in Appendix C.

Reevaluation categorization decision results can be different between Class C and Class D uses because the WQC for Class C and Class D are different. Reconciliation of these differences for reporting in the IR is discussed in more detail in the "Reconciliation of Class C and Class D Reevaluation Categorization Decision Results" section below.

A set of definitions is provided to assist readers with interpretation of the Reevaluation Categorization decisions presented in Tables 3 and 4. These definitions apply to specific columns for waterbody/pollutant combinations.

Not Categorized: Not Categorized means that the waterbody/pollutant combination was not placed in Category 3, Category 4a, or Category 5 in the 2020 IR.

Waterbody-specific: Waterbody-specific refers to WQC for lead and zinc that are derived based upon ambient hardness in a waterbody.

NA – No Class C (or CMC) WQC: NA – No Class C (or CMC) WQC means that there is no CCC criterion, no CMC criterion, or neither a CMC nor a CCC for the protection of aquatic life for an individual pollutant. The specific situation for a given pollutant (i.e., whether there is no CCC criterion, no CMC criterion, or neither a CMC nor a CCC) is documented in the tables.

NA – No Class D WQC: NA – No Class D WQC means that there is no criterion for the protection of human health related to the consumption of fish and shellfish.

No exceedances: No exceedances means that no water quality samples transgressed the WQC.

Keep in Category 4a: Keep in Category 4a means that the designated use is not attained and that an EPA approved TMDL has been developed. Thus, that pollutant should remain in Category 4a in that waterbody.

Remove from Category 4a: Remove from Category 4a means that there are no exceedances of WQC for that pollutant in that waterbody, and the corroborating evidence suggests that the designated use is attained. Thus, that pollutant should be removed from Category 4a in that waterbody.

Keep in Category 3: Keep in Category 3 means that there is insufficient information to make a use support determination for that pollutant in that waterbody. Thus, that pollutant should remain in Category 3 in that waterbody.

Move to Category 3: Move to Category 3 means that there are no exceedances or one exceedance of WQC by that pollutant in that waterbody but that there is insufficient information to make a use support determination based on the decision logic. Therefore the pollutant in question should move to Category 3 in that waterbody.

Remove from Category 3: Remove from Category 3 means that there are no exceedances or one exceedance of WQC for that pollutant in that waterbody, and the corroborating evidence suggests that the designated use is attained for that waterbody. Therefore, that pollutant should be removed from Category 3 in that waterbody.

Class C Analysis: An example of categorization results for Hickey Run based on Class C WQC is presented in Table 3. The current categorization for each pollutant as documented in the 2020 IR is shown in the "Current Categorization in 2020 IR" column. The impaired use class is shown in the "Impaired Use Class in 2020 IR" column. Note that the impaired use class in Hickey Run recorded in the 2020 IR is based on the impairment of Class D (not Class C). This focus on Class D in the 2020 IR is mainly due to the fact that the Class D WQC are more stringent than the Class C WQC. The reevaluation categorization decision for Class C and the decision logic case number taken from Figures 1, 2, and 3 are presented in the "Reevaluation Categorization Decision for Class C" and the "Decision Logic Case #" columns of this table, respectively.

As shown in the table, none of the toxic pollutants was found to cause non-attainment of the Class C WQC. The main reevaluation categorization decisions for Class C for Hickey Run are:

- Keep in Category 3: Three pollutants previously categorized in the 2020 IR under Category 3 are kept in Category 3 because there was insufficient data/information to make an aquatic life use support determination. These are DDD, DDT, and heptachlor epoxide.
- Move to Category 3: Three pollutants previously categorized in the 2020 IR under Category 4a are moved to Category 3 because there was sufficient evidence that they are causing impairment of the aquatic life use. These are chlordane, DDE and Total PCBs.
- Remove from Category 3: Four pollutants previously categorized in the 2020 IR under Category 3 are removed from Category 3 because there was sufficient evidence that they are causing impairment of the aquatic life use. These are arsenic, copper, zinc, and dieldrin.
- Remove from Category 4a: 13 pollutants previously categorized in the 2020 IR under Category 4a are removed from Category 4a and not recategorized because there is no evidence that they are causing impairment of the aquatic life use. These are all 13 of the individual PAH chemicals.
- Not Categorized - Take No Action: Two pollutants not categorized in the 2020 IR do not require any action. There were no exceedances of the Class C WQC for lead or mercury.

Table 3. Categorization for Class C Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	1	0	1	0	1	No exceedances	150	0.0019 - 0.00653	340	0.000853 - 0.00288	No exceedances	Remove from Category 3	10
Copper	3	No	150	147	1	150	1	102	71	10.76	0.0161 - 0.127	16.5	0.0104 -0.0833	Yes	Remove from Category 3	13
Lead	Not Categorized	No	150	145	0	150	0	102	No exceedances	waterbody-specific	0.00188 - 0.198	waterbody-specific	0.0000682 - 0.00672	No exceedances	Not categorized - take no action no action	15
Mercury	Not Categorized	No	1	0	0	1	0	1	No exceedances	0.77	0.000221 - 0.26	1.4	0.000121 - 0.143	No exceedances	Not categorized - take no action no action	15
Zinc	3	No	150	136	0	150	0	102	No exceedances	waterbody-specific	0.00966 - 0.114	waterbody-specific	0.00973 - 0.115	No exceedances	Remove from Category 3	10
Chlordane	4a	No	6	0	0	6	0	3	No exceedances	4.30E-03	0.326 - 16.3	2.4	0.000583 - 0.0292	No exceedances	Move to Category 3	2
DDD	3	No	6	0	0	6	0	3	No exceedances	1.00E-03	0.2 - 5.2	1.1	0.000182 - 0.0047	No exceedances	Keep in in Category 3	9

Table 3. Categorization for Class C Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													3			
DDE	4a	No	6	1	0	6	0	3	No exceedances	1.00E-03	0.1 - 6	1.1	0.0000909 - 0.00545	No exceedances	Move to Category 3	2
DDT	3	No	6	0	0	6	0	3	No exceedances	1.00E-03	0.28 - 3.7	1.1	0.000255 - 0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	3	No	6	0	0	6	0	3	No exceedances	5.60E-02	0.00214 - 0.0732	0.24	0.0005 - 0.0171	No exceedances	Remove from Category 3	10
Heptachlor epoxide	3	No	6	0	0	6	0	3	No exceedances	3.80E-03	0.0342 - 1.29	5.20E-02	0.00025 - 0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	3	3	0	3	0	0	No exceedances	1.40E-02	NA - all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	6	2	0	6	0	3	No exceedances	50	0.00028 - 0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category	0

Table 3. Categorization for Class C Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															4a	
Fluorene (PAH1)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	6	2	0	6	0	3	No exceedances	600	0.0000217 - 0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Chrysene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	6	2	0	6	0	3	No exceedances	400	0.0000375 - 0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove	0

Table 3. Categorization for Class C Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
(PAH3)															from Category 4a	
Benzo_b_fluoranthene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Class D Analysis: An example of categorization results for Hickey Run based on Class D WQC is presented in Table 4. The current categorization for each pollutant as documented in the 2020 IR is shown in the "Current Categorization in 2020 IR" column. The impaired use class is shown in the "Impaired Use Class in 2020 IR" column.

The reevaluation categorization decision for Class D and the decision logic case number based on the decision logic in Figures 1, 2, and 3 are presented in the "Reevaluation Categorization Decision for Class D" and the "Decision Logic Case #" columns of this table, respectively.

The main reevaluation categorization decisions for Class D are:

- Keep in Category 3: Five pollutants previously categorized in the 2020 IR under Category 3 are kept in Category 4a because there was insufficient data/information to make a human health use support determination These are arsenic, DDD, DDT, dieldrin, and heptachlor epoxide.
- Move to Category 3: Seven pollutants previously categorized in the 2020 IR under Category 4a are moved to Category 3 because there was insufficient data/information to make a human health use support determination. These are benzo_a_pyrene, benzo_b_fluoranthene, benzo_k_fluoranthene, chlordane, chrysene, dibenzo_a_h_anthracene, and indeno_1_2_3_ cd_pyrene.
- Remove from Category 3: Two pollutants currently categorized in Category 3 are removed from Category 3 because there was sufficient evidence that they were not causing impairment of the aquatic life use. These are copper and zinc.
- Keep in Category 4a: Three pollutants previously categorized in the 2020 IR under Category 4a are kept in Category 4a. These are DDE, benzo_anthracene, and Total PCBs.
- Remove from Category 4a: Six pollutants previously categorized in the 2020 IR under Category 4a are removed from Category 4a and not recategorized because there was sufficient evidence that they were not causing impairment of the human health use. They are acenaphthene, anthracene, fluoranthene, fluorene, naphthalene, and pyrene.
- Not Categorized - Take No Action: Two pollutants not categorized in the 2020 IR do not require any action. There were no exceedances of the Class D WQC for lead or mercury.

Table 4. Categorization for Class D Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	41	1	1	3	1	1	0	0.14	2.07 - 35.7	Yes	NA - not sampled	Keep in Category 3	11
Copper	3	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA - not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA - not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	112	100	0	101	0	100	No exceedances	0.15	0.00113 - 1.33	No exceedances	NA - not sampled	Not categorized - take no action	15
Zinc	3	No	28	20	0	1	0	1	No exceedances	26000	0.0000846 - 0.000769	No exceedances	NA - not sampled	Remove from Category 3	10
Chlordane	4a	Yes	6	0	0	6	0	3	No exceedances	0.00032	4.38 - 212.9	No exceedances	NA - not sampled	Move to Category 3	2
DDD	3	No	6	0	0	6	0	3	No exceedances	0.00012	1.67 - 43.3	No exceedances	NA - not sampled	Keep in Category 3	9

Table 4. Categorization for Class D Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
DDE	4a	Yes	6	1	1	6	1	3	3	1.80E-05	5.56 - 333	No	NA - not sampled	Keep in Category 4a	5
DDT	3	No	6	0	0	6	0	3	No exceedances	3.00E-05	9.33 - 123	No exceedances	NA - not sampled	Keep in Category 3	9
Dieldrin	3	Yes	6	0	0	6	0	3	No exceedances	1.20E-06	100 - 3420	No exceedances	NA - not sampled	Keep in Category 3	9
Heptachlor epoxide	3	Yes	6	0	0	6	0	3	No exceedances	3.20E-05	4.06 - 153	No exceedances	NA - not sampled	Keep in Category 3	9
Total PCBs	4a	Yes	3	3	3	3	3	0	0	6.40E-05	NA	No	NA - not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	6	2	0	6	0	3	No exceedances	90	0.000156 - 0.000789	No exceedances	NA - not sampled	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	6	2	0	6	0	3	No exceedances	400	0.0000375-0.005	No exceedances	NA - not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	6	0	0	6	0	3	No exceedan	70	0.000286 -	No exceedan	NA - not	Remove from	3

Table 4. Categorization for Class D Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
									ces		0.00107	ces	sampled	Category 4a	
Naphthalene (PAH1)	4a	Yes	6	2	0	6	0	3	N/A – no Class D WQ criteria				NA - not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	6	2	2	6	2	3	3	0.0013	10.8 - 63.1	No	NA - not sampled	Keep in Category 4a	1
Chrysene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	0.13	0.1 - .677	No exceedances	NA - not sampled	Remove from Category 4a	3
Fluoranthene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	20	0.00075 - 0.01	No exceedances	NA - not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	30	0.0005 - 0.00667	No exceedances	NA - not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	100 - 1540	No exceedances	NA - not sampled	Move to Category 3	2
Benzo_b_fluoranthene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.0013	11.5 - 13.1	No exceedances	NA - not sampled	Move to Category 3	2

Table 4. Categorization for Class D Results Based on Decision Logic - Example for Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.013	4 - 7.38	No exceedances	NA - not sampled	Move to Category 3	2
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	115 - 600	No exceedances	NA - not sampled	Move to Category 3	2
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.0013	14.6 - 70.8	No exceedances	NA - not sampled	Move to Category 3	2

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant*.

Reconciliation of Class C and Class D Reevaluation Categorization Decision Results

As noted earlier, reevaluation categorization decision results can be different between Class C and Class D uses because the WQC for Class C and Class D are different. However, individual waterbody/pollutant combinations are only included once in the IR. Consequently, differences between the reevaluation categorization decision results for Class C and Class D require reconciliation. That is, the independent reevaluation categorization decisions for Class C and Class D are reconciled into one decision for categorization purposes (i.e., potential placement in Category 3, Category 4a, or category 5).

In completing this reconciliation, the most conservative results are used. For example, if the Class C reevaluation categorization decision recommendation is that the waterbody/pollutant combination be moved to Category 3, but the Class D decision recommendation is that the waterbody/pollutant combination be kept in Category 4a, then the reconciliation result would be to leave the waterbody/pollutant combination in Category 4a because that is more conservative.

An example of the reconciliation of Class C and Class D categorization decisions in Hickey Run is presented in Table 5. As shown, the Class C and Class D categorization decisions were different for arsenic, DDE, dieldrin, Total PCBs, benzo_a_anthracene, benzo_a_pyrene, benzo_b_fluoranthene, benzo_k_fluoranthene, dibenzo_a_anthracene, and indeno_1_2_3_cd_pyrene. The results for these pollutants had to be determined through reconciliation. Results for the remaining pollutants were the same for Class C and D and thus reconciliation.

Table 5. Reconciliation of Class C and Class D Categorization Decisions in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Reconciliation of Class C and Class D Categorization Decision
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	10	Keep in Category 3	11	Keep in Category 3
Copper	3	D	Remove from Category 3	13	Remove from Category 3	0	Remove from Category 3
Lead	Not Categorized	Not Categorized	Not categorized - take no action	15	Not categorized - take no action	0	Not Categorized - take no action

Table 5. Reconciliation of Class C and Class D Categorization Decisions in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Reconciliation of Class C and Class D Categorizati
Mercury	Not Categorized	Not Categorized	Not categorized - take no action	15	Not categorized - take no action	15	Not Categorized - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	3	D	Remove from Category 3	10	Keep in Category 3	9	Keep in Category 3
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a

Table 5. Reconciliation of Class C and Class D Categorization Decisions in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Reconciliation of Class C and Class D Categorizati
Acenapthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Napthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Move to Category 3	6	Move to Category 3
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table 5. Reconciliation of Class C and Class D Categorization Decisions in Hickey Run							
Pollutant	**Current Categor-ization in 2020 IR**	**Impaired Use Class in 2020 IR**	**Reevaluation Categorization Decision for Class C**		**Reevaluation Categorization Decision for Class D**		**Reconciliation of Class C and Class D Categorizati**
Benzo_b_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Reconciliation of the Class C and Class D categorization decisions for all waterbodies and all pollutants is provided in Appendix D.

Summary of Recategorization Based on Reevaluation of Toxics for the 2022 IR

A total of 900 waterbody/pollutant combinations were assessed in the reevaluation of toxics. The reevaluation was based on the full record of toxics data for District waterbodies, and it employed evidence-based assessment methods and decision logic. The outcome of the reevaluation is improved understanding of impairment caused by toxics in the District. This improved understanding is demonstrated through comparison of categorization as presented in the 2020 IR with categorization developed in the reevaluation of toxics. The new categorization results developed in the reevaluation of toxics are summarized in Table 6.

Table 6. Comparison of Reevaluation Findings with the 2020 IR

2020 IR		Reevaluation Findings						
2020 IR Category	2020 IR number in category	Not Categorized	Keep in Category 3	Move to Category 3	Remove from Category 3	Keep in Category 4a	Remove from Category 4a	Move to Category 5
Category 3	316	0	51	0	252	0	0	13
Category 4a	217	0	0	37	0	122	58	0
Not Categorized	367	321	0	31	0	0	0	15
Total	900	321	51	68	252	122	58	28

The main findings by category are as follows:

Category 3

In the 2020 IR, Category 3 was used to list 316 individual pollutants or pollutant categories in waterbodies thought to be causing impairment but where there was insufficient available data/information to make a use support determination. This uncertainty about use support was one of the major factors that drove the reevaluation of toxics. The reevaluation of toxics identified waterbody/pollutant combinations where data and decision logic could still not establish either impairment or non-impairment with certainty. The result was 51 waterbody/pollutant combinations kept in Category 3 and 68 waterbody/pollutant combinations moved to Category 3 from other categories. The revaluation findings on these 119 waterbody/pollutant combinations do not on their own determine use support. Instead, these results are combined in the 2022 IR with assessment results for conventional pollutants, fish tissue analysis, and narrative criteria records to determine use support, where uncertainty regarding toxic pollutants might be abrogated by clearer evidence of impairment from a different source or cause.

Category 4a

Category 4a in the 2020 IR recorded 217 waterbody/pollutant combinations with EPA approved toxics TMDLs. The reevaluation of toxics confirmed the underlying impairment for 122 of these waterbody/pollutant combinations. There was insufficient available data/information to determine impairment/make a use support determination for 37 of the waterbody/pollutant combinations with TMDLs and they are reassigned to Category 3. There was no evidence of impairment for the remaining 58 waterbody/pollutant combinations with TMDLs – mostly metals and PAH compounds. The waterbody/pollutant combinations with no evidence of impairment, and which should be removed from Category 4a, are presented in Table 7. It is expected that a recommendation to withdraw these 58 TMDLs will be included in the 2022 IR.

Table 7. Waterbody/Pollutant Combinations with TMDLs to be Removed from Category 4a

Waterbody	Pollutants
Lower Anacostia	Copper, zinc, acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, and pyrene
Upper Anacostia	Zinc, acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, and pyrene
Fort Stanton	Acenaphthene, anthracene, chrysene, fluorene, naphthalene, fluoranthene, and pyrene
Hickey Run	Acenaphthene, anthracene, chrysene, fluorene, naphthalene, fluoranthene, and pyrene
Kingman Lake	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, and pyrene
Nash Run	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, and pyrene
Pope Branch	Acenaphthene, anthracene, chrysene, fluorene, naphthalene, fluoranthene, and pyrene
Texas Ave Tributary	Acenaphthene, anthracene, fluorene, naphthalene, fluoranthene, and pyrene
Lower Rock Creek	Copper, lead, mercury, and zinc

Category 5 (the 303(d) list)

In the 2020 IR, Category 5 was used to list waterbodies where a designated use is not supported and a TMDL is needed. There were no toxics on the 2020 303(d) list. The reevaluation of toxics found a total of 28 waterbody/pollutant combinations that require 303(d) listing and placement in Category 5. 15 of these waterbody/pollutant combinations were not categorized in the 2020 IR. 13 were in Category 3. A listing of these waterbody/pollutant combinations is presented in Table 8.

Table 8. Waterbody/Pollutant Combinations to be added to Category 5 (the 303(d) list)

Waterbody	Pollutants
Fort Dupont	Total PCBs
Kingman Lake	DDD, Dieldrin
Pope Branch	Dieldrin
Lower Watts Branch	Arsenic
Upper Watts Branch	Arsenic
Lower Potomac	Arsenic
Middle Potomac	Arsenic, Dieldrin
Upper Potomac	Arsenic
Lower Rock Creek	Arsenic, DDE, Dieldrin, Heptachlor epoxide, Total PCBs
Broad Branch	Arsenic, DDT
Dumbarton Oaks	Arsenic, DDT
Melvin Hazen Valley Branch	Arsenic, DDT, Heptachlor epoxide
Washington Ship Channel	Arsenic, benzo_a_anthracene, benzo_b_ fluoranthene, benzo_k_fluoranthene, dibenzo_a_h_anthracene, and indeno_1_2_3_cd_pyrene

Not Categorized

A total of 367 waterbody/pollutant combinations were not categorized in the 2020 IR. This was likely due to a lack of available data for many toxic pollutants in the 2020 assessment cycle and previous assessment cycles. The reevaluation of toxics found that 321 of these waterbody/pollutant combinations retain their status as “not categorized.” In addition, 31 are newly assigned to Category 3 as there was insufficient available data/information to make a use support determination, and 15 are assigned to the 303(d) list in Category 5.

Reevaluation of TMDLs

As stated earlier in the Introduction:

> *The primary objective of the reevaluation presented in this document is to review the current and past impairment causes attributed to toxics in the District to determine if they are supported by adequate data. A related objective is to use the results of the reevaluation of impairment causes to determine the necessity of TMDLs for toxics in individual waterbodies. If the reevaluation shows that current or historic impairments by specific pollutants are not supported by adequate data, TMDLs can be withdrawn or revised to remove WLAs for those pollutants.*

As shown in Table 7, there was no evidence of impairment for 58 waterbody/pollutant combinations with TMDLs – mostly metals and PAH compounds. The reevaluation included in this document provides “good cause justification” for removal of these waterbody/pollutant combinations and their associated TMDLs from Category 4a. In all of the cases where impairments by specific pollutants could not be verified, the “good cause justification” for removal from Category 4a is attributable to the fact that “more recent and accurate data” is available and/or there were “flaws in the original analysis that led to the waterbody being listed.”

Removal of TMDLs from Category 4a is within the purview of the District. Withdrawal of TMDLs lies solely in the purview of EPA. As stated earlier, It is expected that a recommendation to withdraw these 58 TMDLs will be included in the 2022 IR.

Conclusions

Reevaluation Objectives

The reevaluation of toxics was aided by the presence of a large body of toxics data collected during the last 10 years (2012 – 2021) by DOEE, EPA and the USGS. The relative abundance of this data and its broad availability across mainstem and tributary waterbodies enabled a detailed assessment of toxic impairment that could not have been undertaken previously. As a result, the reevaluation of impairment causes and TMDLs for toxics achieved its main objectives.

First, it identified impaired waterbody/pollutant combinations where there is clear evidence of a toxic cause. This was accomplished by applying the decision rules for attaining designated uses included in the *District of Columbia Surface Water Assessment and Listing Methodology* (DOEE, 2022) (modified as described above) to the complete record of historic water quality monitoring data. In doing this, the reevaluation documented 122 cases where the impairment was confirmed. However, the reevaluation also documented many other cases where the review of historical data for specific toxic pollutants did not support earlier or more recent findings of impairment caused by those specific pollutants.

Second, the results of the reevaluation of impairment causes were used to determine the necessity of TMDLs developed for individual waterbody/pollutant combinations. This was accomplished by comparing the waterbody/pollutant findings produced in the reevaluation of toxics with Category 4a record the 2020 IR. In doing this, it was found that 56% of the pollutants included in Category 4a in the 2020 IR were verified. That is, the reevaluation of toxics found evidence of impairment in the data in 122 of 217 waterbody/pollutant combinations recorded in Category 4a in the 2020 IR. In contrast, impairment in 44% of the pollutants included in Category 4a in the 2020 IR was not verified. In these cases, neither the original basis for the listing nor the data record produced evidence of impairment that would justify the need for a TMDL for that pollutant in that waterbody. The TMDLs that fall into this latter group and the established pollutant load reduction targets associated with these TMDLs are considered unnecessary.

Finally, the reevaluation confirmed impairments in some waterbody/pollutant combinations that were not included in Categories 4a or 5 in the 2020 IR. In these cases, there are no existing or pending TMDLs for waterbody/pollutant combinations found to be impaired. These waterbody/pollutant combinations are added to the 303(d) list in Category 5 because a TMDL is needed.

Incorporation of Findings into the 2022 IR

The reevaluation of impairment causes and TMDLs described in this document provides the basis for a data-driven reassessment of toxics as the cause of widespread impairment in District waterbodies. Use of the reevaluation results in conjunction with the decision rules for listing, and delisting and recategorization included in the *District of Columbia Surface Water Assessment and Listing Methodology*

(DOEE, 2022) and modified as described earlier in this document establishes a sound scientific approach to support production of the 2022 IR. Specific areas where the reevaluation results influence the 2022 IR are as follows:

- Confirmation that many of the waterbodies in the District are impaired by toxic pollutants.
- Improvement of documentation of use support and cause by toxic pollutants.
- Clarification of Category 3 entries where there is insufficient available data/information to make a use support determination.
- Consolidation of Category 4a entries to those waterbody/pollutant combinations with an approved TMDL where impairment is verified.
- Update of Category 5 and the 303(d) list of impaired waterbodies where evidence of impairment caused by toxics is found.
- Good cause justification for removing waterbody/pollutant combinations with EPA approved TMDLs from Category 4a.

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Appendix A
Definitions and Regulatory Language

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303(d) list – the 303(d) list is a compilation of impaired waterbodies.

Assessment - assessment of an individual waterbody segment means analyzing physical/chemical water quality data, physical habitat data, benthic macroinvertebrate data, fish tissue data, observations related to narrative criteria, and other information to determine attainment of designated uses/achieve use support.

Attainment – occurs when a waterbody meets its designated use. Note that each designated use is evaluated independently, so a waterbody can attain and/or not attain different designated uses.

Categorization – categorization is used to organize and report on the assessment of waterbodies in the IR according to use attainment.

Delisting – delisting is the process of removing an impaired waterbody from the 303(d) list where the assessment methods and decision rules indicate that the condition causing the impairment is no longer present or not present.

Designated Use – the designated use is the use (or uses) specified for a waterbody whether it is attained or not.

Impaired Waters – impaired waters are those waterbodies that do not meet WQS.

Impairment/Impairment Cause – as used in this document, the terms impairment and/or impairment cause refer to the pollutant or non-pollutant causing the impairment.

Listing – Listing is the process of placing an impaired waterbody on the 303(d) list.

Non-attainment/non-support - Non-attainment/non-support occurs when a waterbody does not meet one of its designated uses. This water is termed "impaired" and impairments/impairment causes are identified for the waterbody.

Toxic Pollutant - According to EPA, "toxic pollutant means those pollutants, or combinations of pollutants, including disease-causing agents, which after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of information available to the Administrator, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions in reproduction) or physical deformations, in such organisms or their offspring."

Water Quality Assessment - Per EPA, water quality assessment begins with water quality standards. After setting standards, states assess their waters to determine the degree to which these standards are being met. To do so, states may take biological, chemical, and physical measures of their waters; sample fish tissue and sediments; and evaluate land use data, predictive models, and surveys (U.S. EPA, 2021a).

Appendix B
Technical Memorandum – Methodology and Data Compilation for Review of Toxics Data from District Waterbodies (Updated June 2023)

Contents

Background

As part of is ongoing efforts to ensure that assessment of impairments is based on the best science available, DOEE reevaluated existing impairments and Integrated Report (IR) categorizations to determine if these impairments and IR categorizations were supported by good data. Initial research conducted on “toxic” impairments (i.e., caused by metals and organic constituents) during the development of the District’s 2015 Consolidated TMDL Implementation Plan found that toxic impairments are identified in most District waters but are not well supported by water quality data. This reevaluation follows up on the earlier finding. It involves compiling and evaluating historic water quality data to determine if the data supported the previously determined impairment identification.

All of the available historic water quality monitoring data were compiled on a pollutant-by-pollutant basis by waterbody segment for the reevaluation. The 2022 *District of Columbia Surface Water Assessment and Listing Methodology* provided a framework and decision rules for determining impairment and designated use support. This technical memorandum summarizes the data compilation (including metadata on the data sets) and data processing methods used to support the reevaluation of toxics impairments for the 2022 IR.

Constituents of Interest

The constituents of interest for the present analysis were limited to metals and organic constituents previously identified as causing impairment in District waters that had, for the most part, resulted in TMDLs. This list includes five metals (arsenic, copper, lead, mercury, zinc) and eight organic constituents (chlordane, DDD, DDE, DDT, dieldrin, heptachlor epoxide, polyaromatic hydrocarbons (PAHs – PAH1, PAH2, and PAH3), and polychlorinated biphenyls (PCBs).

Water Quality Standards

The District uses a number of tools including numeric criteria (“criteria”) in its Water Quality Standards (WQS) to determine whether waters are impaired. The District’s WQS are found in Title 21, Chapter 11 of the District of Columbia Municipal Regulations (DCMR)[1]. Numeric criteria are summarized in Section 1104.8 of the regulations. For this reevaluation, historic water quality data spanning the period 1990[2]-2021 were compared to the current WQS and numeric criteria to identify exceedances of those criteria and impairment. Changes in the numeric criteria that have occurred since the first impairment decisions and subsequent TMDL development in the early 2000s were taken into consideration during this reevaluation. The most recent updates to numeric criteria for Class D organic constituents became effective in May 2020. The Class C numeric criteria for mercury was updated from total recoverable mercury to dissolved mercury in the same rulemaking.

Metals

Metals included in this reevaluation consist of arsenic, copper, lead, mercury, and zinc. Criteria for arsenic and mercury have specific numeric limits written into the regulations and are not dependent on

[1] https://www.dcregs.dc.gov/Common/NoticeDetail.aspx?NoticeId=N0092470

[2] Note that DOEE’s Ambient Water Quality Program Monitoring Field Measurement Data were compiled from 1984-2018; however, no constituents of interest were included in this dataset. Therefore, analysis of constituents of interest was for data from 1990-2021.

ambient water quality conditions. In contrast, the criteria for copper, lead, and zinc are dependent upon ambient water body conditions for hardness. This is because the ambient hardness influences the bioavailable fraction of these metals, and thus their relative toxicity thresholds in the environment. Subsequently, for the purposes of this exercise, the criteria for copper, lead, and zinc were established as a function of hardness. Numeric criteria for each metal are presented in Table B.1. This table shows the District's documented numeric criteria for arsenic and mercury, as well as the calculations to determine the criteria for copper, lead and zinc based on hardness. The table includes criteria for the criterion continuous concentration (CCC) and the criterion maximum concentration (CMC) for Class C (aquatic life) designated uses expressed as the dissolved fraction for each metal. The table also includes human health criteria for the Class D (fish consumption) designated use expressed as the total recoverable fraction for each metal. Note that not all use classes have criteria for all metals.

Table B.1: District of Columbia Numeric Criteria for Metals

Constituent	Class C Aquatic Life		Class D Human Health
	CCC 4-Day Avg [ug/L][1,2,3,4] (dissolved fraction)	CMC 1-Hour Avg [ug/L] (dissolved fraction)	D 30-Day Avg [ug/L] (total recoverable fraction)
Arsenic	150	340	0.14
Copper	$e^{0.8545[\ln(hardness)]-1.702*CF}$	$e^{0.9422[\ln(hardness)]-1.700*CF}$	
Lead	$e^{1.2730[\ln(hardness)]-4.705*CF}$	$e^{1.2730[\ln(hardness)]-1.460*CF}$	
Mercury	0.77*Conversion Factor (CF)	1.4*CF	0.15
Zinc	$e^{0.8473[\ln(hardness)]+0.884*CF}$	$e^{0.8473[\ln(hardness)]+0.884*CF}$	26,000

[1] – CF for copper CCC = 0.96; CF for copper CMC = 0.96
[2] – CF for lead CCC = 1.46203-[ln(hardness)*(0.145712)]; CF for lead CMC = 1.46203-[ln(hardness)*(0.145712)]
[3] – CF for mercury CCC = 0.85l CF for mercury CMC = 0.85
[4] - CF for zinc CCC = 0.986, CF for zinc CMC = 0.978

Ideally, in order to determine criteria for copper, lead, and zinc for the purposes of evaluating water quality samples, hardness would be measured contemporaneously with copper, lead, and zinc measurements to establish the criteria for that measurement. However, while hardness is commonly measured during routine ambient sampling for conventional pollutants, it is not usually measured contemporaneously with the sampling of metals. In a strict sense, in cases where ambient hardness is not reported contemporaneously with copper, lead, and zinc samples, criteria cannot be determined directly for comparison purposes. However, in order to make use of the available copper, lead, and zinc data, the criteria for metals were calculated for each waterbody using a representative (average) hardness condition based on the following logic:

1) For individual waterbodies with data that included historic hardness measurements, all historic hardness data taken within the waterbody (1984-current) were averaged[3]. The resulting average hardness value was considered representative of that waterbody. Note that all three mainstems (Anacostia, Potomac, and Rock Creek) and several tributaries met this condition.

[3] In situations where hardness samples were paired with metals samples in a given waterbody, an average hardness was still used to calculate criteria. This allowed for a single criterion to be used for comparison for all water quality samples for a given waterbody.

2) For individual waterbodies with no hardness measurements, the average hardness values from the mainstem waterbody were used in the calculation. This condition applied to only to Rock Creek tributaries.

The average hardness determined for each waterbody using either #1 or #2 above was considered representative for the purposes of calculating criteria. In these cases, average hardness values were substituted into the equations in Table B.1 to calculate waterbody-specific criteria. Numeric criteria for copper, lead and zinc for each waterbody calculated through these methods and used in this reevaluation of toxics are listed in Appendix B, Exhibit 1.

Organic Constituents

The numeric criteria for the organic constituents of interest are not dependent on ambient water quality conditions such as hardness. The numeric criteria are summarized in Table B.2 below.

Table B.2: District of Columbia Numeric Water Quality Criteria for Organic Constituents

Group (if applicable)	Constituent	Class C Aquatic Life		Class D Human Health
		CCC 4-Day Avg [ug/L]	CMC 1-Hour Avg [ug/L]	D 30-Day Avg [ug/L]
-	**Chlordane**	0.0043	2.4	0. 00032
-	**4,4’-DDD**	0.001	1.1	0.00012
-	**4,4’-DDE**	0.001	1.1	0.000018
-	**4,4’-DDT**	0.001	1.1	0.00003
-	**Dieldrin**	0.056	0.24	0.0000012
-	**Heptachlor Epoxide**	0.0038	0.52	0.000032
PAH1	Naphthalene	600	None	None
	2-methyl naphthalene	None	None	None
	Acenaphthylene	None	None	None
	Acenaphthene	50	None	90
	Fluorene	None	None	70
	Phenanthrene	None	None	None
	Anthracene	None	None	400
PAH2	Fluoranthene	400	None	20
	Pyrene	None	None	30
	Benzo[a]anthracene	None	None	0.0013
	Chrysene	None	None	0.13
PAH3	Benzo[k]fluoranthene	None	None	0.013
	Benzo[a]pyrene	None	None	0.00013
	Perylene	None	None	None
	Indeno[1,2,3-c,d]pyrene	None	None	0.0013
	Benzo[g,h,i]perylene	None	None	None
	Dibenz[a,h+ac]anthracene	None	None	0.00013
	Benzo[b]fluoranthene	None	None	0.0013
-	PCBs	0.014	None	0.000064

Data Sources

In order to make the evaluation of toxic impairments as comprehensive as possible, water quality data were gathered from a range of government sources. Data were retrieved from the DOEE water quality database, additional special studies performed in the District by EPA and others, and an online USGS database. The data were compiled from various spreadsheet and PDF formats. No data on toxics was provided by the community (e.g., citizens, non-profits, etc.).

All datasets (with the exception of data accessed through the USGS National Water Information System [NWIS]) were made available by DOEE. Prior to their use in this analysis, all datasets were evaluated for data quality. This evaluation focused on review of the use of data qualifiers/flags in the data set, as well as information on detection and reporting limits and other available metadata. Discussion of general rules for data quality/data usability, as well as discussions of the data quality of each individual dataset, are provided below.

A summary of the eight datasets that were compiled and processed for this evaluation is provided in Table B.3.

Table B.3: Datasets Used for Review of Impairments

	Dataset Name	Data Collected By	Date Range of data used in analysis	Number of Waterbody Segments[1]	Number of Constituents[2]	Number of Samples[3]	Number of Comparisons to WQC[4]
1	DOEE Ambient Water Quality Program Monitoring Analytical Data	DOEE	1990-2012[5]	36	3	1546	2691[6]
2	DOEE Ambient Water Quality Program Monitoring Field Measurement Data	DOEE	1984-2018	36	0	0	0
3	USGS NWIS	USGS	1999-2021	12	11	504	1913
4	District of Columbia Toxic Character-ization – Phase 1	Tetra Tech	2013-2014	28	24	66	1310
5	Water Quality Data Collected for Anacostia Remedial Investigation	Tetra Tech	2014-2016	4	25	100	3000

Table B.3: Datasets Used for Review of Impairments							
Dataset Name		Data Collected By	Date Range of data used in analysis	Number of Waterbody Segments[1]	Number of Constituents[2]	Number of Samples[3]	Number of Comparisons to WQC[4]
6	USGS Tributary Study	USGS	2017	3	5	5	50
7	District of Columbia Toxic Characteriz-ation – Phase 2	Tetra Tech	2018-2019	12	22	103	1337
8	DOEE "Background Study"	Tetra Tech	2020-2021	11	25	143	4202

[1]The total number of waterbody segments where at least one constituent of concern was measured in the dataset.
[2]The number of constituents of interest present in the dataset.
[3]The total number of physical samples with at least one constituent of concern within the dataset. See dataset specific descriptions for any assumptions made for measurements without a sample ID.
[4]The total number of results of all constituents of concern that were compared to WQC.
[5]This date range applies to the constituents of interest. Hardness data from 1984 to 2012 was used from the DOEE lab dataset.
[6]Note that while the total number of samples for metals include both dissolved and total measurements, comparisons were made according to the criteria requirements. For Class C criteria, dissolved measurements were compared. For Class D criteria, total measurements were compared.

These datasets are described individually below.

(1) DOEE Ambient Water Quality Program Monitoring Analytical Data

This dataset is compiled from DOEE's Ambient Water Quality Monitoring Program, which has been conducting routine monitoring for several decades. Within this dataset, samples have been collected for 35 waterbodies, including Anacostia Lower, Anacostia Upper, Battery Kemble Creek, Broad Branch, C&O Canal, Dalecarlia Tributary, Dumbarton Oaks Tributary, Fenwick Branch, Fort Chaplin Tributary, Fort Davis Tributary, Fort Dupont Tributary, Fort Stanton Tributary, Foundry Branch, Hickey Run, Kingman Lake, Klingle Valley Branch, Luzon Branch, Melvin Hazen Valley Branch, Nash Run, Normanstone Creek, Oxon Run, Pinehurst Branch, Piney Branch, Pope Branch, Portal Branch, Potomac Lower, Potomac Middle, Potomac Upper, Rock Creek Lower, Rock Creek Upper, Soapstone Creek, Texas Avenue Tributary, Tidal Basin, Washington Ship Channel, and Watts Branch.

There are no unique sample IDs to distinguish same day discrete samples (e.g., grab sample #1 from waterbody X on date Y) from each other in this dataset. Therefore, all measurements taken on the same date and at the same sampling station were assumed to belong to the same sample. While not clearly stated, it is assumed based on sampling dates and documentation included in 2003-2004 TMDLs for metals that the metals in this dataset were reported as the "total" fraction and interpreted as such. The dataset does not contain data for any pesticides, PCBs, PAHs, or other pollutants of interest. The dataset also includes data for total hardness.

There is no information identifying duplicate or other QA/QC samples in this dataset.

It should be noted that, the DOEE Ambient Water Quality Program has more than one sampling location in seven waterbody segments, including the Upper and Lower Anacostia (three (3) sampling stations each); the Middle (two (2) sampling stations) and Lower Potomac (four (4) sampling stations); Kingman Lake (two (2) sampling stations); Upper Watts Branch (two (2) sampling stations); and the C&O Canal (two (2) sampling stations). This has resulted in the potential for multiple samples from the same waterbody segment on the same day. For example, there were four sampling locations in the Lower Potomac, so typically four samples were taken in the Lower Potomac on a given day. Sampling for this program was performed quarterly from 1990-2012, resulting in two to four samples for these waterbodies per quarter over the 1990-2012 time period. Samples from this sampling regime are treated the same as all other samples for the purposes of this reevaluation: these data are pooled with all other data and all individual results are used to assess against criteria.

(2) DOEE Ambient Water Quality Program Monitoring Field Measurement Data

In addition to samples submitted to the analytical laboratory for processing, DOEE also takes in-field measurements under the ambient water quality program monitoring. While this dataset does not include results for any of the constituents of concern for this particular study, it is documented here because several field parameters – such as pH and turbidity - may be useful for future evaluation. Other parameters compiled as part of this dataset are conductivity, depth, discoloration, dissolved oxygen, fish kill, floating garbage/sewage, flow, ice cover, macrophytes, oil and grease, precipitation, air temperature, water temperature, salinity, Secchi reading condition, channel substrate, tide stage, wave height, weather condition, wind condition, and wind direction.

Data qualifiers/flags were not relevant since this dataset did not contain any constituents of interest for comparison to criteria, and therefore data flags/qualifiers were not evaluated for this dataset. Detection limits and duplicates are also not relevant for this dataset, and so these are also not evaluated or discussed within this document.

(3) USGS National Water Information System (NWIS)

USGS conducts semi-regular monitoring at gauging stations within the District. Monitoring data from this program was downloaded from the USGS NWIS. The samples were collected in 12 waterbodies, including: Hickey Run, Watts Branch[4], Upper and Lower Rock Creek, Broad Branch, Dumbarton Oaks, Fenwick Branch, Luzon Branch, Normanstone Creek, Pinehurst Branch, and Piney Branch. Within this dataset, the constituents of interest with respect to this study are dissolved metals (copper, lead, mercury and zinc), DDE, dieldrin, and several PAHs.

Sample IDs were not specified in the data download. Therefore, it was assumed that each unique date and location combination represent an individual sample.

The USGS NWIS data download includes several fields, including “Result Value Qualifier Code” and a “Remark Code” that can be used to interpret the quality of the data and how it should be used.

Remark codes provided additional information about how to interpret the numeric results provided for each individual sample. Remark codes included in the data consisted of:

- Less than
- Estimated

[4] Subsequent investigation of station USGS1651800, “Watts Branch at Washington, DC” identified this station as being in the Upper Watts Branch segment. See “Dataset Processing: Step 1” below.

The dataset also includes a field called "Reporting Level Type" that provides information on the reporting levels for individual results. Reporting Level Type codes included in the data consisted of:

- Detection limit by Blank Data
- Detection limit by DQCALC
- Interim reporting level
- Laboratory reporting level
- Long term method detection level
- Method detection limit

There is no information identifying duplicate or other QA/QC samples in this dataset.

(4) District of Columbia Toxic Characterization – Phase 1

As a follow-up to a court decision regarding the daily expression of TMDLs in the District, EPA Region 3 hired a contractor to collect a series of surface water samples in the District of Columbia. Sampling was performed in waters listed as impaired for toxic contaminants, with the goal of filling data gaps to express TMDLs as daily loads and verifying impairment status. A total of three rounds of sampling were conducted during dry and wet weather conditions in 2013-2014.

This dataset includes samples from 29 segments, including Anacostia Upper, Anacostia Lower, Kingman Lake, Nash Run, Fort Dupont Tributary, Fort Chaplin Tributary, Fort Davis Tributary, Fort Stanton Tributary, Texas Avenue Tributary, Tidal Basin, Washington Ship Channel, Hickey Run, Pope Branch, Watts Branch[5], Battery Kemble Creek, Foundry Branch, Oxon Run, Dalecarlia Tributary, Piney Branch, Broad Branch, Dumbarton Oaks Tributary, Fenwick Branch, Klingle Valley Branch, Luzon Branch, Melvin Hazen Valley Branch, Normanstone Creek, Pinehurst Branch, Portal Branch, and Soapstone Creek.

This dataset includes dissolved and total concentrations for five metals (arsenic, copper, lead, mercury, and zinc). Samples collected as part of this study were also analyzed for PAHs, DDD, DDE, DDT, chlordane, dieldrin, heptachlor epoxide, and PCBs. Individual PAH compounds were reported, while a single total PCB value was reported for each sample. Additionally, total hardness data was collected.

Major data flags used in the dataset are listed below, along with the definitions of the flags provided with the dataset.

- J (Estimated)
- B (Level detected not substantially different than level detected in associated blank)
- U (Non-Detect)
- UL (Non-detect, bias low detection limit)
- UJ (Non-detect, estimated detection limit)

These data flags are consistent with typical industry standards for laboratory data reporting.

The dataset did not include separate information on detection or reporting limits for individual pollutants/analytes. However, the numeric results reported for each "U" flagged result are interpreted as the detection limit for that analysis.

[5] Subsequent investigation of by coordinate matching identified this station as being in the Lower Watts Branch segment. See "Dataset Processing: Step 1" below.

QA/QC samples reported with this dataset consisted of field duplicates and rinsate blanks. However, these QA/QC samples were easily identified by the inclusion of “Field Dup,” “Rinsate Blank,” or “RB” as part of the identifying data in the “Sample ID” data field.

(5) Water Quality Data Collected for Anacostia Remedial Investigation

As part of the ongoing Remedial Investigation of the Anacostia River, DOEE hired a contractor to collect surface water samples from four (4) waterbodies in the Anacostia watershed, including the Upper Anacostia, the Lower Anacostia, Kingman Lake, and Washington Ship Channel. Sampling was conducted in two phases – Phase 1 in 2014 and Phase 2 in 2016. Both dry and wet weather samples were collected in each phase.

This dataset includes dissolved and total concentrations for arsenic, copper, lead, mercury, and zinc, as well as concentration data for PAHs, DDD, DDE, DDT, chlordane, dieldrin, heptachlor epoxide, and PCBs. Individual PAH compounds were reported, while a single total PCB value was reported for each sample. Additionally, total hardness values were included.

QA/QC data qualifiers/flags used in the dataset included “U” and “J.”

The dataset did not include separate information on detection or reporting limits for individual pollutants/analytes. However, the numeric results reported for each “U” flagged result are interpreted as the detection limit for that analysis.

There is no information identifying duplicate or other QA/QC samples in this dataset and therefore no records from his dataset were removed from the overall analysis.

Similarly to the DOEE Ambient Data, the Anacostia Remedial Investigation incorporated multiple sampling stations in each of the waterbody segments included in the investigation. These included: Upper Anacostia: six (6) different sampling locations; Lower Anacostia: eight (8) different sampling locations; Kingman Lake and Washington Ship Channel: four (4) different sampling locations. As with the DOEE Ambient Data, these multiple different sampling locations in the same segment were often sampled on the same day. This occurred five (5) times for the Upper and Lower Anacostia and three (3) times for Kingman Lake and the Washington Ship Channel. However, as with similar results from the DOEE Ambient Data, samples from this sampling regime are treated the same as all other samples for the purposes of this reevaluation: these data are pooled with all other data and all individual results are used to assess against criteria.

(6) USGS Tributary Study

The District began the Anacostia River Sediment Project in 2013 with the goal of cleaning up the contaminated river sediments. As part of the project, USGS conducted a “Tributary Study” that consisted of surface water quality sampling to estimate the loads of suspended-sediment-bound chemical compounds in nine (9) tributaries of the Anacostia River. These included Hickey Run, Pope Branch, and Upper Watts Branch in the District. Samples were collected during one to two (1-2) low flow events and one to five (1-5) storm events (depending on the water body) between January and July 2017. Water quality data were collected for metals, including dissolved arsenic, copper, lead, mercury, and zinc.

QA/QC data qualifiers/flags used in the dataset included “U” and “J.”

The dataset did not include separate information on detection or reporting limits for individual pollutants/analytes. However, the numeric results reported for each "U" flagged result are interpreted as the detection limit for that analysis.

There is no information identifying duplicate or other QA/QC samples in this dataset.

(7) District of Columbia Toxic Characterization – Phase 2

As a follow-on to the toxics sampling conducted in the Anacostia and tributaries and the Potomac and Rock Creek tributaries in 2013-2014, DOEE contracted Tetra Tech to collect additional surface water samples in the Anacostia River and its tributaries to support the development of updated TMDLs in this watershed. Both dry and wet weather samples were collected in 2018 and 2019 in the Anacostia River and its tributaries.

Samples were collected in 12 waterbodies, including Lower Anacostia, Upper Anacostia, Watts Branch[6], Kingman Lake, Fort Dupont Tributary, Fort Davis Tributary, Fort Stanton Tributary, Fort Chaplin Tributary, Pope Branch, Texas Avenue Tributary, Nash Run, and Hickey Run. Results were analyzed for a suite of parameters, including arsenic, copper, zinc, chlordane, DDD, DDE, DDT, dieldrin, heptachlor epoxide, and PAHs.

QA/QC data qualifiers/flags used in the dataset included "U" and "J."

The dataset did not include separate information on detection or reporting limits for individual pollutants/analytes. However, the numeric results reported for each "U" flagged result are interpreted as the detection limit for that analysis.

QA/QC samples reported with this dataset consisted of field duplicates. However, these QA/QC samples were easily identified by the inclusion of "-DUP" at the end of the identifying data in the "Sample ID" data field.

(8) DOEE "Background Study"

DOEE is in the process of conducting a "background study" of soils, groundwater, and surface water to establish the background concentrations of inorganic chemicals (e.g., metals) in the District. As described in the study's Field Sampling Plan document, "the purpose of estimating background concentrations is to form a basis for assessing whether the concentrations of inorganic chemicals at a site within the District indicates site-related contamination or can be attributed to naturally occurring or non-site-related anthropogenic sources. A key objective of the study is differentiation of natural, anthropogenic, and upstream sources of inorganic chemicals in soil, surface water, and groundwater." Specifically, "the study will provide DOEE with representative, validated data to use for its regulatory oversight programs regarding management of soil, groundwater, and surface water in the District, including but not limited to contaminant spills or releases, site investigation, site cleanup and remediation, permitting, and groundwater pumping and discharge actions." The Field Sampling Plan document goes on to state that the water quality data is intended to be "adequate to support DOEE in development of new, or revision of existing, water quality standards and other action levels for the District."

[6] The Watts Branch sampling location for the Phase 2 Study was the same sampling location in Lower Watts Branch that was used in the Phase 1 study.

The surface water sampling component of the Background Study consists of 11 sampling locations[7] in District waterbodies – including Lower Anacostia, Broad Branch, Dumbarton Oaks, Fort Dupont, Fort Stanton, Melvin Hazen Valley Branch, Upper, Middle, and Lower Potomac, Lower Rock Creek, and Upper Watts Branch. Water quality sampling is planned to be done monthly at a fixed point on each surface water body over 2 years, for a total of 24 sampling events). Sampling is conducted for a suite of metals and organic constituents, many of which have existing TMDLs in the District.

Monthly samples from June 2020 through October 2021 are incorporated into this data compilation.

This dataset has multiple data columns that include data qualification information. These columns include:

- Lab Qualifier
- Validator Qualifier
- Validate Status
- Detect Status, which consisted of “Yes,” “No,” or blank (i.e., no data)

The lab qualifiers for pollutants of interest include “U,” “B,” and “J.”

This dataset did not include data on detection limits for each analysis. However, as with other datasets, the numeric results reported for each “U” flagged result can be interpreted as the detection limit for that analysis.

QA/QC samples reported with this dataset consisted of field duplicates. However, these QA/QC samples were easily identified by the inclusion of “FD” between the waterbody code and the sample date components of the “Sample ID” data field.

Overview of Dataset Compilation and Dataset Processing

The objective of this reevaluation is to compile and evaluate historic water quality data to verify if the data supported broad findings of impairment attributed to toxics. In order to accomplish this objective, data from each of the datasets described above had to be compiled into one dataset for analysis using a common set of procedures. In broad terms, this procedure included:

- Compilation of eight different datasets.
- Processing of datasets for consistency into one dataset appropriate for comparison to numeric water quality criteria.

Dataset Compilation: Step by Step Procedures

The step-by-step procedures used to compile the data for the reevaluation are provided below:

Step 1: Identify and document source of each dataset (e.g., received from DOEE; downloaded from webpage)

Step 2: Format each dataset into an Excel spreadsheet that includes critical data elements, including:

a. Sample ID
b. Sample Date

[7] Note that there are several sampling locations outside of the District’s boundaries as well. These include samples on the Upper Anacostia and Upper Rock Creek in Maryland.

c. Location ID (i.e., waterbody sampled)
d. Sample type – this field identifies QA/QC samples, such as “rinsate blank” and “field duplicate”
e. Pollutant/parameter name
f. Measurement units
g. Numerical results of sample
h. QA/QC data flags/qualifiers
i. Include any coding or data indicating whether samples (specifically metals samples) are “total” or “dissolved”. In some datasets, the indication of whether a pollutant is in total or dissolved form is in the parameter name (e.g., DOEE toxics Phase 1 data, USGS NWIS data). In other cases, it is organized as a separate set of results (e.g., data row header for section on “Dissolved Metals” in Anacostia RI data, DOEE toxics Phase 1 data, USGS Tributary Study). In still other cases, it is in a separate data field (e.g., “DISS” in the “Test Fraction” field in the Background Study data, column indicating dissolved or total metals in USGS Tributary Study).

A crosswalk of the Individual datasets that shows similarities and differences in the contents of each dataset is provide in See Appendix B, Exhibit 2.

Dataset Processing: Step by Step Procedures

Dataset processing involved a series of steps intended to establish a single dataset for comparison with criteria. This process takes the individual data from the individual dataset Excel files and pulls and merges it into a single, formatted, “Processed Data” Excel file using a single R script (all_processed_data.R). An R data file (RDA) is produced from the processing steps and serves as the input for subsequent analysis steps. The step-by-step procedures used to process the data are provided below:

Step 1: Filter out all data sampled between 1/1/1990 and 6/30/2021. Only data from within this time period is used in the reevaluation. The date of 6/30/2021 corresponds to the end of the data collection period for the 2022 Integrated Report.

Step 2: Use the “sample type” field to identify QA/QC samples. QA/QC samples, such as field duplicates or rinsate blanks, are typically taken during field sampling to help evaluate and ensure data quality. Different QA/QC samples are handled differently within this analysis. Field duplicates were identified and assigned to their appropriate TMDL segments as independent samples for use in the remainder of the analysis. This was consistent with how field duplicates were used in the original datasets, and it is the most conservative approach. In contrast, when rinsate blanks could be identified within individual datasets, they were removed from the dataset before the comparison against numeric criteria. If QA/QC samples could not be identified within a given dataset, no records from that dataset were removed from the overall analysis.

Step 3: Assign every sample to the appropriate waterbody segment in the Processed Waterbody Segment Name field (waterbody_segment). The District has 36 individual waterbody segments for which it assess impairment. These include some individual waterbodies that are divided into multiple segments (e.g., Upper and Lower Anacostia, Upper and Lower Watts Branch). Each of these individual segments is assessed for impairments independently and has its own MS4 WLAs for pollutants of concern.

Assignments for most samples is straightforward (e.g., all samples taken in “Hickey Run” are assigned to the “Hickey Run” segment). However, in some cases, sampling data does not indicate which of the multiple possible segments a sample is taken from. In these cases, data on sampling location (such as coordinates for the sampling location) will be used to assign the analytical results to the proper waterbody segment. The Processed Waterbody Segment Name field is created to hold this segment information so that the raw/original data on waterbody remains in the dataset for QA/QC purposes.

Step 4: Assign every sample to a common pollutant name in the Processed Pollutant Name field (pollutant_name) and to a Processed Pollutant Group field (pollutant_group). A crosswalk was used to ensure that the pollutant name and pollutant group are the same across all datasets (Appendix B, Exhibit 3). The CAS number was an important data point in identifying the same pollutant across datasets. The pollutant group is used to track sub-pollutant names for PAH1, PAH2, PAH3, and PCBs. For example, Fluoranthene, Pyrene, Benzo[a]anthracene, and Chrysene are PAH2 compounds. Each of these individual PAH2 compounds has its own criterion (see Table 2), and each is noted as belonging to the Processed Pollutant Group for PAH2.

Filter the list of pollutants to include only those pollutant groups of interest for this reevaluation. This list includes five metals (arsenic, copper, lead, mercury, zinc) and eight organic constituents (chlordane, DDD, DDE, DDT, dieldrin, heptachlor epoxide, polyaromatic hydrocarbons (PAHs – PAH1, PAH2, and PAH3), and polychlorinated biphenyls (PCBs).

Step 5: Convert sample result units where needed and store all results in the in the Processed Sample Concentration Results field (processed_result_value). The numeric water quality criteria for metals and organic constituents are expressed as ug/L, and so all sample results will be converted to ug/L for ease of comparison. The original field that reported the analytical result (e.g., mg/L or ug/L) is retained for QA/QC purposes and the new Processed Sample Concentration is used to facilitate comparison with the criteria.

Step 6: Determine if a given sample result is “detected” or “not detected.” This is a key step in processing. In simple terms, it is done by using data qualifier flags or other assumptions to separate data samples (analytes) where toxics are detected (present) from data samples where toxics are not detected (cannot be measured/not found/not present). In general, laboratories use standardized data qualifier flags to describe the results they are reporting. Standard laboratory definitions of typical data qualifier flags are as follows:

- “U” data qualifier flags, either alone or in combination with other data qualifier flags, are used to indicate that a result is below the method detection limit.
- “J” data qualifier flags are used to indicate that the result is an estimated value.
- “UJ” data qualifier flags indicate that a result is below the concentration that can be measured confidently, but it has been estimated. This value is usually between the detection limit and reporting limit.
- “B” data qualifier flags indicate that target analyte is detected in method blank at or above the method reporting limit (in theory, method blanks should have no concentration of the pollutant unless that pollutant was present under ambient conditions in the laboratory, and so B flags may indicate analytical results as suspect).

In addition to these widely used qualifiers,

- The USGS NWIS data contains different data qualifier flags. The data qualifier flags “E” and “<” (“less than”) are contained in the “remark cd” field.
- The DOEE “Background Study” contains a column for Detect Status: YES, NO, or Blank (not provided)

<u>Determination of “Detected” data</u>: The data samples considered to be detected and present are:

- All results that have no data qualifier flag are coded as “detected”.
- All results that have a “J” data qualifier flag are coded as “detected” – unless the “J” data qualifier flag is in combination with a “U” flag.
- All results that have a “B” data qualifier flag are coded as “detected” unless the “B” data qualifier flag is in combination with a “U” flag.
- All USGS NWIS results that have an “E” to indicate that the result is an estimated value (USGS NWIS).
- All DOEE Background Study results that are reported as detected (Detect Status is YES or Blank).

In the data compilation step, a qualifier field was used to store data indicating detected samples prior to comparison with criteria. The data in this field contains the qualifier codes where “U” indicates a non-detect.

<u>Determination of “Not Detected” data</u>: Data samples recorded as “not detected” cannot be used with good confidence to quantify the concentration of a toxic substance in the waterbody at the time the sample was taken. The data samples considered to be not detected are:

- All results that have a “U” data qualifier flag – alone or in combination with another data qualifier flag (e.g., UJ) – are coded as not detected. This rule was followed regardless of whether the detection limit for that sample was above or below the criterion for that pollutant.

- All USGS NWIS results reported as “less than” are considered to be not detected.

A new Processed Detected/Not Detected Data field (processed_detect_status) is used to identify the “not detected” samples (ND) and the “detected” samples (D). These “not detected” samples are counted as a sample (i.e., they are included in the overall count of samples), but they are not used in the comparison with criteria because they are not suitable for this purpose.

The emphasis placed on sample detection and non-detection (presence vs. non-presence) is deemed to be appropriate for the purposes of this reevaluation of toxics. No presumptions about impairment or non-impairment are made. Instead, the data, where detected, are used to determine impairment or non-impairment by comparing water quality concentrations from field samples with numeric criteria. This approach seems to be consistent with national practices. In its Definition of Detection Limits, the Interstate Technology and Regulatory Council (ITRC, 2022) notes that:

> *In environmental testing, a detection limit is the concentration that is statistically greater than the concentration of a method blank with a high level of confidence (typically, 99%), or the lowest level of a given chemical that can be positively identified when using a particular analytical method. Signal intensity below the detection limit cannot be reliably distinguished from a method blank or “baseline noise.” Therefore, an analyte is confidently reported as present*

in an environmental sample only when the measured concentration is greater than the detection limit.

Note on determining “detected” vs. ”not detected” data for dataset #1, *DOEE Ambient Water Quality Program Monitoring Analytical Data*. As discussed above under “Data Sources,” the DOEE ambient water quality monitoring dataset included data only for arsenic, copper, lead, mercury, and zinc out of the constituents of interest for this study. In addition, data for these metals were reported in terms of the total fraction. Because the only relevant water quality criteria for the total fraction of metals is for Class D for arsenic, mercury, and zinc, only data for arsenic, mercury, and zinc from the DOEE ambient water quality monitoring dataset was included in this analysis.

Data from this data source required further interpretation to determine if individual results were detected or not detected because of inconsistent data reporting. The results of this analysis are discussed separately for each metal below.

<u>Arsenic</u> – the dataset has 1603 arsenic results spanning from 1990-2010. However, 1108 of the 1603 results are reported as either "Not Detected," "Not Reported," or "Present Below Quantification Limit" in the “Result Detection Condition” column. These results are determined as being “not detected," except for the "Not Reported" results, which are excluded altogether from the analysis. The remaining 495 records have numeric results in the “Result Value” column. However, 483 out of these 495 records have a result of 5 ug/L. While no Method Detection Limit has been reported for these results, it was common practice to include the Method Detection Limit as the numeric result when a sample was not detected at the Method Detection Limit. Therefore, it is assumed that these results are not detected for the purposes of this reevaluation. It is assumed that the remainder of the results, which range from 6-16 ug/L, are detected values.

<u>Mercury</u> - the dataset has 368 mercury results spanning from 1990-1995. There are no data in the Result Detection Condition column, so there is no direct indication that any of the samples are “Not Detected," "Not Reported," or "Present Below Quantification Limit." However, 356 out of these 368 records have a result of “0.2 ug/L.” It is assumed that these results are not detected for the purposes of this reevaluation. The remaining 12 records have results ranging from 0.3-1.2 ug/L and are assumed to be detected values.

<u>Zinc</u> - the dataset has 931 zinc results spanning from 1990-2002. 345 out of 931 results are “Not Detected," "Not Reported," or "Present Below Quantification Limit" in the “Result Detection Condition” column. These results are determined as being “not detected," except for the "Not Reported" results, which are excluded altogether from the analysis. 586 results are “blank” in the “Result Detection Condition” column and have numeric values in the “Result Value” column. 169 of these 586 records show results of 20 ug/L, which is the detection limit shown in the “Result Detection/Quantitation Limit Measure” column. These results are assumed to be “not detected.” The remaining 417 records have values ranging from 21-499 ug/L and are assumed to be “detected” values.

Step 7: Develop data for Total PCBs and store the results in the processed_result_value field. The numeric water quality criteria for PCBs applies to the total amount of PCBs that are present. Total PCBs represents the sum of all congener, isomer, homolog, or Aroclor analyses. Some individual datasets provide a value for Total PCBs, while this sum will have to be calculated for samples that provide the results of individual congeners or Aroclors.

Note that PCB data for several datasets were reported in unique ways that required additional processing. These specific datasets and the steps needed to process the data are described below:

Dataset #3 USGS NWIS. No data for PCBs or Aroclors were found at any sampling locations in the District of Columbia.

Dataset #4 District of Columbia Toxic Characterization – Phase 1. The Sampling Plan for this study indicates that "total PCBs" will be evaluated. However, data was only reported for 20 individual PCB congeners. No explanation could be identified for this in any of the project documentation or subsequent follow-up. The final report for this project did sum up the reported PCB congener data and evaluated the results against total PCB criteria to determine exceedances of criteria. Therefore, a similar procedure was followed in this reevaluation, and the reported PCB data were summed and compared to the criterion for total PCBs.

Dataset #5 Water Quality Data Collected for Anacostia Remedial Investigation. Both data for individual congeners and for Aroclors was reported. Data for individual congeners was summed to compare to criteria for total PCBs.

Dataset #8 DOEE "Background Study." Multiple designations for PCBs were reported in the data, including individual PCB congeners both with and without an added "L" after the congener number (e.g., "PCB-105" vs. "PCB-105L"). These "L"-labeled results are International Union of Pure and Applied Chemistry (IUPAC) analogs and have been excluded from the analysis. In addition, many of the PCBs in this study co-eluted with one another. The co-eluted congeners had a "C" flag followed by the congener number to indicate what congener they co-eluted with. Additionally, Total PCB results are reported in the raw dataset for all but one sample (E10-SW-AN-01-031721) with PCB congener results. For consistency, no total PCB calculations are made for this dataset, including the sample missing the total PCB results.

Comparison to Numeric Criteria

Once the data were compiled and processed into one dataset, individual analytical results were compared to criteria to determine exceedances. As discussed earlier, only samples recorded as detected (present) were included in the comparison. Evaluation of exceedances and violation of criteria were based on the number of individual measurements that were above the criteria.

In most cases, the sampling frequency was insufficient to assess exceedances on a sliding window (1-hour, 4-day, or 30-day) basis consistent with the strict definition of criteria in the District's WQS (see Tables 1 and 2). However, the approach taken in this analysis serves the purpose of this exercise, which is to evaluate whether historic data support previous conclusions of impairment.

Exceedance rates were reported on a per waterbody basis for all tributaries. For the mainstems, exceedance rates were reported on a segment basis (e.g., Upper Anacostia, Lower Anacostia, etc.).

The following steps were taken to evaluate individual results against criteria:

1. Include the most recent numeric criteria to the Processed Data spreadsheet for use in comparisons.
    a. Most recent WQ criteria were published May 2020.

    b. Include criteria for Class C CCC, Class C CMC, and Class D where applicable (see Tables 1 and 2).
2. Compare each individual sample identified as "detected" to criteria.
    a. Evaluate the following pollutants for which there are existing toxics TMDLs:
        i. Dissolved metals (arsenic, copper, lead, mercury, zinc) and total recoverable metals (arsenic, mercury, zinc)
        ii. Chlordane, dieldrin, heptachlor epoxide
        iii. DDD, DDE, DDT
        iv. Individual PAHs within PAH groups PAH1, PAH2, and PAH3 (e.g., acenaphthene; acenaphthylene)[8] (See Step 4 under "Dataset Processing" above)
        v. Total PCBs (see Step 7 under "Dataset Processing" above)
        vi. See further notes on this step below under Further Notes on Steps in the Comparison to Criteria
    b. Compare each sample to applicable Class C CCC, Class C CMC, and Class D criteria
    c. Record whether each sample exceeds the criterion
3. Record the total number of samples (detected and not detected) for a given pollutant by waterbody.

Further Notes on Steps in the Comparison to Criteria Process

The following notes provide additional details on some of the steps in the comparison to criteria process.

Dissolved and Total Fractions of Metals (Step 4.a.i)

Metals are measured either as "total" metals (or total recoverable), which includes dissolved and insoluble or particulate fractions; or "dissolved" metals, which only represents the dissolved fraction. The District's criteria for the five metals included in this reevaluation are expressed in terms of both dissolved metals for Class C (arsenic, copper, lead, mercury, zinc) and total recoverable metals for Class D (arsenic, mercury, zinc).

Chlordane (Step 4.a.ii)

Several measures of chlordane and chlordane congeners were reported in these datasets: "technical chlordane", cis-chlordane, and trans-chlordane. Only measurements of "technical chlordane" were compared to the numeric water quality criterion. Cis-chlordane (α-chlordane) and trans-chlordane (γ-chlordane), which are components of technical chlordane, were not evaluated against the numeric water quality criterion because the criterion represents the sum of all components. This is consistent with how DOEE evaluates its chlordane data. Note that there were no instances where cis- or trans-chlordane data were collected but technical chlordane data were not collected.

[8] Note that while DOEE has TMDLs and MS4 WLAs for "PAHs" (e.g., PAH1, PAH2, PAH3), there are no water quality criteria for the three PAH groups. Therefore, individual PAHs like acenaphthene and acenaphthylene are compared to criteria, because there are criteria for these individual PAHs.

DDE, DDD, DDT (Step 4.a.iii)

The 4,4'- isomers of DDE, DDD, DDT (i.e., 4,4'-DDE, 4,4'-DDD, and 4,4'-DDT) were compared to the criteria. The 2,4'- isomers were not included in the analysis. This is consistent with how DOEE evaluates its DDE, DDD, and DDT data.

PAHs (Step 4.a.iv)

Measured concentrations of individual PAH compounds were reported in each of the datasets. Concentrations of individual PAH compounds (e.g., naphthalene) were compared directly to the applicable criteria.

Total PCBs (Step 4.a.v)

In general, the "total PCBs" measurement provided in the data set (if reported) or the calculated sum of all measured PCB congeners were compared to the numeric criteria for total PCBs. Several datasets did not report estimates of "total PCBs" concentration, and thus it was necessary to calculate this sum. If the result of a congener was non-detect, a value of zero (0) was substituted, consistent with an evidence-based exceedance approach.

Confidence in Decision-Making on Exceedances

The confidence in decision-making on whether any individual sample exceeds criteria depends on the relationship between the detection and reporting limits for individual analytical samples and the water quality criterion for that pollutant. This relationship between the detection and reporting limits for individual analytical samples and the water quality criterion for that pollutant are reflected in QA/QC data flags and the values reported with these data flags. As described above, QA/QC data flags are used to help determine if a pollutant is "detected" or "not detected." This is the ultimate decision that needs to be made for each data point, because different levels of confidence are associated with comparing "detected" values to criteria vs. "non-detected" values. In general, detected values can be compared to criteria and evaluated for exceedance with a high degree of confidence. Comparisons to criterion for samples that are below detection or reporting were not made.

Evaluation of Detection Limits

Detection limits were summarized for all non-detect values and an overall range of detection limits from the entire processed dataset was developed for each pollutant. This allowed an evaluation of the range of detection limits to the criterion for each pollutant.

For the purposes of this exercise, values reported with "U" flags were considered to be the detection limit for that analysis.

Results

Each individual waterbody was evaluated for each constituent of interest using the methodologies described above. The results of this evaluation are included in *Appendix C. Reevaluation Findings for Class C and Class D Uses for District Waterbodies*.

Appendix B, Exhibit 1 – Numeric Criteria for Metals

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Anacostia Lower	arsenic	N/A	N/A	150.0	340.0	0.14
Anacostia Lower	copper	107	1	9.49	14.3	None
Anacostia Lower	lead	107	1	4.39	129.42	None
Anacostia Lower	mercury	N/A	N/A	0.65	1.19	0.15
Anacostia Lower	zinc	107	1	125.1	124.1	26,000
Anacostia Upper	arsenic	N/A	N/A	150.0	340.0	0.14
Anacostia Upper	copper	96	1	8.65	12.9	None
Anacostia Upper	lead	96	1	3.75	112.66	None
Anacostia Upper	mercury	N/A	N/A	0.65	1.19	0.15
Anacostia Upper	zinc	96	1	114.1	113.2	26,000
Battery Kemble Creek	arsenic	N/A	N/A	150.0	340.0	0.14
Battery Kemble Creek	copper	173	1	14.31	22.5	None
Battery Kemble Creek	lead	173	1	8.6	239.1	None
Battery Kemble Creek	mercury	N/A	N/A	0.65	1.19	0.15
Battery Kemble Creek	zinc	173	1	188.0	186.4	26,000
Broad Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Broad Branch	copper	124	2	10.76	16.5	None
Broad Branch	lead	124	2	5.41	156.27	None
Broad Branch	mercury	N/A	N/A	0.65	1.19	0.15
Broad Branch	zinc	124	2	141.8	140.6	26,000
C&O Canal	arsenic	N/A	N/A	150.0	340.0	0.14
C&O Canal	copper	137	1	11.72	18.1	None
C&O Canal	lead	137	1	6.23	177.49	None
C&O Canal	mercury	N/A	N/A	0.65	1.19	0.15
C&O Canal	zinc	137	1	154.3	153.0	26,000
Dalecarlia Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Dalecarlia Tributary	copper	170	1	14.09	22.2	None
Dalecarlia Tributary	lead	170	1	8.39	233.81	None
Dalecarlia Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Dalecarlia Tributary	zinc	170	1	185.2	183.7	26,000
Dumbarton Oaks Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Dumbarton Oaks Tributary	copper	124	2	10.76	16.5	None

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Dumbarton Oaks Tributary	lead	124	2	5.41	156.27	None
Dumbarton Oaks Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Dumbarton Oaks Tributary	zinc	124	2	141.8	140.6	26,000
Fenwick Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Fenwick Branch	copper	124	2	10.76	16.5	None
Fenwick Branch	lead	124	2	5.41	156.27	None
Fenwick Branch	mercury	N/A	N/A	0.65	1.19	0.15
Fenwick Branch	zinc	124	2	141.8	140.6	26,000
Fort Chaplin Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Fort Chaplin Tributary	copper	136	1	11.65	18.0	None
Fort Chaplin Tributary	lead	136	1	6.16	175.84	None
Fort Chaplin Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Fort Chaplin Tributary	zinc	136	1	153.3	152.1	26,000
Fort Davis Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Fort Davis Tributary	copper	117	1	10.24	15.6	None
Fort Davis Tributary	lead	117	1	4.99	145.08	None
Fort Davis Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Fort Davis Tributary	zinc	117	1	134.9	133.9	26,000
Fort Dupont Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Fort Dupont Tributary	copper	100	1	8.96	13.4	None
Fort Dupont Tributary	lead	100	1	3.98	118.7	None
Fort Dupont Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Fort Dupont Tributary	zinc	100	1	118.1	117.2	26,000
Fort Stanton Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Fort Stanton Tributary	copper	132	1	11.35	17.5	None
Fort Stanton Tributary	lead	132	1	5.91	169.26	None
Fort Stanton Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Fort Stanton Tributary	zinc	132	1	149.5	148.3	26,000
Foundry Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Foundry Branch	copper	173	1	14.31	22.5	None
Foundry Branch	lead	173	1	8.6	239.1	None
Foundry Branch	mercury	N/A	N/A	0.65	1.19	0.15
Foundry Branch	zinc	173	1	188.0	186.4	26,000
Hickey Run	arsenic	N/A	N/A	150.0	340.0	0.14

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Hickey Run	copper	194	1	15.78	25.1	None
Hickey Run	lead	194	1	10.05	276.73	None
Hickey Run	mercury	N/A	N/A	0.65	1.19	0.15
Hickey Run	zinc	194	1	207.1	205.5	26,000
Kingman Lake	arsenic	N/A	N/A	150.0	340.0	0.14
Kingman Lake	copper	103	1	9.18	13.8	None
Kingman Lake	lead	103	1	4.15	123.27	None
Kingman Lake	mercury	N/A	N/A	0.65	1.19	0.15
Kingman Lake	zinc	103	1	121.1	120.2	26,000
Klingle Valley Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Klingle Valley Branch	copper	124	2	10.76	16.5	None
Klingle Valley Branch	lead	124	2	5.41	156.27	None
Klingle Valley Branch	mercury	N/A	N/A	0.65	1.19	0.15
Klingle Valley Branch	zinc	124	2	141.8	140.6	26,000
Luzon Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Luzon Branch	copper	124	2	10.76	16.5	None
Luzon Branch	lead	124	2	5.41	156.27	None
Luzon Branch	mercury	N/A	N/A	0.65	1.19	0.15
Luzon Branch	zinc	124	2	141.8	140.6	26,000
Melvin Hazen Valley Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Melvin Hazen Valley Branch	copper	124	2	10.76	16.5	None
Melvin Hazen Valley Branch	lead	124	2	5.41	156.27	None
Melvin Hazen Valley Branch	mercury	N/A	N/A	0.65	1.19	0.15
Melvin Hazen Valley Branch	zinc	124	2	141.8	140.6	26,000
Nash Run	arsenic	N/A	N/A	150.0	340.0	0.14
Nash Run	copper	131	1	11.28	17.3	None
Nash Run	lead	131	1	5.85	167.62	None
Nash Run	mercury	N/A	N/A	0.65	1.19	0.15
Nash Run	zinc	131	1	148.5	147.3	26,000
Normanstone Creek	arsenic	N/A	N/A	150.0	340.0	0.14
Normanstone Creek	copper	124	2	10.76	16.5	None
Normanstone Creek	lead	124	2	5.41	156.27	None

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Normanstone Creek	mercury	N/A	N/A	0.65	1.19	0.15
Normanstone Creek	zinc	124	2	141.8	140.6	26,000
Oxon Run	arsenic	N/A	N/A	150.0	340.0	0.14
Oxon Run	copper	117	1	10.24	15.6	None
Oxon Run	lead	117	1	4.99	145.08	None
Oxon Run	mercury	N/A	N/A	0.65	1.19	0.15
Oxon Run	zinc	117	1	134.9	133.9	26,000
Pinehurst Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Pinehurst Branch	copper	124	2	10.76	16.5	None
Pinehurst Branch	lead	124	2	5.41	156.27	None
Pinehurst Branch	mercury	N/A	N/A	0.65	1.19	0.15
Pinehurst Branch	zinc	124	2	141.8	140.6	26,000
Piney Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Piney Branch	copper	124	2	10.76	16.5	None
Piney Branch	lead	124	2	5.41	156.27	None
Piney Branch	mercury	N/A	N/A	0.65	1.19	0.15
Piney Branch	zinc	124	2	141.8	140.6	26,000
Pope Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Pope Branch	copper	104	1	9.26	13.9	None
Pope Branch	lead	104	1	4.21	124.80	None
Pope Branch	mercury	N/A	N/A	0.65	1.19	0.15
Pope Branch	zinc	104	1	122.1	121.1	26,000
Portal Branch	arsenic	N/A	N/A	150.0	340.0	0.14
Portal Branch	copper	124	2	10.76	16.5	None
Portal Branch	lead	124	2	5.41	156.27	None
Portal Branch	mercury	N/A	N/A	0.65	1.19	0.15
Portal Branch	zinc	124	2	141.8	140.6	26,000
Potomac Lower	arsenic	N/A	N/A	150.0	340.0	0.14
Potomac Lower	copper	130	1	11.21	17.2	None
Potomac Lower	lead	130	1	5.79	165.99	None
Potomac Lower	mercury	N/A	N/A	0.65	1.19	0.15
Potomac Lower	zinc	130	1	147.5	146.4	26,000
Potomac Middle	arsenic	N/A	N/A	150.0	340.0	0.14
Potomac Middle	copper	132	1	11.35	17.5	None
Potomac Middle	lead	132	1	5.91	169.26	None
Potomac Middle	mercury	N/A	N/A	0.65	1.19	0.15
Potomac Middle	zinc	132	1	149.5	148.3	26,000

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Potomac Upper	arsenic	N/A	N/A	150.0	340.0	0.14
Potomac Upper	copper	135	1	11.57	17.8	None
Potomac Upper	lead	135	1	6.10	174.19	None
Potomac Upper	mercury	N/A	N/A	0.65	1.19	0.15
Potomac Upper	zinc	135	1	152.3	151.1	26,000
Rock Creek Lower	arsenic	N/A	N/A	150.0	340.0	0.14
Rock Creek Lower	copper	126	1	10.91	16.7	None
Rock Creek Lower	lead	126	1	5.54	154.49	None
Rock Creek Lower	mercury	N/A	N/A	0.65	1.19	0.15
Rock Creek Lower	zinc	126	1	143.7	142.5	26,000
Rock Creek Upper	arsenic	N/A	N/A	150.0	340.0	0.14
Rock Creek Upper	copper	122	1	10.76	16.5	None
Rock Creek Upper	lead	122	1	5.41	156.27	None
Rock Creek Upper	mercury	N/A	N/A	0.65	1.19	0.15
Rock Creek Upper	zinc	122	1	141.8	140.6	26,000
Soapstone Creek	arsenic	N/A	N/A	150.0	340.0	0.14
Soapstone Creek	copper	124	2	10.76	16.5	None
Soapstone Creek	lead	124	2	5.41	156.27	None
Soapstone Creek	mercury	N/A	N/A	0.65	1.19	0.15
Soapstone Creek	zinc	124	2	141.8	140.6	26,000
Texas Avenue Tributary	arsenic	N/A	N/A	150.0	340.0	0.14
Texas Avenue Tributary	copper	195	1	15.85	25.2	None
Texas Avenue Tributary	lead	195	1	10.12	278.55	None
Texas Avenue Tributary	mercury	N/A	N/A	0.65	1.19	0.15
Texas Avenue Tributary	zinc	195	1	208.0	206.3	26,000
Tidal Basin	arsenic	N/A	N/A	150.0	340.0	0.14
Tidal Basin	copper	136	1	11.65	18.0	None
Tidal Basin	lead	136	1	6.16	175.84	None
Tidal Basin	mercury	N/A	N/A	0.65	1.19	0.15
Tidal Basin	zinc	136	1	153.3	152.1	26,000
Washington Ship Channel	arsenic	N/A	N/A	150.0	340.0	0.14

Metal Criteria by Waterbody and Parameter						
Waterbody Segment	Parameter	Hardness [mg/L][1]	Hardness Source[2]	Class C Criterion Continuous Concentration (chronic) (CCC) [ug/L]	Class C Criterion Maximum Concentration (acute) CMC [ug/L]	Class D [ug/L]
Washington Ship Channel	copper	127	1	10.99	16.8	None
Washington Ship Channel	lead	127	1	5.60	161.11	None
Washington Ship Channel	mercury	N/A	N/A	0.65	1.19	0.15
Washington Ship Channel	zinc	127	1	144.7	143.5	26,000
Watts Branch (both Upper and Lower)	arsenic	N/A	N/A	150.0	340.0	0.14
Watts Branch (both Upper and Lower)	copper	147	1	12.45	19.3	None
Watts Branch (both Upper and Lower)	lead	147	1	6.87	194.20	None
Watts Branch (both Upper and Lower)	mercury	N/A	N/A	0.65	1.19	0.15
Watts Branch (both Upper and Lower)	zinc	147	1	163.7	162.4	26,000

[1]A value of N/A in this column indicates that the criterion for this pollutant is not hardness dependent, so hardness is not applicable.

[2]Values of '1' indicates average hardness was calculated from measurements within the waterbody. Values of '2' indicate the average hardness was calculated from all hardness measurements taken within the mainstem of the same mainstem watershed as the waterbody.

Appendix B, Exhibit 2 – Crosswalk of Individual Datasets

Crosswalk of Individual Dataset Fields to Compiled Dataset Fields								
		DOEE Ambient	USGS NWIS	DC Toxic Characterization, Phase 1	Anacostia Remedial Investigation	USGS Tributary Study	DC Toxic Characterization, Phase 1	DOEE "Back-ground Study"
Field Name in Compiled Dataset	**Description**	**Field Name in Original Dataset**						
data_source	dataset name	"DOEE Ambient Water Quality Program Monitoring Analytical Data"	"USGS NWIS"	"District of Columbia Toxic Characterization, Phase 1"	"Anacostia River Sediment Project"	"USGS Tributary Study"	"District of Columbia Toxic Characterization, Phase 2"	"DOEE Background Study"
sample_id		Activity ID	*(concatenated information from from coll_ent_cd, location_id, and date)*	Sample ID	Sample ID	Sample ID	Sample ID	Sample ID
location_id	Required field. Duplicate samples may require manual inputs for this field.	Monitoring Location ID	site_no	(extracted from Sample ID; for duplicates see Field_Duplicate reference sheet)	(extracted from Sample ID)	(extracted from Sample ID)	(extracted from Sample ID; locations added for field duplicates based on Field_Duplicate reference sheet)	Location ID
matrix			medium_cd (WS = surface water)		(extracted from Sample ID)	(extracted from Sample ID)	(extracted from Sample ID)	MATRIX
sample_date	sample date only, no time included	Activity Start Date	sample_dt	Date Sampled	Sample Date	Sample Date	Sample Date	Sample Date
sample_time	sample time stored as text	Activity Start Time	sample_tm					Sample Time
sample_type	specifies QC samples like duplicates, blanks, etc.	Activity Type		Sample Type			(extracted from Sample ID)	(extracted from Sample ID)
method	sampling method used	METHOD/ Result Analytical Method ID	meth_cd	(pulled from original PDFs)	Method	Method	Method	Method

Crosswalk of Individual Dataset Fields to Compiled Dataset Fields

		DOEE Ambient	USGS NWIS	DC Toxic Characterization, Phase 1	Anacostia Remedial Investigation	USGS Tributary Study	DC Toxic Characterization, Phase 1	DOEE "Back-ground Study"
Field Name in Compiled Dataset	**Description**	**Field Name in Original Dataset**						
test_fraction	Either "dissolved" or "total". Required for metals.	Result Sample Fraction *(changed "filterable" to "dissolved", added "total" to all metals being evaluated)*	(based on parm_cd metadata)	(extracted from Target Analyte)	(extracted from Parameter type; M = total metals, MF = dissolved metals)	Test Fraction	(extracted from Parameter type)	Test Fraction
parameter		Characteristic Name	(based on parm_cd metadata)	Target Analyte (test fraction removed)	Parameter	Parameter	Parameter	Analyte
cas_number					CAS Number	CAS Number	CAS Number	CAS Number
result_unit		Result Unit	(based on parm_cd metadata)	(pulled from original PDFs)	Unit	Unit	Unit	Units
result_value		Result Value *(moved ">", "≥" and "<" to qualifier field)*	result_va	Result	Result	Result	Result	Result
qualifier		Result Measure Qualifier *(Added "U" when arsenic <= 5 ug/L, mercury <= 0.2 ug/L, and zinc <= 20 ug/L)*	remark_cd *(changed "<" to "U" flag)*	Q	Qualifier	Qualifier	Qualifier	Lab Qualifier
result_notes		Result Comment						
unconfirmed_detect_status	detection status provided in raw data. Not used in analysis.	Result Detection Condition						Detect Status
parameter_type				(pulled from original PDFs)	Parameter type	Parameter type	Parameter type	

Crosswalk of Individual Dataset Fields to Compiled Dataset Fields								
		DOEE Ambient	USGS NWIS	DC Toxic Characterization, Phase 1	Anacostia Remedial Investigation	USGS Tributary Study	DC Toxic Characterization, Phase 1	DOEE "Back-ground Study"
Field Name in Compiled Dataset	**Description**	**Field Name in Original Dataset**						
file_details	information further specifying where raw data originates from			File				
location_notes				Sample Location				
method_notes		METHOD_ID/ Result Analytical Method Context						
reporting_level_value		Result Detection/Quantitation Limit Measure	rpt_lev_va					
reporting_level_type		Result Detection/Quantitation Limit Type	rpt_lev_cd					
reporting_level_unit		Result Detection/Quantitation Limit Unit						
time_datum_code			sample_start_time_datum_cd					
time_datum_reliability_code			tm_datum_rlbty_cd					
parameter_code			parm_cd					
qualifier_code			val_qual_tx					
data_quality_code			dqi_cd					

Appendix B, Exhibit 3 – Crosswalk of Pollutant Names

Crosswalk of Pollutant Names

	Background Study*	Anacostia RI Data*	Toxics Phase 1	Toxics Phase 2	USGS Tributary Study*	USGS NWIS Data	DOEE Lab Data
Arsenic	Arsenic	Arsenic	Arsenic -dissolved	Arsenic (7440-38-2)	ARSENIC (7440-38-2)	P01000, Arsenic, water, filtered, micrograms per liter or P01002, Arsenic, water, unfiltered, micrograms per liter	Arsenic
Copper	Copper	COPPER (7440-50-8)	Copper -dissolved	Copper (7440-50-8)	COPPER (7440-50-8)	P01040 Copper, water, filtered, micrograms per liter or P01042 Copper, water, unfiltered, micrograms per liter	Copper
Lead	Lead	LEAD (7439-92-1)	Lead -dissolved	N/A	LEAD (7439-92-1)	P01049 Lead, water, filtered, micrograms per liter or P01051 Lead, water, unfiltered, micrograms per liter	Lead
Mercury	Mercury	MERCURY (7439-97-6)	N/A	N/A	MERCURY (7439-97-6)	P50286 Mercury, water, unfiltered, nanograms per liter or P50287 Mercury, water, filtered, nanograms per liter	Mercury
Zinc	Zinc	ZINC (7440-66-6)	Zinc -dissolved	Zinc (7440-66-6)	ZINC (7440-66-6)	P01090 Zinc, water, filtered, micrograms per liter or P01092 Zinc, water, unfiltered, micrograms per liter or	Zinc
Chlordane	Chlordane (technical)	CHLORDANE (TECHNICAL) (TTNUS526)	Chlordane (technical)	Chlordane (technical) (12789-03-6)	N/A	P39350 Chlordane (technical), water, unfiltered, recoverable, micrograms per liter	N/A
Dieldrin	Dieldrin	DIELDRIN (60-57-1)	Dieldrin	Dieldrin (60-57-1)	N/A	P39380 Dieldrin, water, unfiltered, recoverable, micrograms per liter or P39381 Dieldrin, water, filtered, recoverable, micrograms per liter	N/A
Heptachlor epoxide	Heptachlor epoxide	HEPTACHLOR EPOXIDE (1024-57-3)	Heptachlor epoxide	Heptachlor epoxide (1024-57-3)	N/A	P39420 Heptachlor epoxide, water, unfiltered, recoverable, micrograms per liter	N/A
DDD	4,4'-DDD	4,4'-DDD (72-54-8)	4,4'-DDD	4,4'-DDD (72-54-8)	N/A	P39310 p,p'-DDD, water, unfiltered, recoverable, micrograms per liter	N/A
DDE	4,4'-DDE	4,4'-DDE (72-55-9)	4,4'-DDE	4,4'-DDE (72-55-9)	N/A	P34653 p,p'-DDE, water, filtered, recoverable, micrograms per liter	N/A
DDT	4,4'-DDT	4,4'-DDT (50-29-3)	4,4'-DDT	4,4'-DDT (50-29-3)	N/A	P39300 p,p'-DDT, water, unfiltered, recoverable, micrograms per liter	N/A
PCBs	Total PCBs	Sum of individual PCB congeners	Sum of individual PCB congeners	N/A	N/A	P39516 PCBs, water, unfiltered, recoverable, micrograms per liter; P34671 Aroclor 1016, water,	N/A

Crosswalk of Pollutant Names

	Background Study*	Anacostia RI Data*	Toxics Phase 1	Toxics Phase 2	USGS Tributary Study*	USGS NWIS Data	DOEE Lab Data
						unfiltered, recoverable, micrograms per liter; P39488 Aroclor 1221, water, unfiltered, recoverable, micrograms per liter; P39492 Aroclor 1232, water, unfiltered, recoverable, micrograms per liter; P39496 Aroclor 1242, water, unfiltered, recoverable, micrograms per liter; P39500 Aroclor 1248, water, unfiltered, recoverable, micrograms per liter; P39504 Aroclor 1254, water, unfiltered, recoverable, micrograms per liter; P39508 Aroclor 1260, water, unfiltered, recoverable, micrograms per liter; P63691 Total Aroclors, water, unfiltered, recoverable, micrograms per liter	
PAH1							
acenaphthene	Acenaphthene	ACENAPH-THENE (83-32-9)	Acenaph-thene	Acenaph-thene (83-32-9)	N/A	P34205 Acenaphthene, water, unfiltered, recoverable, micrograms per liter	N/A
acenaphthylene	Acenaphthylen e	ACENAPH-THYLENE (208-96-8)	Acenaph-thylene	Acenaph-thylene (208-96-8)	N/A	P34200 Acenaphthylene, water, unfiltered, recoverable, micrograms per liter	N/A
fluorene	Fluorene	FLUORENE (86-73-7)	Fluorene	Fluorene (86-73-7)	N/A	P34381 9H-Fluorene, water, unfiltered, recoverable, micrograms per liter	N/A
naphthalene	Naphthalene	NAPH-THALENE (91-20-3)	Naph-thalene	Naph-thalene (91-20-3)	N/A	P34443 Naphthalene, water, filtered, recoverable, micrograms per liter or 34696 Naphthalene, water, unfiltered, recoverable, micrograms per liter	N/A
phenanthrene	Phenanthrene	PHENANTHRENE (85-01-8)	Phenanthrene	Phenanthrene (85-01-8)	N/A	P34461 Phenanthrene, water, unfiltered, recoverable, micrograms per liter or P34462 Phenanthrene, water, filtered, recoverable, micrograms per liter	N/A
anthracene	Anthracene	ANTHRACENE (120-12-7)	Anthracene	Anthracene (120-12-7)	N/A	P34220 Anthracene, water, unfiltered, recoverable, micrograms per liter or P34221 Anthracene,	N/A

Crosswalk of Pollutant Names

	Background Study*	Anacostia RI Data*	Toxics Phase 1	Toxics Phase 2	USGS Tributary Study*	USGS NWIS Data	DOEE Lab Data
						water, filtered, recoverable, micrograms per liter	
PAH2							
benzo_a_anthracene	Benzo[a]-anthracene	BENZO(A)-ANTHRACENE (56-55-3)	Benzo[a]-anthracene	Benzo[a]-anthracene (56-55-3)	N/A	P34526 Benzo[a]anthracene, water, unfiltered, recoverable, micrograms per liter	N/A
chrysene	Chrysene	CHRYSENE (218-01-9)	Chrysene	Chrysene (218-01-9)	N/A	P34320 Chrysene, water, unfiltered, recoverable, micrograms per liter	N/A
fluoranthene	Fluor-anthene	FLUOR-ANTHENE (206-44-0)	Fluor-anthene	Fluor-anthene (206-44-0)	N/A	P34376 Fluoranthene, water, unfiltered, recoverable, micrograms per liter or P34377 Fluoranthene, water, filtered, recoverable, micrograms per liter	N/A
pyrene	Pyrene	PYRENE (129-00-0)	Pyrene	Pyrene (129-00-0)	N/A	P34469 Pyrene, water, unfiltered, recoverable, micrograms per liter or P34470 Pyrene, water, filtered, recoverable, micrograms per liter	N/A
PAH3							
benzo_a_pyrene	Benzo[a]pyrene	BENZO(A)PYRENE (50-32-8)	Benzo[a]pyrene	Benzo[a]pyrene (50-32-8)	N/A	P34247 Benzo[a]pyrene, water, unfiltered, recoverable, micrograms per liter or P34248Benzo[a]pyrene, water, filtered, recoverable, micrograms per liter	N/A
benzo_g_h_i_-perylene	Benzo[g,h,i]perylene	BENZO(G,H,I)PERYLENE (191-24-2)	Benzo[g,h,i]perylene	Benzo[g,h,i]perylene (191-24-2)	N/A	P34521 Benzo[ghi]perylene, water, unfiltered, recoverable, micrograms per liter	N/A
benzo_k_-fluoranthene	Benzo[k]fluoranthene	BENZO(K)FLUORANTHENE (207-08-9)	Benzo[k]fluoranthene	Benzo[k]fluoranthene (207-08-9)	N/A	P34242 Benzo[k]fluoranthene, water, unfiltered, recoverable, micrograms per liter	N/A
dibenzo_a_h_-anthracene	Dibenz(a,h)-anthracene	DIBENZO(A,H)-ANTHRACENE (53-70-3)	Dibenz(a,h)-anthracene	Dibenz(a,h)-anthracene (53-70-3)	N/A	P34556 Dibenzo[a,h]anthracene, water, unfiltered, recoverable, micrograms per liter	N/A
indeno_1_2_3_cd_pyrene	Indeno[1,2,3-cd]pyrene	INDENO(1,2,3-CD)PYRENE (193-39-5)	Indeno[1,2,3-cd]pyrene	Indeno[1,2,3-cd]pyrene (193-39-5)	N/A	P34403 Indeno[1,2,3-cd]pyrene, water, unfiltered, recoverable, micrograms per liter	N/A
benzo_b_-fluoranthene	Benzo[b]fluoranthene	BENZO(B)FLUORANTHENE (205-99-2)	Benzo[b]fluoranthene	Benzo[b]fluoranthene (205-99-2)	N/A	N/A	N/A

*Study denotes form (dissolved or total) in separate data column

Appendix C
Reevaluation of Findings for
Class C and Class D Uses for District Waterbodies Based on Toxics Data

Anacostia and Tributaries

Table C.1. Reevaluation Data Analysis Results for Class C Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	56	44	0	56	0	37	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	4a	No	56	56	1	56	1	37	21	10.76	0.0161-0.127	16.5	0.0104-0.0833	Yes	Move to Category 3	6
Lead	Not Categorized	No	37	31	0	37	0	18	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not listed-take no action	15
Mercury	Not Categorized	No	30	1	0	30	0	18	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not listed-take no action	15
Zinc	4a	No	56	51	0	56	0	37	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 4a	3
Chlordane	4a	No	105	0	0	105	0	86	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	4a	No	105	21	6	105	6	86	0	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Keep in in Category 4a	1
DDE	4a	No	105	1	1	105	1	86	54	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	Yes	Keep in in Category 4a	5
DDT	4a	No	105	16	12	105	12	86	23	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Keep in in Category 4a	1

Table C.1. Reevaluation Data Analysis Results for Class C Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	105	38	0	105	0	86	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	105	23	1	105	1	86	23	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	Yes	Keep in in Category 4a	5
Total PCBs	4a	No	30	30	2	30	2	18	24	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No	Keep in in Category 4a	1
Acenaphthene (PAH1)	4a	No	56	2	0	56	0	37	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	56	3	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	56	2	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	56	3	0	56	0	37	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	56	5	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.1. Reevaluation Data Analysis Results for Class C Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Chrysene (PAH2)	4a	No	56	7	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	56	31	0	56	0	37	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	56	30	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	56	4	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	56	7	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	56	4	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	56	1	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	56	2	0	56	0	37	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.2. Reevaluation Data Analysis Results for Class D Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results[1]	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	171	56	56	65	56	37	0	0.14	2.07-35.7	Yes	No exceedances	Keep in Category 4a	1
Copper	4a	Yes	56	56	0	56	0	37	N/A – no Class D WQ criteria				No exceedances	Remove from Category 4a	0
Lead	Not Categorized	No	37	37	0	37	0	18	N/A – no Class D WQ criteria				No exceedances	Not Categorized - take no action	0
Mercury	Not Categorized	No	70	3	2	30	0	18	45	0.15	0.00113-1.33	No	No exceedances	Not Categorized - take no action	15
Zinc	4a	Yes	123	89	0	56	0	37	No exceedances	26000	0.0000846-0.000769	**No exceedances**	No exceedances	Remove from Category 4a	3
Chlordane	4a	Yes	105	0	0	105	0	86	No exceedances	0.00032	4.38-212.9	**No exceedances**	No exceedances	Move to Category 3	2
DDD	4a	Yes	105	21	21	105	21	86	0	0.00012	1.67-43.3	Yes	No exceedances	Keep in Category 4a	1
DDE	4a	Yes	105	1	1	105	1	86	54	1.80E-05	5.56-333	Yes	No exceedances	Keep in Category 4a	5
DDT	4a	Yes	105	16	16	105	16	86	23	3.00E-05	9.33-123	Yes	No exceedances	Keep in Category 4a	1
Dieldrin	4a	Yes	105	38	38	105	38	86	0	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Keep in Category 4a	1

Table C.2. Reevaluation Data Analysis Results for Class D Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results[1]	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Heptachlor epoxide	4a	Yes	105	23	23	105	23	86	0	3.20E-05	4.06-153	Yes	No exceedances	Keep in Category 4a	1
Total PCBs	4a	Yes	30	30	30	30	30	18	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	56	2	0	56	0	37	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	56	3	0	56	0	37	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	56	2	0	56	0	37	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	56	3	0	56	0	37	N/A – no Class D WQ criteria				No exceedances	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	56	5	5	56	5	37	28	0.0013	10.8-63.1	Yes	No exceedances	Keep in in Category 4a	1
Chrysene (PAH2)	4a	Yes	56	7	1	56	1	37	49	0.13	0.1- .677	No	No exceedances	Move to Category 3	6
Fluoranthene (PAH2)	4a	Yes	56	31	0	56	0	37	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	56	30	0	56	0	37	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Remove from	3

Table C.2. Reevaluation Data Analysis Results for Class D Use in Upper Anacostia River (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results[1]	Reevaluation Categorization Decision for Class D	Decision Logic Case #
														Category 4a	
Benzo_a_pyrene (PAH3)	4a	Yes	56	4	4	56	4	37	28	0.00013	100-1540	Yes	No exceedances	Keep in Category 4a	1
Benzo_b_fluoranthene (PAH3)	4a	Yes	56	7	7	56	7	37	28	0.0013	11.5 – 13.1	Yes	No exceedances	Keep in Category 4a	1
Benzo_k_fluoranthene (PAH3)	4a	Yes	56	4	4	56	4	37	28	0.013	4- 7.38	Yes	No exceedances	Keep in Category 4a	1
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	56	1	1	56	1	37	28	0.00013	115- 600	Yes	No exceedances	Keep in Category 4a	5
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	56	2	2	56	2	37	28	0.0013	14.6-70.8	Yes	No exceedances	Keep in Category 4a	1

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant*.

Table C.3. Reevaluation Data Analysis Results for Class C Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	52	40	0	52	0	40	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	4a	No	52	52	0	52	0	40	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 4a	3
Lead	Not Categorized	No	49	38	0	49	0	37	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Take no action	15
Mercury	Not Categorized	No	49	2	0	49	0	37	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Take no action	15
Zinc	4a	No	52	42	0	52	0	40	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 4a	3
Chlordane	4a	No	52	1	0	52	0	40	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	4a	No	52	3	1	52	1	40	48	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No	Keep in in Category 4a	5
DDE	4a	No	52	0	0	52	0	40	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Move to Category 3	2
DDT	4a	No	52	5	2	52	2	40	0	1.00E-03	0.28-3.7	1.1	0.000255-	Yes	Keep in in Category 4a	1

Table C.3. Reevaluation Data Analysis Results for Class C Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													0.00336			
Dieldrin	4a	No	52	2	0	52	0	40	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	52	1	0	52	0	40	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	41	41	0	41	0	29	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	52	0	0	52	0	40	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	52	0	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	52	1	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	52	0	0	52	0	40	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from	0

Table C.3. Reevaluation Data Analysis Results for Class C Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	
Chrysene (PAH2)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	52	16	0	52	0	40	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	52	14	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	52	1	0	52	0	40	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	52	2	0	52	0	40	N/A – no Class C WQ criteria						Remove from	0

Table C.3. Reevaluation Data Analysis Results for Class C Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	

Table C.4. Reevaluation Data Analysis Results for Class D Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	93	52	52	55	52	40	0	0.14	2.07-35.7	Yes	No exceedances	Keep in Category 4a	1
Copper	4a	Yes	52	52	0	52	0	40	N/A – no Class D WQ criteria				No exceedances	Remove from Category 4a	0
Lead	Not Categorized	No	49	49	0	49	0	37	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	62	4	1	49	0	37	59	0.15	0.00113 - 1.33	No	No exceedances	Not categorized - take no action	15

Table C.4. Reevaluation Data Analysis Results for Class D Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	4a	Yes	79	56	0	52	0	40	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Remove from Category 4a	3
Chlordane	4a	Yes	52	1	1	52	1	40	48	0.00032	4.38-212.9	No	No exceedances	Keep in Category 4a	5
DDD	4a	Yes	52	3	3	52	3	40	13	0.00012	1.67-43.3	Yes	No exceedances	Keep in Category 4a	1
DDE	4a	Yes	52	0	0	52	0	40	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Move to Category 3	2
DDT	4a	Yes	52	5	5	52	5	40	0	3.00E-05	9.33-123	Yes	No exceedances	Keep in Category 4a	1
Dieldrin	4a	Yes	52	2	2	52	2	40	0	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Heptachlor epoxide	4a	Yes	52	1	1	52	1	40	9	3.20E-05	4.06-153	Yes	No exceedances	Keep in Category 4a	5
Total PCBs	4a	Yes	41	41	41	41	41	29	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	52	0	0	52	0	40	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	52	0	0	52	0	40	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Remove from Category 4a	3

Table C.4. Reevaluation Data Analysis Results for Class D Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluorene (PAH1)	4a	Yes	52	1	0	52	0	40	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	52	0	0	52	0	40	No exceedances	N/A – no Class D WQ criteria				Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	52	2	2	52	2	40	18	0.0013	10.8-63.1	Yes	No exceedances	Keep in Category 4a	1
Chrysene (PAH2)	4a	Yes	52	2	2	52	2	40	18	0.13	0.1-.677	Yes	No exceedances	Keep in Category 4a	1
Fluoranthene (PAH2)	4a	Yes	52	16	0	52	0	40	No exceedances	20	0.00075 - 0.01	No exceedances	No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	52	14	0	52	0	40	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	52	2	2	52	2	40	18	0.00013	100-1540	Yes	No exceedances	Keep in Category 4a	1
Benzo_b_fluoranthene (PAH3)	4a	Yes	52	2	2	52	2	40	18	0.0013	11.5 – 13.1	Yes	No exceedances	Keep in Category 4a	1
Benzo_k_fluoranthene (PAH3)	4a	Yes	52	2	2	52	2	40	18	0.013	4- 7.38	Yes	No exceedances	Keep in Category 4a	1
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	52	1	1	52	1	40	28	0.00013	115-600	Yes	No exceedances	Keep in Category 4a	5

Table C.4. Reevaluation Data Analysis Results for Class D Use in Lower Anacostia River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	52	2	2	52	2	40	18	0.0013	14.6-70.8	Yes	No exceedances	Keep in Category 4a	1

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.5. Reevaluation Data Analysis Results for Class C Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	6	6	0	6	0	3	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	Not Categorized	No	6	6	0	6	0	3	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not categorized - take no action	15
Lead	Not Categorized	No	3	3	0	3	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not categorized - take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not categorized - take no action	15
Zinc	Not Categorized	No	6	6	0	6	0	3	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2-5.2	1.1	0.000182-0.00473	No exceedances	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.1-6	1.1	0.0000909-0.00545	No exceedances	Not categorized - take no action	15

Table C.5. Reevaluation Data Analysis Results for Class C Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	600	0.0000217-	N/A – no Class C CMC WQ criteria		No exceedances	Not categorize	15

Table C.5. Reevaluation Data Analysis Results for Class C Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
											0.000667				d - take no action	
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0

Table C.5. Reevaluation Data Analysis Results for Class C Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0

Table C.6. Reevaluation Data Analysis Results for Class D Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	42	6	6	9	5	3	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	Not Categorized	No	6	6	0	6	0	3	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	3	3	0	3	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	5	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	27	20	0	6	0	3	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedance	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedance	3.00E-05	9.33-123	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.6. Reevaluation Data Analysis Results for Class D Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedance	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedance	3.20E-05	4.06-153	No exceedances	NA-not sampled	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedance	6.40E-05	NA	No exceedances	NA-not sampled	Not categorized - take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedance	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedance	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedance	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.6. Reevaluation Data Analysis Results for Class D Use in Fort Chaplin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedance	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedance	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.013	4-7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.00013	115-600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedance	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.7. Reevaluation Data Analysis Results for Class C Use in Fort Davis

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	6	5	0	6	0	3	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	Not Categorized	No	6	4	0	6	0	3	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not categorized - take no action	15
Lead	Not Categorized	No	3	3	0	3	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not categorized - take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not categorized - take no action	15
Zinc	Not Categorized	No	6	6	0	6	0	3	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not categorized - take no action	15

Table C.7. Reevaluation Data Analysis Results for Class C Use in Fort Davis

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	0
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	0
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	0

Table C.7. Reevaluation Data Analysis Results for Class C Use in Fort Davis

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0

Table C.7. Reevaluation Data Analysis Results for Class C Use in Fort Davis

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not categorized - take no action	0

Table C.8. Reevaluation Data Analysis Results for Class D Use in Fort Davis

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	45	6	6	9	5	3	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	Not Categorized	No	6	5	0	6	0	3	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	3	3	0	3	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0

Table C.8. Reevaluation Data Analysis Results for Class D Use in Fort Davis

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Mercury	Not Categorized	No	11	0	0	0	0	0	No exceedancdes	0.15	0.00113 - 1.33	No exceedances	NA- not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	30	27	0	6	0	3	No exceedancdes	26000	0.0000846-0.000769	No exceedances	NA- not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.00032	4.38-212.9	No exceedances	NA- not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.00012	1.67-43.3	No exceedances	NA- not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	1.80E-05	5.56-333	No exceedances	NA- not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	3.00E-05	9.33-123	No exceedances	NA- not sampled	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	1.20E-06	100-3420	No exceedances	NA- not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	3.20E-05	4.06-153	No exceedances	NA- not sampled	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	6.40E-05	NA	No exceedances	NA- not	Not categorized	15

Table C.8. Reevaluation Data Analysis Results for Class D Use in Fort Davis

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
													sampled	- take no action	
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	400	0.0000375 - 0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.13	0.1-.677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	20	0.00075 - 0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.8. Reevaluation Data Analysis Results for Class D Use in Fort Davis

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.0013	11.5 - 13.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.00013	115-600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedancdes	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.9. Reevaluation Data Analysis Results for Class C Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	19	13	0	19	0	16	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	3	**No**	19	18	0	19	0	16	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	10
Lead	Not Categorized	**No**	16	7	0	16	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action**	15
Mercury	Not Categorized	**No**	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action**	15
Zinc	3	**No**	19	18	0	19	0	16	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	Not Categorized	**No**	13	0	0	13	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	**Not categorized - take no action**	15
DDD	Not Categorized	**No**	13	0	0	13	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	**Not categorized - take no action**	15
DDE	Not Categorized	**No**	13	0	0	13	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	**Not categorized - take no action**	15
DDT	Not Categorized	**No**	13	1	1	13	1	13	9	1.00E-03	0.28-3.7	1.1	0.000255-	Yes	Move to Category 3	18

Table C.9. Reevaluation Data Analysis Results for Class C Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													0.00336			
Dieldrin	Not Categorized	No	13	0	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	13	1	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not categorized - take no action	15
Total PCBs	Not Categorized	No	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action n	15
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	Not categorized - take no	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no	15

Table C.9. Reevaluation Data Analysis Results for Class C Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
										action no action					action no action	
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Chrysene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	Not categorized - take no action no action	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not categorized - take no action no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no	0

Table C.9. Reevaluation Data Analysis Results for Class C Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															action no action	
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not categorized - take no action no action	0

Table C.10. Reevaluation Data Analysis Results for Class D Use in Fort Dupont

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	45	14	14	22	14	16	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	3	Yes	19	19	0	19	0	16	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	16	16	0	16	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	14	0	0	13	0	13	No exceedancdes	0.15	0.00113 - 1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	Yes	31	26	0	19	0	16	No exceedancdes	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	13	1	1	13	1	13	9	3.00E-05	9.33-123	No exceedances	NA-not	Move to Category 3	18

Table C.10. Reevaluation Data Analysis Results for Class D Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
													sampled		
Dieldrin	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	13	1	1	13	1	13	5	3.20E-05	4.06-153	Yes	NA-not sampled	Move to Category 3	18
Total PCBs	Not Categorized	No	5	5	5	5	5	5	0	6.40E-05	NA	Yes	NA-not sampled	Move to Category 5	14
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.10. Reevaluation Data Analysis Results for Class D Use in Fort Dupont

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Chrysene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.13	0.1-.677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	20	0.00075 - 0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.00013	115-600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedancdes	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.11. Reevaluation Data Analysis Results for Class C Use in Fort Stanton

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	20	14	0	20	0	16	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	Not Categorized	No	20	19	0	20	0	16	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	**Not categorized - take no action** no action	15
Lead	Not Categorized	No	17	9	0	17	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	Not Categorized	No	20	16	0	20	0	16	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	**Not categorized - take no action** no action	15
Chlordane	Not Categorized	No	17	0	0	17	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	**Not categorized - take no action** no action	15
DDD	Not Categorized	No	17	1	1	17	1	13	11	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Move to Category 3	18

Table C.11. Reevaluation Data Analysis Results for Class C Use in Fort Stanton

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDE	Not Categorized	No	17	1	0	17	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	**Not categorized - take no action** no action	15
DDT	Not Categorized	No	17	0	0	17	0	13	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	**Not categorized - take no action** no action	15
Dieldrin	Not Categorized	No	17	0	0	17	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	**Not categorized - take no action** no action	15
Heptachlor epoxide	Not Categorized	No	17	0	0	17	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	**Not categorized - take no action** no action	15
Total PCBs	4a	No	9	9	0	9	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	20	0	0	20	0	16	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.11. Reevaluation Data Analysis Results for Class C Use in Fort Stanton

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluorene (PAH1)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	20	1	0	20	0	16	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	20	1	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Chrysene (PAH2)	4a	No	20	1	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	20	2	0	20	0	16	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	20	2	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	20	1	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.11. Reevaluation Data Analysis Results for Class C Use in Fort Stanton

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	20	0	0	20	0	16	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.12. Reevaluation Data Analysis Results for Class D Use in Fort Stanton

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	56	14	14	23	14	16	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	Not Categorized	No	20	20	0	20	0	16	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	No	13	0	17	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	No	0	0	13	0	13	No exceedances	0.15	0.00113 - 1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	43	32	0	20	0	16	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	17	0	0	17	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	17	1	1	17	1	13	11	0.00012	1.67-43.3	Yes	NA-not sampled	Move to Category 3	18
DDE	Not Categorized	No	17	1	1	17	1	13	6	1.80E-05	5.56-333	Yes	NA-not sampled	Move to Category 3	18
DDT	Not Categorized	No	17	0	0	17	0	13	0	3.00E-05	9.33-123	No exceedances	NA-not	Not categorized	15

Table C.12. Reevaluation Data Analysis Results for Class D Use in Fort Stanton

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
													sampled	- take no action	
Dieldrin	Not Categorized	No	17	0	0	17	0	13	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	17	0	0	17	0	13	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Not categorized - take no action	15
Total PCBs	4a	Yes	9	9	9	9	9	5	0	6.40E-05	NA	Yes	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	20	0	0	20	0	16	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	20	0	0	20	0	16	No exceedances	400	0.0000375 - 0.005	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	20	0	0	20	0	16	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	20	1	0	20	0	16	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	20	1	1	20	1	16	16	0.0013	10.8-63.1	No	NA-not sampled	Keep in Category 4a	5

Table C.12. Reevaluation Data Analysis Results for Class D Use in Fort Stanton

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Chrysene (PAH2)	4a	Yes	20	1	0	20	0	16	No exceedances	0.13	0.1-.677	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluoranthene (PAH2)	4a	Yes	20	2	0	20	0	16	No exceedances	20	0.00075 - 0.01	No exceedances	NA-not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	20	2	0	20	0	16	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	20	0	0	20	0	16	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Move to Category 3	2
Benzo_b_fluoranthene (PAH3)	4a	Yes	20	1	1	20	1	16	16	0.0013	11.5-13.1	No	NA-not sampled	Keep in Category 4a	5
Benzo_k_fluoranthene (PAH3)	4a	Yes	20	0	0	20	0	16	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Move to Category 3	2
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	20	0	0	20	0	16	No exceedances	0.00013	115-600	No exceedances	NA-not sampled	Move to Category 3	2
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	20	0	0	20	0	16	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Move to Category 3	2

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.13. Reevaluation Data Analysis Results for Class C Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	1	0	1	0	1	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	10
Copper	3	No	150	147	1	150	1	102	71	10.76	0.0161-0.127	16.5	0.0104-0.0833	Yes	Remove from Category 3	13
Lead	Not Categorized	No	150	145	0	150	0	102	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	1	0	0	1	0	1	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	3	No	150	136	0	150	0	102	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	4a	No	6	0	0	6	0	3	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	6	0	0	6	0	3	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	4a	No	6	1	0	6	0	3	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Move to Category 3	2

Table C.13. Reevaluation Data Analysis Results for Class C Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation on Categorization Decision for Class C	Decision Logic Case #
DDT	3	No	6	0	0	6	0	3	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	3	No	6	0	0	6	0	3	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 3	10
Heptachlor epoxide	3	No	6	0	0	6	0	3	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	3	3	0	3	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	6	2	0	6	0	3	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	6	2	0	6	0	3	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from	0

Table C.13. Reevaluation Data Analysis Results for Class C Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	
Chrysene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	6	2	0	6	0	3	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	6	2	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from	0

Table C.13. Reevaluation Data Analysis Results for Class C Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	

Table C.14. Reevaluation Data Analysis Results for Class D Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	41	1	1	3	1	1	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 3	11
Copper	3	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	112	100	0	101	0	100	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.14. Reevaluation Data Analysis Results for Class D Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	3	No	28	20	0	1	0	1	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	4a	Yes	6	0	0	6	0	3	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	6	0	0	6	0	3	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Keep in Category 3	9
DDE	4a	Yes	6	1	1	6	1	3	3	1.80E-05	5.56-333	No	NA-not sampled	Keep in Category 4a	5
DDT	3	No	6	0	0	6	0	3	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Keep in Category 3	9
Dieldrin	3	Yes	6	0	0	6	0	3	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Keep in Category 3	9
Heptachlor epoxide	3	Yes	6	0	0	6	0	3	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Keep in Category 3	9
Total PCBs	4a	Yes	3	3	3	3	3	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	6	2	0	6	0	3	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 4a	3

Table C.14. Reevaluation Data Analysis Results for Class D Use in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	4a	Yes	6	2	0	6	0	3	No exceedances	400	0.0000375-0.005	No exceedances	NA- not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	6	0	0	6	0	3	No exceedances	70	0.000286-0.00107	No exceedances	NA- not sampled	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	6	2	0	6	0	3	N/A – no Class D WQ criteria				NA- not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	6	2	2	6	2	3	3	0.0013	10.8-63.1	No	NA- not sampled	Keep in Category 4a	1
Chrysene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	0.13	0.1- .677	No exceedances	NA- not sampled	Remove from Category 4a	3
Fluoranthene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	20	0.00075-0.01	No exceedances	NA- not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	6	2	0	6	0	3	No exceedances	30	0.0005-0.00667	No exceedances	NA- not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	100-1540	No exceedances	NA- not sampled	Move to Category 3	2
Benzo_b_fluoranthene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.0013	11.5-13.1	No exceedances	NA- not sampled	Move to Category 3	2

Table C.14. Reevaluation Data Analysis Results for Class D Use in Hickey Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Move to Category 3	2
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Move to Category 3	2
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Move to Category 3	2

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.15. Reevaluation Data Analysis Results for Class C Use in Kingman Lake

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	25	21	0	25	0	15	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	3	No	25	25	0	25	0	15	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	10
Lead	Not Categorized	No	22	18	0	22	0	12	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	18	2	0	18	0	12	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	3	No	25	25	1	25	1	15	1	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	Yes	Remove from Category 3	13
Chlordane	4a	No	25	1	0	25	0	15	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	25	3	0	25	0	15	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	3	No	25	0	0	25	0	15	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Keep in in Category 3	9
DDT	3	No	25	3	2	25	2	15	10	1.00E-03	0.28-3.7	1.1	0.000255-	Yes	Move to Category 5	7

Table C.15. Reevaluation Data Analysis Results for Class C Use in Kingman Lake

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													0.00336			
Dieldrin	3	No	25	2	0	25	0	15	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 3	10
Heptachlor epoxide	3	No	25	1	0	25	0	15	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	18	18	0	18	0	12	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	25	0	0	25	0	15	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	25	2	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	25	1	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	25	2	0	25	0	15	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	25	3	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.15. Reevaluation Data Analysis Results for Class C Use in Kingman Lake

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Chrysene (PAH2)	4a	No	25	3	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	25	14	0	25	0	15	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	25	14	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	25	2	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	25	3	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	25	1	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	25	1	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	25	1	0	25	0	15	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.16. Reevaluation Data Analysis Results for Class D Use in Kingman Lake

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	90	22	22	30	22	15	0	0.14	2.07-35.7	Yes	No exceedances	Keep in Category 4a	1
Copper	3	No	25	25	0	25	0	15	N/A – no Class D WQ criteria				No exceedances	Remove from Category 3	0
Lead	Not Categorized	No	22	22	0	22	0	12	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	33	0	0	18	0	12	No exceedances	0.15	0.00113-1.33	No exceedances	No exceedances	Not categorized - take no action	15
Zinc	3	No	65	55	0	25	0	15	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Remove from Category 3	10
Chlordane	4a	Yes	25	1	1	25	1	15	20	0.00032	4.38-212.9	No	No exceedances	Keep in Category 4a	5
DDD	3	No	25	3	3	25	3	15	0	0.00012	1.67-43.3	Yes	No exceedances	Move to Category 5	7
DDE	3	No	25	0	0	25	0	15	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Keep in Category 3	9
DDT	3	No	25	3	3	25	3	15	3	3.00E-05	9.33-123	Yes	No exceedances	Move to Category 5	7
Dieldrin	3	No	25	2	2	25	2	15	2	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Move to Category 5	7

Table C.16. Reevaluation Data Analysis Results for Class D Use in Kingman Lake

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Heptachlor epoxide	3	No	25	1	1	25	1	15	11	3.20E-05	4.06-153	Yes	No exceedances	Keep in Category 3	12
Total PCBs	4a	Yes	18	18	18	18	18	12	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	25	0	0	25	0	15	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	25	2	0	25	0	15	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	25	1	0	25	0	15	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	25	2	0	25	0	15	N/A – no Class D WQ criteria				No exceedances	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	25	3	3	25	3	15	10	0.0013	10.8-63.1	Yes	No exceedances	Keep in Category 4a	1
Chrysene (PAH2)	4a	Yes	25	3	1	25	1	15	15	0.13	0.1- .677	No	No exceedances	Move to Category 3	6
Fluoranthene (PAH2)	4a	Yes	25	14	0	25	0	15	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	25	14	0	25	0	15	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Remove from	3

Table C.16. Reevaluation Data Analysis Results for Class D Use in Kingman Lake

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
														Category 4a	
Benzo_a_pyrene (PAH3)	4a	Yes	25	2	2	25	2	15	15	0.00013	100-1540	No	No exceedances	Keep in Category 4a	1
Benzo_b_fluoranthene (PAH3)	4a	Yes	25	3	3	25	3	15	10	0.0013	11.5-13.1	Yes	No exceedances	Keep in Category 4a	1
Benzo_k_fluoranthene (PAH3)	4a	Yes	25	1	1	25	1	15	15	0.013	4- 7.38	No	No exceedances	Keep in Category 4a	5
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	25	1	1	25	1	15	15	0.00013	115- 600	No	No exceedances	Keep in Category 4a	5
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	25	1	1	25	1	15	15	0.0013	14.6-70.8	No	No exceedances	Keep in Category 4a	5

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.17. Reevaluation Data Analysis Results for Class C Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	7	6	0	7	0	3	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	3	No	7	7	0	7	0	3	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	10
Lead	Not Categorized	No	4	4	0	4	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	3	No	7	6	0	7	0	3	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	4a	No	7	0	0	7	0	3	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	7	0	0	7	0	3	No exceedances	1.00E-03	0.2-5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	3	No	7	0	0	7	0	3	No exceedances	1.00E-03	0.1-6	1.1	0.0000909-0.00545	No exceedances	Keep in in Category 3	9

Table C.17. Reevaluation Data Analysis Results for Class C Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	3	No	7	0	0	7	0	3	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	4a	No	7	1	0	7	0	3	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	7	2	0	7	0	3	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	4	4	0	4	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	7	2	0	7	0	3	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	7	2	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	7	0	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	7	2	0	7	0	3	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3

Table C.17. Reevaluation Data Analysis Results for Class C Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	4a	No	7	3	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Chrysene (PAH2)	4a	No	7	3	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	7	4	0	7	0	3	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	7	4	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	7	2	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	7	1	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	7	1	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	7	1	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.17. Reevaluation Data Analysis Results for Class C Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	4a	No	7	1	0	7	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.18. Reevaluation Data Analysis Results for Class D Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	31	6	6	10	6	3	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	3	No	7	7	0	7	0	3	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	4	4	0	4	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.18. Reevaluation Data Analysis Results for Class D Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	3	No	16	15	0	7	0	3	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	4a	Yes	7	0	0	7	0	3	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	7	0	0	7	0	3	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Keep in Category 3	9
DDE	3	No	7	0	0	7	0	3	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Keep in Category 3	9
DDT	3	No	7	0	0	7	0	3	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Keep in Category 3	9
Dieldrin	4a	Yes	7	1	1	7	1	3	3	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	5
Heptachlor epoxide	4a	Yes	7	2	2	7	2	3	3	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	4	4	4	4	4	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	7	2	0	7	0	3	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 4a	3

Table C.18. Reevaluation Data Analysis Results for Class D Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	4a	Yes	7	2	0	7	0	3	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	7	0	0	7	0	3	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	7	2	0	7	0	3	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	7	3	3	7	3	3	1	0.0013	10.8-63.1	Yes	NA-not sampled	Keep in Category 4a	1
Chrysene (PAH2)	4a	Yes	7	3	1	7	1	3	1	0.13	0.1- .677	Yes	NA-not sampled	Move to Category 3	6
Fluoranthene (PAH2)	4a	Yes	7	4	0	7	0	3	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	7	4	0	7	0	3	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	7	2	2	7	2	3	1	0.00013	100-1540	Yes	NA-not sampled	Keep in Category 4a	1
Benzo_b_fluoranthene (PAH3)	4a	Yes	7	1	1	7	1	3	1	0.0013	11.5-13.1	Yes	NA-not sampled	Keep in Category 4a	5

Table C.18. Reevaluation Data Analysis Results for Class D Use in Nash Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	4a	Yes	7	1	1	7	1	3	1	0.013	4- 7.38	Yes	NA-not sampled	Keep in Category 4a	5
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	7	1	1	7	1	3	1	0.00013	115- 600	Yes	NA-not sampled	Keep in Category 4a	5
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	7	1	1	7	1	3	1	0.0013	14.6-70.8	Yes	NA-not sampled	Keep in Category 4a	5

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.19. Reevaluation Data Analysis Results for Class C Use in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	0	0	1	0	1	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	10
Copper	3	No	1	1	0	1	0	1	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	10
Lead	Not Categorized	No	1	1	0	1	0	1	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	1	0	0	1	0	1	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	3	No	1	1	0	1	0	1	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	4a	No	7	1	1	7	1	4	5	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No	Keep in in Category 4a	5
DDD	3	No	7	0	0	7	0	4	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	4a	No	7	1	0	7	0	4	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Move to Category 3	2

Table C.19. Reevaluation Data Analysis Results for Class C Use in Pope Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	3	No	7	0	0	7	0	4	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	3	No	7	2	0	7	0	4	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 3	10
Heptachlor epoxide	4a	No	7	3	0	7	0	4	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	3	3	0	3	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	7	0	0	7	0	4	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	7	0	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	7	0	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Naphthalene (PAH1)	4a	No	7	0	0	7	0	4	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	7	1	0	7	0	4	N/A – no Class C WQ criteria						Remove from	0

Table C.19. Reevaluation Data Analysis Results for Class C Use in Pope Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	
Chrysene (PAH2)	4a	No	7	1	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	7	1	0	7	0	4	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	7	0	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	7	0	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	7	1	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	7	0	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Dibenzo_a_h_anthracene (PAH3)	4a	No	7	1	0	7	0	4	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	7	1	0	7	0	4	N/A – no Class C WQ criteria						Remove from	0

Table C.19. Reevaluation Data Analysis Results for Class C Use in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															Category 4a	

Table C.20. Reevaluation Data Analysis Results for Class D Use in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	22	1	1	3	1	1	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 3	11
Copper	3	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	1	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	1	0	0	1	0	1	No exceedances	0.15	0.00113 - 1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.20. Reevaluation Data Analysis Results for Class D Use in Pope Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	3	No	8	3	0	1	0	1	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	4a	Yes	7	1	1	7	1	4	5	0.00032	4.38-212.9	No	NA-not sampled	Keep in Category 4a	5
DDD	3	No	7	0	0	7	0	4	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Keep in Category 3	9
DDE	4a	Yes	7	1	1	7	1	4	4	1.80E-05	5.56-333	No	NA-not sampled	Keep in Category 4a	5
DDT	3	No	7	0	0	7	0	4	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Keep in Category 3	9
Dieldrin	3	No	7	2	2	7	2	4	1	1.20E-06	100-3420	Yes	NA-not sampled	Move to Category 5	7
Heptachlor epoxide	4a	Yes	7	3	3	7	3	4	4	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	3	3	3	3	3	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	7	0	0	7	0	4	No exceedances	90	0.000156-	No exceedances	NA-not	Remove from Category 4a	3

Table C.20. Reevaluation Data Analysis Results for Class D Use in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
											0.000789		sampled		
Anthracene (PAH1)	4a	Yes	7	0	0	7	0	4	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	7	0	0	7	0	4	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	7	0	0	7	0	4	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	7	1	1	7	1	4	4	0.0013	10.8-63.1	No	NA-not sampled	Keep in Category 4a	5
Chrysene (PAH2)	4a	Yes	7	1	0	7	0	4	No exceedances	0.13	0.1-.677	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluoranthene (PAH2)	4a	Yes	7	1	0	7	0	4	No exceedances	20	0.00075 - 0.01	No exceedances	NA-not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	7	0	0	7	0	4	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	7	0	0	7	0	4	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Move to Category 3	2

Table C.20. Reevaluation Data Analysis Results for Class D Use in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_b_fluoranthene (PAH3)	4a	Yes	7	1	1	7	1	4	4	0.0013	11.5-13.1	No	NA-not sampled	Keep in Category 4a	5
Benzo_k_fluoranthene (PAH3)	4a	Yes	7	0	0	7	0	4	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Move to Category 3	2
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	7	1	1	7	1	4	4	0.00013	115-600	No	NA-not sampled	Keep in Category 4a	5
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	7	1	1	7	1	4	4	0.0013	14.6-70.8	No	NA-not sampled	Keep in Category 4a	5

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.21. Reevaluation Data Analysis Results for Class C Use in Texas Avenue Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	4a	No	6	6	0	6	0	3	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 4a	3
Copper	Not Categorized	No	6	4	0	6	0	3	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	**Not categorized - take no action** no action	15
Lead	Not Categorized	No	3	2	0	3	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	**Not categorized - take no action** no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	**Not categorized - take no action** no action	15
Zinc	Not Categorized	No	6	5	0	6	0	3	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	**Not categorized - take no action** no action	15
Chlordane	4a	No	6	1	1	6	1	3	4	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No	Keep in in Category 4a	5
DDD	4a	No	6	6	5	6	5	3	1	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Keep in in Category 4a	1

Table C.21. Reevaluation Data Analysis Results for Class C Use in Texas Avenue Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDE	4a	No	6	3	1	6	1	3	3	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No	Keep in in Category 4a	5
DDT	4a	No	6	1	1	6	1	3	3	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No	Keep in in Category 4a	5
Dieldrin	4a	No	6	5	0	6	0	3	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	6	3	0	6	0	3	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	3	3	0	3	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	4a	No	6	0	0	6	0	3	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Anthracene (PAH1)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluorene (PAH1)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.21. Reevaluation Data Analysis Results for Class C Use in Texas Avenue Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Naphthalene (PAH1)	4a	No	6	1	0	6	0	3	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Benzo_a_anthracene (PAH2)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Chrysene (PAH2)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Fluoranthene (PAH2)	4a	No	6	1	0	6	0	3	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 4a	3
Pyrene (PAH2)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_a_pyrene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_b_fluoranthene (PAH3)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Benzo_k_fluoranthene (PAH3)	4a	No	6	1	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.21. Reevaluation Data Analysis Results for Class C Use in Texas Avenue Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dibenzo_a_h_anthracene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0
Indeno_1_2_3_cd_pyrene (PAH3)	4a	No	6	0	0	6	0	3	N/A – no Class C WQ criteria						Remove from Category 4a	0

Table C.22. Reevaluation Data Analysis Results for Class D Use in Texas Avenue Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	4a	Yes	39	7	7	8	6	3	0	0.14	2.07-35.7	Yes	NA-not sampled	Keep in Category 4a	1
Copper	Not Categorized	No	6	6	0	6	0	3	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	3	3	0	3	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	11	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	27	26	0	6	0	3	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	4a	Yes	6	1	1	6	1	3	4	0.00032	4.38-212.9	No	NA-not sampled	Keep in Category 4a	5
DDD	4a	Yes	6	6	6	6	6	3	0	0.00012	1.67-43.3	Yes	NA-not sampled	Keep in Category 4a	1
DDE	4a	Yes	6	3	3	6	3	3	0	1.80E-05	5.56-333	Yes	NA-not sampled	Keep in Category 4a	1
DDT	4a	Yes	6	1	1	6	1	3	3	3.00E-05	9.33-123	No	NA-not sampled	Keep in Category 4a	5

Table C.22. Reevaluation Data Analysis Results for Class D Use in Texas Avenue Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	6	5	5	6	5	3	1	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	4a	Yes	6	3	3	6	3	3	2	3.20E-05	4.06-153	Yes	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	3	3	3	3	3	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	4a	Yes	6	0	0	6	0	3	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 4a	3
Anthracene (PAH1)	4a	Yes	6	1	0	6	0	3	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 4a	3
Fluorene (PAH1)	4a	Yes	6	0	0	6	0	3	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 4a	3
Naphthalene (PAH1)	4a	Yes	6	1	0	6	0	3	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Benzo_a_anthracene (PAH2)	4a	Yes	6	1	1	6	1	3	3	0.0013	10.8-63.1	No	NA-not sampled	Keep in Category 4a	5
Chrysene (PAH2)	4a	Yes	6	1	1	6	1	3	3	0.13	0.1- .677	No	NA-not sampled	Move to Category 3	6

Table C.22. Reevaluation Data Analysis Results for Class D Use in Texas Avenue Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	4a	Yes	6	1	0	6	0	3	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 4a	3
Pyrene (PAH2)	4a	Yes	6	1	0	6	0	3	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 4a	3
Benzo_a_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Move to Category 3	2
Benzo_b_fluoranthene (PAH3)	4a	Yes	6	1	1	6	1	3	3	0.0013	11.5-13.1	No	NA-not sampled	Keep in Category 4a	5
Benzo_k_fluoranthene (PAH3)	4a	Yes	6	1	1	6	1	3	3	0.013	4- 7.38	No	NA-not sampled	Keep in Category 4a	5
Dibenzo_a_h_anthracene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Move to Category 3	2
Indeno_1_2_3_cd_pyrene (PAH3)	4a	Yes	6	0	0	6	0	3	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Move to Category 3	2

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.23. Reevaluation Data Analysis Results for Class C Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	11	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not categorized - take no action no action	15
Copper	Not Categorized	No	159	156	1	159	1	113	119	10.76	0.0161-0.127	16.5	0.0104-0.0833	No	Not categorized - take no action no action	16
Lead	Not Categorized	No	159	131	0	159	0	113	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not categorized - take no action no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not categorized - take no action no action	15
Zinc	Not Categorized	No	159	140	0	159	0	113	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not categorized - take no action no action	15
Chlordane	4a	No	13	0	0	13	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	13	1	1	13	1	13	1	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Keep in in Category 3	12

Table C.23. Reevaluation Data Analysis Results for Class C Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDE	3	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Keep in in Category 3	9
DDT	3	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	4a	No	13	4	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	3	No	13	1	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Anthracene (PAH1)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	13	0	0	13	0	13	No exceedances	600	0.0000217-	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10

Table C.23. Reevaluation Data Analysis Results for Class C Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
											0.000667					
Benzo_a_anthracene (PAH2)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluoranthene (PAH2)	3	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Pyrene (PAH2)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.24. Reevaluation Data Analysis Results for Class D Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	92	11	11	19	11	13	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	14
Copper	Not Categorized	No	13	13	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	13	13	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	137	101	0	115	0	114	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	63	46	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	4a	Yes	13	0	0	13	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	13	1	1	13	1	13	1	0.00012	1.67-43.3	Yes	NA-not sampled	Keep in Category 3	12
DDE	3	No	13	0	0	13	0	13	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Keep in Category 3	9
DDT	3	No	13	0	0	13	0	13	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Keep in Category 3	9

Table C.24. Reevaluation Data Analysis Results for Class D Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	13	4	4	13	4	13	0	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	3	No	13	1	1	13	1	13	2	3.20E-05	4.06-153	Yes	NA-not sampled	Keep in Category 3	12
Total PCBs	4a	Yes	5	5	5	5	5	5	0	6.40E-05	NA	Yes	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	13	0	0	13	0	13	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	10
Anthracene (PAH1)	3	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	10
Fluorene (PAH1)	3	No	13	0	0	13	0	13	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	10
Naphthalene (PAH1)	3	No	13	0	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	13	0	0	13	0	13	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Keep in Category 3	9
Chrysene (PAH2)	3	No	13	0	0	13	0	13	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	10

Table C.24. Reevaluation Data Analysis Results for Class D Use in Upper Watts Branch (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	13	0	0	13	0	13	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	10
Pyrene (PAH2)	3	No	13	0	0	13	0	13	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	10
Benzo_a_pyrene (PAH3)	3	No	13	0	0	13	0	13	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_b_fluoranthene (PAH3)	3	No	13	0	0	13	0	13	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_k_fluoranthene (PAH3)	3	No	13	0	0	13	0	13	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Keep in Category 3	9
Dibenzo_a_h_anthracene (PAH3)	3	No	13	0	0	13	0	13	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Keep in Category 3	9
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	13	0	0	13	0	13	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Keep in Category 3	9

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.25. Reevaluation Data Analysis Results for Class C Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	3	2	0	3	0	3	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not categorized - take no action no action	15
Copper	Not Categorized	No	3	3	0	3	0	3	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not categorized - take no action no action	15
Lead	Not Categorized	No	3	2	0	3	0	3	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not categorized - take no action no action	15
Mercury	Not Categorized	No	3	0	0	3	0	3	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not categorized - take no action no action	15
Zinc	Not Categorized	No	3	3	0	3	0	3	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not categorized - take no action no action	15
Chlordane	4a	No	7	0	0	7	0	4	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	7	0	0	7	0	4	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9

Table C.25. Reevaluation Data Analysis Results for Class C Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDE	3	No	7	0	0	7	0	4	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Keep in in Category 3	9
DDT	3	No	7	0	0	7	0	4	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	4a	No	7	4	0	7	0	4	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	3	No	7	0	0	7	0	4	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	3	3	0	3	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	3	1	0	3	0	0	No exceedances	600	0.0000217-	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8

Table C.25. Reevaluation Data Analysis Results for Class C Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
											0.000667					
Benzo_a_anthracene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluoranthene (PAH2)	3	No	3	1	0	3	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.26. Reevaluation Data Analysis Results for Class D Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	41	3	3	6	3	3	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	14
Copper	Not Categorized	No	3	3	0	3	0	3	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	3	3	0	3	0	3	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	14	1	0	3	0	3	No exceedances	0.15	0.00113 - 1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	Not Categorized	No	26	17	0	3	0	3	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	4a	Yes	7	0	0	7	0	4	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	7	0	0	7	0	4	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Keep in Category 3	9
DDE	3	No	7	0	0	7	0	4	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Keep in Category 3	9
DDT	3	No	7	0	0	7	0	4	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not	Keep in Category 3	9

Table C.26. Reevaluation Data Analysis Results for Class D Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
													sampled		
Dieldrin	4a	Yes	7	4	4	7	4	4	0	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	3	No	7	0	0	7	0	4	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Keep in Category 3	9
Total PCBs	4a	Yes	3	3	3	3	3	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	3	1	0	3	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.26. Reevaluation Data Analysis Results for Class D Use in Lower Watts Branch (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Chrysene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	0.13	0.1-.677	No exceedances	NA- not sampled	Remove from Category 3	8
Fluoranthene (PAH2)	3	No	3	1	0	3	0	0	No exceedances	20	0.00075 - 0.01	No exceedances	NA- not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA- not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.00013	100-1540	No exceedances	NA- not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.0013	11.5 - 13.1	No exceedances	NA- not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.013	4- 7.38	r	NA- not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.00013	115-600	No exceedances	NA- not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA- not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Potomac and Tributaries

Table C.27. Reevaluation Data Analysis Results for Class C Use in Upper Potomac River (Segment 03)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	9	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	13	12	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	13	4	0	13	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	13	2	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.27. Reevaluation Data Analysis Results for Class C Use in Upper Potomac River (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	13	1	1	13	1	13	0	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Move to Category 3	18
Dieldrin	Not Categorized	No	13	1	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	13	1	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	4a	No	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.27. Reevaluation Data Analysis Results for Class C Use in Upper Potomac River (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.27. Reevaluation Data Analysis Results for Class C Use in Upper Potomac River (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria no criteria						Not Categorized- take no action	0

Table C.28. Reevaluation Data Analysis Results for Class D Use in Upper Potomac River (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	50	12	12	15	11	13	0	0.14	2.07-35.7	Yes	No exceedances	Move to Category 5	14
Copper	Not Categorized	No	13	11	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Lead	Not Categorized	No	13	11	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	26	1	1	13	0	13	18	0.15	0.00113 - 1.33	No	No exceedances	Not categorized - take no action	15

Table C.28. Reevaluation Data Analysis Results for Class D Use in Upper Potomac River (Segment 03)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	30	11	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Not categorized - take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	No exceedances	Not categorized - take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00012	1.67-43.3	No exceedances	No exceedances	Not categorized - take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Not categorized - take no action	15
DDT	Not Categorized	No	13	1	1	13	1	13	0	3.00E-05	9.33-123	Yes	No exceedances	Move to Category 3	18
Dieldrin	Not Categorized	No	13	1	1	13	1	13	0	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Move to Category 3	18
Heptachlor epoxide	Not Categorized	No	13	1	1	13	1	13	7	3.20E-05	4.06-153	Yes	No exceedances	Move to Category 3	18
Total PCBs	4a	Yes	5	5	5	5	5	5	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Not categorized	15

Table C.28. Reevaluation Data Analysis Results for Class D Use in Upper Potomac River (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
														- take no action	
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	70	0.000286- 0.00107	No exceedances	No exceedances	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	1	13	1	13	9	0.0013	10.8- 63.1	Yes	No exceedances	Move to Category 3	18
Chrysene (PAH2)	Not Categorized	No	13	1	1	13	1	13	9	0.13	0.1- .677	Yes	No exceedances	Not categorized - take no action	16
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	20	0.00075 - 0.01	No exceedances	No exceedances	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	30	0.0005- 0.00667	No exceedances	No exceedances	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	1	1	13	1	13	9	0.00013	100- 1540	Yes	No exceedances	Move to Category 3	18
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	9	0.0013	11.5- 13.1	Yes	No exceedances	Move to Category 3	18
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	9	0.013	4- 7.38	Yes	No exceedances	Move to Category 3	18

Table C.28. Reevaluation Data Analysis Results for Class D Use in Upper Potomac River (Segment 03)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	1	13	1	13	9	0.00013	115-600	Yes	No exceedances	Move to Category 3	18
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	1	1	13	1	13	9	0.0013	14.6-70.8	Yes	No exceedances	Move to Category 3	18

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.29. Reevaluation Data Analysis Results for Class C Use in Middle Potomac River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	8	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	13	12	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	13	5	0	13	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	13	1	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.29. Reevaluation Data Analysis Results for Class C Use in Middle Potomac River (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not Categorized- take no action	15
Dieldrin	Not Categorized	No	13	2	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	13	1	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	4a	No	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	13	1	0	13	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.29. Reevaluation Data Analysis Results for Class C Use in Middle Potomac River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	13	1	0	13	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.29. Reevaluation Data Analysis Results for Class C Use in Middle Potomac River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.30. Reevaluation Data Analysis Results for Class D Use in Middle Potomac River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	93	11	11	19	9	13	0	0.14	2.07-35.7	Yes	No exceedances	Move to Category 5	14
Copper	Not Categorized	No	13	12	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Lead	Not Categorized	No	13	11	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	39	0	0	13	0	13	No exceedances	0.15	0.00113-1.33	No exceedances	No exceedances	Not categorized - take no action	15
Zinc	Not Categorized	No	53	15	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Not categorized - take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	No exceedances	Not categorized - take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00012	1.67-43.3	No exceedances	No exceedances	Not categorized - take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Not categorized - take no action	15

Table C.30. Reevaluation Data Analysis Results for Class D Use in Middle Potomac River (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
DDT	Not Categorized	No	13	0	0	13	0	13	No exceedances	3.00E-05	9.33-123	No exceedances	No exceedances	Not categorized - take no action	15
Dieldrin	Not Categorized	No	13	2	2	13	2	13	9	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Move to Category 5	14
Heptachlor epoxide	Not Categorized	No	13	1	1	13	1	13	9	3.20E-05	4.06-153	Yes	No exceedances	Move to Category 3	18
Total PCBs	4a	No	5	5	5	5	5	5	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	1	13	1	13	10	0.0013	10.8-63.1	Yes	No exceedances	Move to Category 3	18
Chrysene (PAH2)	Not Categorized	No	13	1	1	13	1	13	10	0.13	0.1- .677	Yes	No exceedances	Not categorized	16

Table C.30. Reevaluation Data Analysis Results for Class D Use in Middle Potomac River (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
														- take no action	
Fluoranthene (PAH2)	Not Categorized	No	13	1	0	13	0	13	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	1	1	13	1	13	10	0.00013	100-1540	Yes	No exceedances	Move to Category 3	18
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	10	0.0013	11.5-13.1	Yes	No exceedances	Move to Category 3	18
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	10	0.013	4- 7.38	Yes	No exceedances	Move to Category 3	18
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	1	13	1	13	10	0.00013	115- 600	Yes	No exceedances	Move to Category 3	18
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	1	1	13	1	13	10	0.0013	14.6-70.8	Yes	No exceedances	Move to Category 3	18

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.31. Reevaluation Data Analysis Results for Class C Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	10	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	13	13	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	13	5	1	13	1	13	9	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	Yes	Not Categorized- take no action	16
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	13	1	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.31. Reevaluation Data Analysis Results for Class C Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not Categorized- take no action	15
Dieldrin	Not Categorized	No	13	1	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	13	0	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	4a	Yes	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.31. Reevaluation Data Analysis Results for Class C Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.31. Reevaluation Data Analysis Results for Class C Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.32. Reevaluation Data Analysis Results for Class D Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	170	13	13	25	10	13	0	0.14	2.07-35.7	Yes	No exceedances	Move to Category 5	14
Copper	Not Categorized	No	13	13	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Lead	Not Categorized	No	13	13	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	65	1	1	13	0	13	34	0.15	0.00113-1.33	No	No exceedances	Not categorized - take no action	15

Table C.32. Reevaluation Data Analysis Results for Class D Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	108	33	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Not categorized - take no action	15
Chlordane	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	No exceedances	Not categorized - take no action	15
DDD	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00012	1.67-43.3	No exceedances	No exceedances	Not categorized - take no action	15
DDE	Not Categorized	No	13	0	0	13	0	13	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Not categorized - take no action	15
DDT	Not Categorized	No	13	0	0	13	0	13	No exceedances	3.00E-05	9.33-123	No exceedances	No exceedances	Not categorized - take no action	15
Dieldrin	Not Categorized	No	13	1	1	13	1	13	9	1.20E-06	100-3420	Yes	Exceedances in fish tissue	Move to Category 3	18
Heptachlor epoxide	Not Categorized	No	13	0	0	13	0	13	No exceedances	3.20E-05	4.06-153	No exceedances	No exceedances	Not categorized - take no action	15
Total PCBs	4a	Yes	5	5	5	5	5	5	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Not categorized - take no action	15

Table C.32. Reevaluation Data Analysis Results for Class D Use in Lower Potomac River (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.0013	10.8-63.1	No exceedances	No exceedances	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.13	0.1- .677	No exceedances	No exceedances	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	13	0	0	13	0	13	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00013	100-1540	No exceedances	No exceedances	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.0013	11.5-13.1	No exceedances	No exceedances	Not categorized	15

Table C.32. Reevaluation Data Analysis Results for Class D Use in Lower Potomac River (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
														- take no action	
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.013	4- 7.38	No exceedances	No exceedances	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.00013	115- 600	No exceedances	No exceedances	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.0013	14.6-70.8	No exceedances	No exceedances	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.33. Reevaluation Data Analysis Results for Class C Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	1	0	1	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-	No exceedances	Not Categorize	15

Table C.33. Reevaluation Data Analysis Results for Class C Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													0.00336		d- take no action	
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorize	0

Table C.33. Reevaluation Data Analysis Results for Class C Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															d- take no action	
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorize	0

Table C.33. Reevaluation Data Analysis Results for Class C Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
															d- take no action	

Table C.34. Reevaluation Data Analysis Results for Class D Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	42	0	0	4	0	0	No exceedances	0.14	2.07-35.7	NA	NA-not sampled	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	10	2	2	0	0	0	4	0.15	0.00113-1.33	No	NA-not sampled	Not categorized - take no action	15

Table C.34. Reevaluation Data Analysis Results for Class D Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	3	No	27	9	0	1	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	NA-not sampled	Not categorized - take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.34. Reevaluation Data Analysis Results for Class D Use in Battery Kemble Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA- not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA- not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA- not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA- not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA- not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA- not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA- not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	100-1540	No exceedances	NA- not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA- not sampled	Not categorized - take no action	15

Table C.34. Reevaluation Data Analysis Results for Class D Use in Battery Kemble Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA- not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	115- 600	No exceedances	NA- not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	14.6- 70.8	No exceedances	NA- not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant*.

Table C.35. Reevaluation Data Analysis Results for Class C Use in Dalecarlia Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.35. Reevaluation Data Analysis Results for Class C Use in Dalecarlia Tributary

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	1	1	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.35. Reevaluation Data Analysis Results for Class C Use in Dalecarlia Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.36. Reevaluation Data Analysis Results for Class D Use in Dalecarlia Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	39	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	10	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	24	7	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.36. Reevaluation Data Analysis Results for Class D Use in Dalecarlia Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.36. Reevaluation Data Analysis Results for Class D Use in Dalecarlia Tributary

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.37. Reevaluation Data Analysis Results for Class C Use in Foundry Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	2	2	0	2	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	2	2	0	2	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	2	2	0	2	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	2	2	0	2	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.37. Reevaluation Data Analysis Results for Class C Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not Categorized- take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.37. Reevaluation Data Analysis Results for Class C Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.37. Reevaluation Data Analysis Results for Class C Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.38. Reevaluation Data Analysis Results for Class D Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	10	0	0	2	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Not categorized - take no action	15
Copper	Not Categorized	No	2	2	0	2	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	2	2	0	2	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	7	1	1	0	0	0	5	0.15	0.00113-1.33	No	NA-not sampled	Not categorized - take no action	15

Table C.38. Reevaluation Data Analysis Results for Class D Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	10	10	0	2	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Not categorized - take no action	15
Total PCBs	Not Categorized	No	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	NA-not sampled	Not categorized - take no action	15
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.38. Reevaluation Data Analysis Results for Class D Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.38. Reevaluation Data Analysis Results for Class D Use in Foundry Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.39. Reevaluation Data Analysis Results for Class C Use in Oxon Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceeded-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	1	0	1	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.39. Reevaluation Data Analysis Results for Class C Use in Oxon Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	3	No	1	0	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Remove from Category 3	8
Total PCBs	4a	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.39. Reevaluation Data Analysis Results for Class C Use in Oxon Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.40. Reevaluation Data Analysis Results for Class D Use in Oxon Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	36	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	11	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	21	14	0	1	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.40. Reevaluation Data Analysis Results for Class D Use in Oxon Run

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	No	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	3	No	1	0	0	1	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Remove from Category 3	8
Total PCBs	4a	Yes	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	NA-not sampled	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.40. Reevaluation Data Analysis Results for Class D Use in Oxon Run

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Rock Creek and Tributaries

Table C.41. Reevaluation Data Analysis Results for Class C Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	155	154	0	155	0	107	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	155	148	0	155	0	107	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	4a	No	1	1	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Move to Category 3	2
Zinc	Not Categorized	No	155	71	0	155	0	107	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	4a	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	19	0	0	0	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-	No exceedances	Not Categorize	15

Table C.41. Reevaluation Data Analysis Results for Class C Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
													0.00336		d- take no action	
Dieldrin	4a	No	19	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	23	4	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	23	2	0	0	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.41. Reevaluation Data Analysis Results for Class C Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	23	18	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	23	18	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	23	4	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.42. Reevaluation Data Analysis Results for Class D Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	47	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA- not sampled	Not categorized - take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA- not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA- not sampled	Not categorized - take no action	0
Mercury	4a	Yes	113	104	1	103	0	102	111	0.15	0.00113-1.33	No	NA- not sampled	Remove from Category 4a	3
Zinc	Not Categorized	No	32	9	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA- not sampled	Not categorized - take no action	15
Chlordane	4a	Yes	0	0	0	0	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA- not sampled	Move to Category 3	2
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA- not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	19	0	0	0	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA- not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA- not sampled	Not categorized - take no action	15

Table C.42. Reevaluation Data Analysis Results for Class D Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	19	0	0	0	0	0	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Move to Category 3	2
Heptachlor epoxide	4a	Yes	0	0	0	0	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Move to Category 3	2
Total PCBs	4a	Yes	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	NA-not sampled	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15
Anthracene (PAH1)	Not Categorized	No	23	4	0	0	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	23	2	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.42. Reevaluation Data Analysis Results for Class D Use in Upper Rock Creek (Segment 02)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	Not Categorized	No	23	18	0	0	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	23	18	0	0	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	23	4	4	0	0	0	No exceedances	0.00013	100-1540	No	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	11.5-13.1	No	NA-not sampled	Not categorized - take no action	15
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.43. Reevaluation Data Analysis Results for Class C Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation on Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	6	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	4a	No	13	13	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 4a	3
Lead	4a	No	13	6	0	13	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Remove from Category 4a	3
Mercury	4a	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Remove from Category 4a	3
Zinc	4a	No	13	2	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 4a	3
Chlordane	Not Categorized	No	13	1	1	13	1	13	6	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	Yes	Move to Category 3	18
DDD	Not Categorized	No	13	1	1	13	1	13	6	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Move to Category 3	18
DDE	Not Categorized	No	14	2	2	13	2	13	6	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	Yes	Move to Category 5	14

Table C.43. Reevaluation Data Analysis Results for Class C Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	13	1	1	13	1	13	6	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Move to Category 3	18
Dieldrin	Not Categorized	No	14	5	0	13	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	13	7	0	13	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	Not Categorized	No	5	5	0	5	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	21	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	21	0	0	13	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.43. Reevaluation Data Analysis Results for Class C Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	21	6	0	13	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	21	5	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	21	0	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.43. Reevaluation Data Analysis Results for Class C Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	13	1	0	13	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.44. Reevaluation Data Analysis Results for Class D Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	57	10	10	16	10	13	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	14
Copper	4a	Yes	13	13	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Lead	4a	Yes	13	12	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 4a	0
Mercury	4a	Yes	22	1	1	13	0	13	21	0.15	0.00113-1.33	No	NA-not sampled	Remove from Category 4a	3

Table C.44. Reevaluation Data Analysis Results for Class D Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	4a	Yes	43	22	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 4a	3
Chlordane	Not Categorized	No	13	1	1	13	1	13	6	0.00032	4.38-212.9	Yes	NA-not sampled	Move to Category 3	18
DDD	Not Categorized	No	13	1	1	13	1	13	6	0.00012	1.67-43.3	Yes	NA-not sampled	Move to Category 3	18
DDE	Not Categorized	No	14	2	2	13	2	13	6	1.80E-05	5.56-333	Yes	NA-not sampled	Move to Category 5	14
DDT	Not Categorized	No	13	1	1	13	1	13	6	3.00E-05	9.33-123	Yes	NA-not sampled	Move to Category 3	18
Dieldrin	Not Categorized	No	14	5	5	13	5	13	3	1.20E-06	100-3420	Yes	NA-not sampled	Move to Category 5	14
Heptachlor epoxide	Not Categorized	No	13	7	7	13	7	13	2	3.20E-05	4.06-153	Yes	NA-not sampled	Move to Category 5	14
Total PCBs	Not Categorized	No	5	5	5	5	5	5	0	6.40E-05	NA	Yes	NA-not sampled	Move to Category 5	14
Acenaphthene (PAH1)	Not Categorized	No	13	0	0	13	0	13	0	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.44. Reevaluation Data Analysis Results for Class D Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	21	0	0	13	0	13	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	13	0	0	13	0	13	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	21	0	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	13	1	1	13	1	13	11	0.0013	10.8-63.1	Yes	NA-not sampled	Move to Category 3	18
Chrysene (PAH2)	Not Categorized	No	13	1	1	13	1	13	11	0.13	0.1- .677	Yes	NA-not sampled	Not categorized - take no action	16
Fluoranthene (PAH2)	Not Categorized	No	21	6	0	13	0	13	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	21	5	0	13	0	13	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	21	0	0	13	0	13	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	11	0.0013	11.5-13.1	Yes	NA-not sampled	Move to Category 3	18

Table C.44. Reevaluation Data Analysis Results for Class D Use in Lower Rock Creek (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	13	1	1	13	1	13	11	0.013	4- 7.38	Yes	NA-not sampled	Move to Category 3	18
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	13	1	1	13	1	13	11	0.00013	115- 600	Yes	NA-not sampled	Move to Category 3	18
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	13	1	1	13	1	13	11	0.0013	14.6-70.8	Yes	NA-not sampled	Move to Category 3	18

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.45. Reevaluation Data Analysis Results for Class C Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	13	11	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	13	13	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	13	6	0	13	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	13	4	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	4a	No	14	0	0	14	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	Not Categorized	No	14	0	0	14	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	14	0	0	14	0	13	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.45. Reevaluation Data Analysis Results for Class C Use in Broad Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	14	2	1	14	1	13	6	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Move to Category 3	18
Dieldrin	4a	No	14	9	0	14	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	14	8	1	14	1	13	3	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	Yes	Keep in in Category 4a	5
Total PCBs	4a	No	6	6	0	6	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	14	0	0	14	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	15	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	15	0	0	14	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.45. Reevaluation Data Analysis Results for Class C Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	15	0	0	14	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	15	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	15	1	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.45. Reevaluation Data Analysis Results for Class C Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	14	1	0	14	0	13	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.46. Reevaluation Data Analysis Results for Class D Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	37	10	10	16	10	13	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	14
Copper	Not Categorized	No	13	13	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	13	7	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.46. Reevaluation Data Analysis Results for Class D Use in Broad Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	23	4	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	4a	Yes	14	0	0	14	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	14	0	0	14	0	13	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	14	2	2	14	2	13	3	3.00E-05	9.33-123	Yes	NA-not sampled	Move to Category 5	14
Dieldrin	4a	Yes	14	9	9	14	9	13	0	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	4a	Yes	14	8	8	14	8	13	2	3.20E-05	4.06-153	Yes	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	6	6	6	6	6	5	0	6.40E-05	NA	Yes	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	Not Categorized	No	14	0	0	14	0	13	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.46. Reevaluation Data Analysis Results for Class D Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	15	0	0	14	0	13	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	14	0	0	14	0	13	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	15	0	0	14	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	15	0	0	14	0	13	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	15	0	0	14	0	13	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	15	1	1	14	1	13	8	0.00013	100-1540	Yes	NA-not sampled	Move to Category 3	18
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.46. Reevaluation Data Analysis Results for Class D Use in Broad Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	14	0	0	14	0	13	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	14	1	1	14	1	13	8	0.0013	14.6-70.8	Yes	NA-not sampled	Move to Category 3	18

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.47. Reevaluation Data Analysis Results for Class C Use in Dumbarton Oaks

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	13	6	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	10
Copper	3	No	13	11	1	13	1	13	10	10.76	0.0161-0.127	16.5	0.0104-0.0833	Yes	Remove from Category 3	13
Lead	Not Categorized	No	13	4	1	13	1	13	10	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	Yes	Not Categorized- take no action	16
Mercury	Not Categorized	No	13	1	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	13	10	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	4a	No	15	2	2	15	2	13	4	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	Yes	Keep in in Category 4a	1
DDD	3	No	15	0	0	15	0	13	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	3	No	15	1	1	15	1	13	10	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	Yes	Keep in in Category 3	12
DDT	3	No	15	3	2	15	2	13	9	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Move to Category 5	7

Table C.47. Reevaluation Data Analysis Results for Class C Use in Dumbarton Oaks

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	15	14	0	15	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	4a	No	15	11	5	15	5	13	2	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	Yes	Keep in in Category 4a	1
Total PCBs	4a	No	7	7	1	7	1	5	4	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		Yes	**Keep in in Category 4a**	**5**
Acenaphthene (PAH1)	3	No	15	0	0	15	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Anthracene (PAH1)	3	No	16	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	16	0	0	15	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Benzo_a_anthracene (PAH2)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.47. Reevaluation Data Analysis Results for Class C Use in Dumbarton Oaks

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	16	1	0	15	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Pyrene (PAH2)	3	No	16	1	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	16	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	15	0	0	15	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.48. Reevaluation Data Analysis Results for Class D Use in Dumbarton Oaks

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	37	8	8	16	8	13	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	7
Copper	3	No	13	12	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	13	10	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	13	1	1	13	1	13	10	0.15	0.00113-1.33	Yes	NA-not sampled	Not categorized - take no action	16
Zinc	3	No	24	12	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	4a	Yes	15	2	2	15	2	13	4	0.00032	4.38-212.9	Yes	NA-not sampled	Keep in Category 4a	1
DDD	3	No	15	0	0	15	0	13	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Keep in Category 3	9
DDE	3	No	15	1	1	15	1	13	10	1.80E-05	5.56-333	Yes	NA-not sampled	Keep in Category 3	12
DDT	3	No	15	3	3	15	3	13	9	3.00E-05	9.33-123	Yes	NA-not sampled	Move to Category 5	7

Table C.48. Reevaluation Data Analysis Results for Class D Use in Dumbarton Oaks

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	15	14	14	15	14	13	0	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	4a	Yes	15	11	11	15	11	13	2	3.20E-05	4.06-153	Yes	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	7	7	7	7	7	5	0	6.40E-05	NA	Yes	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	15	0	0	15	0	13	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	10
Anthracene (PAH1)	3	No	16	0	0	15	0	13	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	10
Fluorene (PAH1)	3	No	15	0	0	15	0	13	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	10
Naphthalene (PAH1)	3	No	16	0	0	15	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	15	0	0	15	0	13	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Keep in Category 3	9
Chrysene (PAH2)	3	No	15	0	0	15	0	13	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	10

Table C.48. Reevaluation Data Analysis Results for Class D Use in Dumbarton Oaks

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	16	1	0	15	0	13	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	10
Pyrene (PAH2)	3	No	16	1	0	15	0	13	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	10
Benzo_a_pyrene (PAH3)	3	No	16	0	0	15	0	13	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_b_fluoranthene (PAH3)	3	No	15	0	0	15	0	13	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_k_fluoranthene (PAH3)	3	No	15	0	0	15	0	13	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Keep in Category 3	9
Dibenzo_a_h_anthracene (PAH3)	3	No	15	0	0	15	0	13	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Keep in Category 3	9
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	15	0	0	15	0	13	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Keep in Category 3	9

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.49. Reevaluation Data Analysis Results for Class C Use in Fenwick Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	4a	No	1	1	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Move to Category 3	2

Table C.49. Reevaluation Data Analysis Results for Class C Use in Fenwick Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	2	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.49. Reevaluation Data Analysis Results for Class C Use in Fenwick Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	1	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	1	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.50. Reevaluation Data Analysis Results for Class D Use in Fenwick Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	24	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	11	2	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	4a	Yes	1	1	1	1	1	0	0	3.00E-05	9.33-123	No	NA-not sampled	Keep in Category 4a	4

Table C.50. Reevaluation Data Analysis Results for Class D Use in Fenwick Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	2	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.50. Reevaluation Data Analysis Results for Class D Use in Fenwick Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	1	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	1	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	2	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.51. Reevaluation Data Analysis Results for Class C Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.51. Reevaluation Data Analysis Results for Class C Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.51. Reevaluation Data Analysis Results for Class C Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceeded-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.52. Reevaluation Data Analysis Results for Class D Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	22	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	9	0	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.52. Reevaluation Data Analysis Results for Class D Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.52. Reevaluation Data Analysis Results for Class D Use in Klingle Valley

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.53. Reevaluation Data Analysis Results for Class C Use in Luzon Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	4a	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.53. Reevaluation Data Analysis Results for Class C Use in Luzon Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	3	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.53. Reevaluation Data Analysis Results for Class C Use in Luzon Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	3	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	1	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	3	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.54. Reevaluation Data Analysis Results for Class D Use in Luzon Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	22	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	8	3	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	4a	Yes	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.54. Reevaluation Data Analysis Results for Class D Use in Luzon Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	3	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.54. Reevaluation Data Analysis Results for Class D Use in Luzon Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	3	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	1	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	3	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	3	1	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.55. Reevaluation Data Analysis Results for Class C Use in Melvin Hazen Valley Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	13	6	0	13	0	13	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	10
Copper	3	No	13	12	0	13	0	13	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	10
Lead	Not Categorized	No	13	4	0	13	0	13	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	13	0	0	13	0	13	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	13	3	0	13	0	13	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	10
Chlordane	3	No	14	0	0	14	0	13	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Keep in in Category 3	9
DDD	3	No	14	1	1	14	1	13	9	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	Yes	Keep in in Category 3	12
DDE	3	No	14	1	1	14	1	13	9	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	Yes	Keep in in Category 3	12
DDT	3	No	14	2	2	14	2	13	10	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	Yes	Move to Category 5	7

Table C.55. Reevaluation Data Analysis Results for Class C Use in Melvin Hazen Valley Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	14	9	0	14	0	13	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 4a	3
Heptachlor epoxide	3	No	14	2	0	14	0	13	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	6	6	0	6	0	5	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	14	0	0	14	0	13	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Anthracene (PAH1)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	14	0	0	14	0	13	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Benzo_a_anthracene (PAH2)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.55. Reevaluation Data Analysis Results for Class C Use in Melvin Hazen Valley Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	14	0	0	14	0	13	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Pyrene (PAH2)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	14	0	0	14	0	13	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.56. Reevaluation Data Analysis Results for Class D Use in Melvin Hazen Valley Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	38	7	7	16	7	13	0	0.14	2.07-35.7	Yes	NA-not sampled	Move to Category 5	7
Copper	3	No	13	11	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	13	10	0	13	0	13	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	13	1	0	13	0	13	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	23	7	0	13	0	13	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	10
Chlordane	3	No	14	0	0	14	0	13	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Keep in Category 3	9
DDD	3	No	14	1	1	14	1	13	9	0.00012	1.67-43.3	Yes	NA-not sampled	Keep in Category 3	12
DDE	3	No	14	1	1	14	1	13	9	1.80E-05	5.56-333	Yes	NA-not sampled	Keep in Category 3	12
DDT	3	No	14	2	2	14	2	13	10	3.00E-05	9.33-123	Yes	NA-not sampled	Move to Category 5	7

Table C.56. Reevaluation Data Analysis Results for Class D Use in Melvin Hazen Valley Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	14	9	9	14	9	13	0	1.20E-06	100-3420	Yes	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	3	No	14	2	2	14	2	13	4	3.20E-05	4.06-153	Yes	NA-not sampled	Move to Category 5	7
Total PCBs	4a	Yes	6	6	6	6	6	5	0	6.40E-05	NA	Yes	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	14	0	0	14	0	13	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	10
Anthracene (PAH1)	3	No	14	0	0	14	0	13	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	10
Fluorene (PAH1)	3	No	14	0	0	14	0	13	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	10
Naphthalene (PAH1)	3	No	14	0	0	14	0	13	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	14	0	0	14	0	13	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Keep in Category 3	9
Chrysene (PAH2)	3	No	14	0	0	14	0	13	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	10

Table C.56. Reevaluation Data Analysis Results for Class D Use in Melvin Hazen Valley Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	14	0	0	14	0	13	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	10
Pyrene (PAH2)	3	No	14	0	0	14	0	13	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	10
Benzo_a_pyrene (PAH3)	3	No	14	0	0	14	0	13	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_b_fluoranthene (PAH3)	3	No	14	0	0	14	0	13	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Keep in Category 3	9
Benzo_k_fluoranthene (PAH3)	3	No	14	0	0	14	0	13	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Keep in Category 3	9
Dibenzo_a_h_anthracene (PAH3)	3	No	14	0	0	14	0	13	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Keep in Category 3	9
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	14	0	0	14	0	13	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Keep in Category 3	9

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.57. Reevaluation Data Analysis Results for Class C Use in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.57. Reevaluation Data Analysis Results for Class C Use in Normanstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not Categorized- take no action	15
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	2	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15

Table C.57. Reevaluation Data Analysis Results for Class C Use in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	2	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.57. Reevaluation Data Analysis Results for Class C Use in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0

Table C.58. Reevaluation Data Analysis Results for Class D Use in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	24	0	0	2	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Not categorized - take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.58. Reevaluation Data Analysis Results for Class D Use in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	10	0	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Not categorized - take no action	15
Dieldrin	4a	No	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	No	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	No	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	Not Categorized	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.58. Reevaluation Data Analysis Results for Class D Use in Normanstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	2	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	2	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	2	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	2	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	2	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.58. Reevaluation Data Analysis Results for Class D Use in Normanstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.59. Reevaluation Data Analysis Results for Class C Use in Pinehurst Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	2	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.59. Reevaluation Data Analysis Results for Class C Use in Pinehurst Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	2	2	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	4	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	4	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.59. Reevaluation Data Analysis Results for Class C Use in Pinehurst Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	4	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	4	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	4	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.60. Reevaluation Data Analysis Results for Class D Use in Pinehurst Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	24	0	0	2	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	10	1	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	2	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.60. Reevaluation Data Analysis Results for Class D Use in Pinehurst Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	2	2	2	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	4	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	4	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1-.677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.60. Reevaluation Data Analysis Results for Class D Use in Pinehurst Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	4	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	4	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	4	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.61. Reevaluation Data Analysis Results for Class C Use in Piney Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	1	0	0	1	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	1	1	0	1	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	4a	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.61. Reevaluation Data Analysis Results for Class C Use in Piney Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011-2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016-2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	3	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.61. Reevaluation Data Analysis Results for Class C Use in Piney Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	3	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	3	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.62. Reevaluation Data Analysis Results for Class D Use in Piney Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	25	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA- not sampled	Remove from Category 3	8
Copper	3	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA- not sampled	Remove from Category 3	0
Lead	Not Categorized	No	1	1	0	1	0	0	N/A – no Class D WQ criteria				NA- not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA- not sampled	Not categorized - take no action	15
Zinc	3	No	11	2	0	1	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA- not sampled	Remove from Category 3	8
Chlordane	4a	Yes	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA- not sampled	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA- not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA- not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA- not sampled	Remove from Category 3	8

Table C.62. Reevaluation Data Analysis Results for Class D Use in Piney Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	3	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.62. Reevaluation Data Analysis Results for Class D Use in Piney Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	3	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	3	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.63. Reevaluation Data Analysis Results for Class C Use in Portal Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	3	No	2	0	0	2	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	2	0	0	2	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	2	0	0	2	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	2	0	0	2	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.63. Reevaluation Data Analysis Results for Class C Use in Portal Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	2	2	0	2	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	2	2	0	2	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	2	2	0	2	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	2	0	0	2	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	2	0	0	2	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.63. Reevaluation Data Analysis Results for Class C Use in Portal Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	0	0	2	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	2	0	0	2	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.64. Reevaluation Data Analysis Results for Class D Use in Portal Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	24	0	0	2	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	10	6	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	3	No	2	0	0	2	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Remove from Category 3	8
DDD	3	No	2	0	0	2	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	2	0	0	2	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	2	0	0	2	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.64. Reevaluation Data Analysis Results for Class D Use in Portal Branch

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	2	2	2	2	2	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	1
Heptachlor epoxide	4a	Yes	2	2	2	2	2	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	1
Total PCBs	4a	Yes	2	2	2	2	2	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	2	0	0	2	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	2	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	2	0	0	2	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	2	0	0	2	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	2	0	0	2	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	2	0	0	2	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.64. Reevaluation Data Analysis Results for Class D Use in Portal Branch

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	0	0	2	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	0	0	2	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	2	0	0	2	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	2	0	0	2	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	2	0	0	2	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	2	0	0	2	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	2	0	0	2	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.65. Reevaluation Data Analysis Results for Class C Use in Soapstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	3	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Remove from Category 3	8
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	3	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Remove from Category 3	8
Chlordane	4a	No	1	0	0	1	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8

Table C.65. Reevaluation Data Analysis Results for Class C Use in Soapstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Dieldrin	4a	No	1	1	0	1	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Move to Category 3	2
Heptachlor epoxide	4a	No	1	1	0	1	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Move to Category 3	2
Total PCBs	4a	No	1	1	0	1	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	2	0	0	1	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria NA		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Chrysene (PAH2)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.65. Reevaluation Data Analysis Results for Class C Use in Soapstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	0	0	1	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	2	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.66. Reevaluation Data Analysis Results for Class D Use in Soapstone Creek

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	3	No	23	0	0	2	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Remove from Category 3	8
Copper	3	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15
Zinc	3	No	10	1	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Remove from Category 3	8
Chlordane	4a	Yes	1	0	0	1	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Move to Category 3	2
DDD	3	No	1	0	0	1	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Remove from Category 3	8
DDE	3	No	1	0	0	1	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Remove from Category 3	8
DDT	3	No	1	0	0	1	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.66. Reevaluation Data Analysis Results for Class D Use in Soapstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Dieldrin	4a	Yes	1	1	1	1	1	0	0	1.20E-06	100-3420	No	NA-not sampled	Keep in Category 4a	4
Heptachlor epoxide	4a	Yes	1	1	1	1	1	0	0	3.20E-05	4.06-153	No	NA-not sampled	Keep in Category 4a	4
Total PCBs	4a	Yes	1	1	1	1	1	0	0	6.40E-05	NA	No	NA-not sampled	Keep in Category 4a	4
Acenaphthene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Remove from Category 3	8
Anthracene (PAH1)	3	No	2	0	0	1	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Remove from Category 3	8
Fluorene (PAH1)	3	No	1	0	0	1	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Remove from Category 3	8
Naphthalene (PAH1)	3	No	2	0	0	1	0	0	N/A – no Class D WQ criteria				NA-not sampled	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Remove from Category 3	8
Chrysene (PAH2)	3	No	1	0	0	1	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Remove from Category 3	8

Table C.66. Reevaluation Data Analysis Results for Class D Use in Soapstone Creek

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Fluoranthene (PAH2)	3	No	2	0	0	1	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Remove from Category 3	8
Pyrene (PAH2)	3	No	2	0	0	1	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	2	0	0	1	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_b_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA-not sampled	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.00013	115- 600	No exceedances	NA-not sampled	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	1	0	0	1	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA-not sampled	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Other Waterbodies

Table C.67. Reevaluation Data Analysis Results for Class C Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Not Categorized- take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Not Categorized- take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Not Categorized- take no action	15

Table C.67. Reevaluation Data Analysis Results for Class C Use in C&O Canal

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Not Categorized- take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Not Categorized- take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Not Categorized- take no action	15
Total PCBs	4a	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria NA		No exceedances	Not Categorized- take no action	15

Table C.67. Reevaluation Data Analysis Results for Class C Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016-2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Not Categorized- take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria						Not Categorized- take no action	0
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria NA						Not Categorized- take no action	0
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria NA						NA	0

Table C.67. Reevaluation Data Analysis Results for Class C Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Indeno_1_2_3_cd_ pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class C WQ criteria NA						NA	0

Table C.68. Reevaluation Data Analysis Results for Class D Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	69	0	0	6	0	0	No exceedances	0.14	2.07-35.7	No exceedances	NA-not sampled	Not categorized - take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Mercury	Not Categorized	No	15	0	0	0	0	0	No exceedances	0.15	0.00113-1.33	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.68. Reevaluation Data Analysis Results for Class D Use in C&O Canal

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Zinc	Not Categorized	No	46	13	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	NA-not sampled	Not categorized - take no action	15
Chlordane	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	NA-not sampled	Not categorized - take no action	15
DDD	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	NA-not sampled	Not categorized - take no action	15
DDE	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	NA-not sampled	Not categorized - take no action	15
DDT	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	NA-not sampled	Not categorized - take no action	15
Dieldrin	Not Categorized	No	0	0	0	0	0	0	No exceedances	1.20E-06	100-3420	No exceedances	NA-not sampled	Not categorized - take no action	15
Heptachlor epoxide	Not Categorized	No	0	0	0	0	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	NA-not sampled	Not categorized - take no action	15
Total PCBs	4a	No	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	NA-not sampled	Move to Category 3	2
Acenaphthene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	90	0.000156-0.000789	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.68. Reevaluation Data Analysis Results for Class D Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Anthracene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	400	0.0000375-0.005	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluorene (PAH1)	Not Categorized	No	0	0	0	0	0	0	No exceedances	70	0.000286-0.00107	No exceedances	NA-not sampled	Not categorized - take no action	15
Naphthalene (PAH1)	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				NA-not sampled	Not categorized - take no action	0
Benzo_a_anthracene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	NA-not sampled	Not categorized - take no action	15
Chrysene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.13	0.1- .677	No exceedances	NA-not sampled	Not categorized - take no action	15
Fluoranthene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	20	0.00075-0.01	No exceedances	NA-not sampled	Not categorized - take no action	15
Pyrene (PAH2)	Not Categorized	No	0	0	0	0	0	0	No exceedances	30	0.0005-0.00667	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_a_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	100-1540	No exceedances	NA-not sampled	Not categorized - take no action	15
Benzo_b_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	NA-not sampled	Not categorized - take no action	15

Table C.68. Reevaluation Data Analysis Results for Class D Use in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_k_fluoranthene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.013	4- 7.38	No exceedances	NA- not sampled	Not categorized - take no action	15
Dibenzo_a_h_anthracene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.00013	115- 600	No exceedances	NA- not sampled	Not categorized - take no action	15
Indeno_1_2_3_cd_pyrene (PAH3)	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	NA- not sampled	Not categorized - take no action	15

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant.*

Table C.69. Reevaluation Data Analysis Results for Class C Use in Tidal Basin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	0	0	0	0	0	0	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	0	0	0	0	0	0	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	0	0	0	0	0	0	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	3	No	3	0	0	3	0	0	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Remove from Category 3	8
DDD	3	No	3	0	0	3	0	0	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Remove from Category 3	8
DDE	3	No	3	0	0	3	0	0	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Remove from Category 3	8

Table C.69. Reevaluation Data Analysis Results for Class C Use in Tidal Basin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	3	No	3	0	0	3	0	0	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Remove from Category 3	8
Dieldrin	3	No	3	0	0	3	0	0	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 3	8
Heptachlor epoxide	3	No	3	0	0	3	0	0	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Remove from Category 3	8
Total PCBs	4a	No	0	0	0	0	0	0	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	3	1	0	3	0	0	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria NA		No exceedances	Remove from Category 3	8
Benzo_a_anthracene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.69. Reevaluation Data Analysis Results for Class C Use in Tidal Basin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Chrysene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluoranthene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	3	0	0	3	0	0	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.70. Reevaluation Data Analysis Results for Class D Use in Tidal Basin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	48	0	0	3	0	0	No exceedances	0.14	2.07-35.7	No exceedances	No exceedances	Not categorized - take no action	15
Copper	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Lead	Not Categorized	No	0	0	0	0	0	0	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	10	1	1	0	0	0	8	0.15	0.00113-1.33	No	No exceedances	Not categorized - take no action	15
Zinc	Not Categorized	No	33	13	0	0	0	0	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Not categorized - take no action	15
Chlordane	3	No	3	0	0	3	0	0	No exceedances	0.00032	4.38-212.9	No exceedances	No exceedances	Remove from Category 3	8
DDD	3	No	3	0	0	3	0	0	No exceedances	0.00012	1.67-43.3	No exceedances	No exceedances	Remove from Category 3	8
DDE	3	No	3	0	0	3	0	0	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Remove from Category 3	8
DDT	3	No	3	0	0	3	0	0	No exceedances	3.00E-05	9.33-123	No exceedances	No exceedances	Remove from Category 3	8
Dieldrin	3	No	3	0	0	3	0	0	No exceedances	1.20E-06	100-3420	No exceedances	Exceedances in fish tissue	Remove from Category 3	8

Table C.70. Reevaluation Data Analysis Results for Class D Use in Tidal Basin

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Heptachlor epoxide	3	No	3	0	0	3	0	0	No exceedances	3.20E-05	4.06-153	No exceedances	No exceedances	Remove from Category 3	8
Total PCBs	4a	Yes	0	0	0	0	0	0	No exceedances	6.40E-05	NA	No exceedances	Exceedances in fish tissue	Move to Category 3	2
Acenaphthene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Remove from Category 3	8
Anthracene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Remove from Category 3	8
Fluorene (PAH1)	3	No	3	0	0	3	0	0	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Remove from Category 3	8
Naphthalene (PAH1)	3	No	3	1	0	3	0	0	N/A – no Class D WQ criteria				No exceedances	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	0.0013	10.8-63.1	No exceedances	No exceedances	Remove from Category 3	8
Chrysene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	0.13	0.1- .677	No exceedances	No exceedances	Remove from Category 3	8
Fluoranthene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Remove from Category 3	8
Pyrene (PAH2)	3	No	3	0	0	3	0	0	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Remove from Category 3	8
Benzo_a_pyrene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.00013	100-1540	No exceedances	No exceedances	Remove from Category 3	8

Table C.70. Reevaluation Data Analysis Results for Class D Use in Tidal Basin

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_b_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.0013	11.5-13.1	No exceedances	No exceedances	Remove from Category 3	8
Benzo_k_fluoranthene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.013	4- 7.38	No exceedances	No exceedances	Remove from Category 3	8
Dibenzo_a_h_anthracene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.00013	115- 600	No exceedances	No exceedances	Remove from Category 3	8
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	3	0	0	3	0	0	No exceedances	0.0013	14.6-70.8	No exceedances	No exceedances	Remove from Category 3	8

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant*.

Table C.71. Reevaluation Data Analysis Results for Class C Use in Washington Ship Channel

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Arsenic	Not Categorized	No	16	12	0	16	0	12	No exceedances	150	0.0019-0.00653	340	0.000853-0.00288	No exceedances	Not Categorized- take no action	15
Copper	Not Categorized	No	16	16	0	16	0	12	No exceedances	10.76	0.0161-0.127	16.5	0.0104-0.0833	No exceedances	Not Categorized- take no action	15
Lead	Not Categorized	No	16	8	0	16	0	12	No exceedances	waterbody-specific	0.00188-0.198	waterbody-specific	0.0000682-0.00672	No exceedances	Not Categorized- take no action	15
Mercury	Not Categorized	No	16	0	0	16	0	12	No exceedances	0.77	0.000221-0.26	1.4	0.000121-0.143	No exceedances	Not Categorized- take no action	15
Zinc	Not Categorized	No	16	16	0	16	0	12	No exceedances	waterbody-specific	0.00966-0.114	waterbody-specific	0.00973-0.115	No exceedances	Not Categorized- take no action	15
Chlordane	3	No	19	0	0	19	0	12	No exceedances	4.30E-03	0.326-16.3	2.4	0.000583-0.0292	No exceedances	Keep in in Category 3	9
DDD	3	No	19	0	0	19	0	12	No exceedances	1.00E-03	0.2- 5.2	1.1	0.000182-0.00473	No exceedances	Keep in in Category 3	9
DDE	3	No	19	0	0	19	0	12	No exceedances	1.00E-03	0.1- 6	1.1	0.0000909-0.00545	No exceedances	Keep in in Category 3	9

Table C.71. Reevaluation Data Analysis Results for Class C Use in Washington Ship Channel

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
DDT	3	No	19	0	0	19	0	12	No exceedances	1.00E-03	0.28-3.7	1.1	0.000255-0.00336	No exceedances	Keep in in Category 3	9
Dieldrin	3	No	19	0	0	19	0	12	No exceedances	5.60E-02	0.00214-0.0732	0.24	0.0005-0.0171	No exceedances	Remove from Category 3	10
Heptachlor epoxide	3	No	19	0	0	19	0	12	No exceedances	3.80E-03	0.0342-1.29	5.20E-02	0.00025-0.00942	No exceedances	Keep in in Category 3	9
Total PCBs	4a	No	16	16	0	16	0	12	No exceedances	1.40E-02	NA- all results detected	N/A – no Class C CMC WQ criteria		No exceedances	Move to Category 3	2
Acenaphthene (PAH1)	3	No	19	0	0	19	0	12	No exceedances	50	0.00028-0.00142	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Anthracene (PAH1)	3	No	19	1	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluorene (PAH1)	3	No	19	0	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Naphthalene (PAH1)	3	No	19	0	0	19	0	12	No exceedances	600	0.0000217-0.000667	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Benzo_a_anthracene (PAH2)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.71. Reevaluation Data Analysis Results for Class C Use in Washington Ship Channel

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990 - 2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011 - 2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Class C CCC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CCC	Class C CMC Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion for CMC	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Reevaluation Categorization Decision for Class C	Decision Logic Case #
Chrysene (PAH2)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Fluoranthene (PAH2)	3	No	19	4	0	19	0	12	No exceedances	400	0.0000375-0.0005	N/A – no Class C CMC WQ criteria		No exceedances	Remove from Category 3	10
Pyrene (PAH2)	3	No	19	3	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_a_pyrene (PAH3)	3	No	19	1	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_b_fluoranthene (PAH3)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Benzo_k_fluoranthene (PAH3)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Dibenzo_a_h_anthracene (PAH3)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	19	2	0	19	0	12	N/A – no Class C WQ criteria						Remove from Category 3	0

Table C.72. Reevaluation Data Analysis Results for Class D Use in Washington Ship Channel

Pollutant	Current Categorization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceedances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceedance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Arsenic	Not Categorized	No	55	17	17	19	16	12	0	0.14	2.07-35.7	Yes	No exceedances	Move to Category 5	14
Copper	Not Categorized	No	16	16	0	16	0	12	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Lead	Not Categorized	No	16	16	0	16	0	12	N/A – no Class D WQ criteria				No exceedances	Not categorized - take no action	0
Mercury	Not Categorized	No	29	0	0	16	0	12	No exceedances	0.15	0.00113-1.33	No exceedances	No exceedances	Not categorized - take no action	15
Zinc	Not Categorized	No	42	19	0	16	0	12	No exceedances	26000	0.0000846-0.000769	No exceedances	No exceedances	Not categorized - take no action	15
Chlordane	3	No	19	0	0	19	0	12	No exceedances	0.00032	4.38-212.9	No exceedances	No exceedances	Keep in Category 3	9
DDD	3	No	19	0	0	19	0	12	No exceedances	0.00012	1.67-43.3	No exceedances	No exceedances	Keep in Category 3	9
DDE	3	No	19	0	0	19	0	12	No exceedances	1.80E-05	5.56-333	No exceedances	No exceedances	Keep in Category 3	9
DDT	3	No	19	0	0	19	0	12	No exceedances	3.00E-05	9.33-123	No exceedances	No exceedances	Keep in Category 3	9
Dieldrin	3	No	19	0	0	19	0	12	No exceedances	1.20E-06	100-3420	No exceedances	Exceedances in fish tissue	Keep in Category 3	9

Table C.72. Reevaluation Data Analysis Results for Class D Use in Washington Ship Channel

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Heptachlor epoxide	3	No	19	0	0	19	0	12	No exceedances	3.20E-05	4.06-153	No exceedances	No exceedances	Keep in Category 3	9
Total PCBs	4a	Yes	16	16	16	16	16	12	0	6.40E-05	NA	Yes	Exceedances in fish tissue	Keep in Category 4a	1
Acenaphthene (PAH1)	3	No	19	0	0	19	0	12	No exceedances	90	0.000156-0.000789	No exceedances	No exceedances	Remove from Category 3	10
Anthracene (PAH1)	3	No	19	1	0	19	0	12	No exceedances	400	0.0000375-0.005	No exceedances	No exceedances	Remove from Category 3	10
Fluorene (PAH1)	3	No	19	0	0	19	0	12	No exceedances	70	0.000286-0.00107	No exceedances	No exceedances	Remove from Category 3	10
Naphthalene (PAH1)	3	No	19	0	0	19	0	12	N/A – no Class D WQ criteria				No exceedances	Remove from Category 3	0
Benzo_a_anthracene (PAH2)	3	No	19	2	2	19	2	12	4	0.0013	10.8-63.1	Yes	No exceedances	Move to Category 5	7
Chrysene (PAH2)	3	No	19	2	1	19	1	12	4	0.13	0.1-.677	Yes	No exceedances	Remove from Category 3	13
Fluoranthene (PAH2)	3	No	19	4	0	19	0	12	No exceedances	20	0.00075-0.01	No exceedances	No exceedances	Remove from Category 3	10
Pyrene (PAH2)	3	No	19	3	0	19	0	12	No exceedances	30	0.0005-0.00667	No exceedances	No exceedances	Remove from Category 3	10
Benzo_a_pyrene (PAH3)	3	No	19	1	1	19	1	12	4	0.00013	100-1540	Yes	No exceedances	Keep in Category 3	12

Table C.72. Reevaluation Data Analysis Results for Class D Use in Washington Ship Channel

Pollutant	Current Categor-ization in 2020 IR	Was Use Class Impaired in 2020 IR?	# Samples 1990-2021	# Detects 1990-2021	# Exceed-ances 1990-2021	# of Samples Within Last 10 Years (2011-2021)	# of Exceedances Within Last 10 Years (2011 - 2021)	# of Samples Within Last 5 Years (2016 - 2021)	# Samples Since Last Exceed-ance	Criterion (ug/L)	Range of Ratios Between Detection Limit and Criterion	Was Last Exceedance Within Current 5-year Assessment Period (2016 - 2021)?	Fish Tissue Results	Reevaluation Categorization Decision for Class D	Decision Logic Case #
Benzo_b_fluoranthene (PAH3)	3	No	19	2	2	19	2	12	4	0.0013	11.5-13.1	Yes	No exceedances	Move to Category 5	7
Benzo_k_fluoranthene (PAH3)	3	No	19	2	2	19	2	12	4	0.013	4- 7.38	Yes	No exceedances	Move to Category 5	7
Dibenzo_a_h_anthracene (PAH3)	3	No	19	2	2	19	2	12	4	0.00013	115- 600	Yes	No exceedances	Move to Category 5	7
Indeno_1_2_3_cd_pyrene (PAH3)	3	No	19	2	2	19	2	12	4	0.0013	14.6-70.8	Yes	No exceedances	Move to Category 5	7

[1]Fish tissue results are shown for reference purposes only. Fish tissue results are evaluated separately from the toxics reevaluation results presented in these tables. Results of the toxics reevaluation and the fish tissue analysis are combined and reconciled in Appendix 3.1 of the IR, *Use Support and Cause by Pollutant*.

Appendix C
Reevaluation of Findings for Class C and Class D Uses for District Waterbodies Based on Toxic Data

Anacostia and Tributaries

Table D.1. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Anacostia (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	4a	D	Move to Category 3	6	Remove from Category 4a	0	Move to Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
DDE	4a	D	Keep in Category 4a	5	Keep in Category 4a	5	Keep in Category 4a
DDT	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Keep in Category 4a	5	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Move to Category 3	6	Move to Category 3
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.1. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Anacostia (Segment 02)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.2. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Anacostia (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Chlordane	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
DDD	4a	D	Keep in Category 4a	5	Keep in Category 4a	1	Keep in Category 4a
DDE	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDT	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.2. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Anacostia (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.3. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Chaplin

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action

Table D.3. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Chaplin

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.4. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Davis							
Pollutant	**Current Categor-ization in 2020 IR**	**Impaired Use Class in 2020 IR**	**Reevaluation Categorization Decision for Class C**		**Reevaluation Categorization Decision for Class D**		**Categorization Decision for 2022 IR Appendix 3.4**
			Decision	**Case #**	**Decision**	**Case #**	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action

Table D.4. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Davis							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.5. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Dupont							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.5. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Dupont							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.6. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Stanton

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
DDE	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a

Table D.6. Reconciliation of Categorization in Appendix 3.4 of IR in Fort Stanton							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.7. Reconciliation of Categorization in Appendix 3.4 of IR in Hickey Run

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	10	Keep in Category 3	11	Keep in Category 3
Copper	3	D	Remove from Category 3	13	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	3	D	Remove from Category 3	10	Keep in Category 3	9	Keep in Category 3
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.7. Reconciliation of Categorization in Appendix 3.4 of IR in Hickey Run							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.8. Reconciliation of Categorization in Appendix 3.4 of IR in Kingman Lake							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	13	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
DDD	3	D	Keep in Category 3	9	Move to Category 5	7	Move to Category 5
DDE	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDT	3	D	Move to Category 5	7	Move to Category 5	7	Move to Category 5
Dieldrin	3	D	Remove from Category 3	10	Move to Category 5	7	Move to Category 5
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	12	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Move to Category 3	6	Move to Category 3
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.8. Reconciliation of Categorization in Appendix 3.4 of IR in Kingman Lake

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a

Table D.9. Reconciliation of Categorization in Appendix 3.4 of IR in Nash Run							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	5	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Move to Category 3	6	Move to Category 3
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	1	Keep in Category 4a

Table D.9. Reconciliation of Categorization in Appendix 3.4 of IR in Nash Run							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a

Table D.10. Reconciliation of Categorization in Appendix 3.4 of IR in Pope Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	10	Keep in Category 3	11	Keep in Category 3
Copper	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Keep in Category 4a	5	Keep in Category 4a	5	Keep in Category 4a
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	4a	D	Move to Category 3	2	Keep in Category 4a	5	Keep in Category 4a
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	3	D	Remove from Category 3	10	Move to Category 5	7	Move to Category 5
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.10. Reconciliation of Categorization in Appendix 3.4 of IR in Pope Branch

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a

Table D.11. Reconciliation of Categorization in Appendix 3.4 of IR in Texas Avenue Tributary

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	4a	D	Keep in Category 4a	5	Keep in Category 4a	5	Keep in Category 4a
DDD	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
DDE	4a	D	Keep in Category 4a	5	Keep in Category 4a	1	Keep in Category 4a
DDT	4a	D	Keep in Category 4a	5	Keep in Category 4a	5	Keep in Category 4a
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Anthracene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Fluorene (PAH1)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Naphthalene (PAH1)	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Benzo_a_anthracene (PAH2)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Chrysene (PAH2)	4a	D	Remove from Category 4a	0	Move to Category 3	6	Move to Category 3
Fluoranthene (PAH2)	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Pyrene (PAH2)	4a	D	Remove from Category 4a	0	Remove from Category 4a	3	Remove from Category 4a
Benzo_a_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.11. Reconciliation of Categorization in Appendix 3.4 of IR in Texas Avenue Tributary							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Benzo_k_fluoranthene (PAH3)	4a	D	Remove from Category 4a	0	Keep in Category 4a	5	Keep in Category 4a
Dibenzo_a_h_anthracene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	4a	D	Remove from Category 4a	0	Move to Category 3	2	Move to Category 3

Table D.12. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Watts Branch (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	16	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Keep in Category 3	12	Keep in Category 3	12	Keep in Category 3
DDE	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	12	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.12. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Watts Branch (Segment 02)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.13. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Watts Branch (Segment 01)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.13. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Watts Branch (Segment 01)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Potomac and Tributaries

Table D.14. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Potomac (Segment 03)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	16	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.14. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Potomac (Segment 03)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3

Table D.15. Reconciliation of Categorization in Appendix 3.4 of IR in Middle Potomac (Segment 02)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	16	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.15. Reconciliation of Categorization in Appendix 3.4 of IR in Middle Potomac (Segment 02)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3

Table D.16. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Potomac (Segment 01)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	16	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 3	18	Move to Category 3
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.16. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Potomac (Segment 01)

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.17. Reconciliation of Categorization in Appendix 3.4 of IR in Battery Kemble Creek							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action

Table D.17. Reconciliation of Categorization in Appendix 3.4 of IR in Battery Kemble Creek							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.18. Reconciliation of Categorization in Appendix 3.4 of IR in Dalecarlia Tributary							
Pollutant	**Current Categor-ization in 2020 IR**	**Impaired Use Class in 2020 IR**	**Reevaluation Categorization Decision for Class C**		**Reevaluation Categorization Decision for Class D**		**Categorization Decision for 2022 IR Appendix 3.4**
			Decision	**Case #**	**Decision**	**Case #**	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.18. Reconciliation of Categorization in Appendix 3.4 of IR in Dalecarlia Tributary

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.19. Reconciliation of Categorization in Appendix 3.4 of IR in Foundry Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action

Table D.19. Reconciliation of Categorization in Appendix 3.4 of IR in Foundry Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.20. Reconciliation of Categorization in Appendix 3.4 of IR in Oxon Run							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Total PCBs	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.20. Reconciliation of Categorization in Appendix 3.4 of IR in Oxon Run							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Rock Creek and Tributaries

Table D.21. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Rock Creek (Segment 02)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	4a	D	Move to Category 3	2	Remove from Category 4a	3	Move to Category 3
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Heptachlor epoxide	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Total PCBs	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.21. Reconciliation of Categorization in Appendix 3.4 of IR in Upper Rock Creek (Segment 02)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.22. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Rock Creek (Segment 01)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Lead	4a	D	Remove from Category 4a	3	Remove from Category 4a	0	Remove from Category 4a
Mercury	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Zinc	4a	D	Remove from Category 4a	3	Remove from Category 4a	3	Remove from Category 4a
Chlordane	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
DDD	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
DDE	Not categorized	Not categorized	Move to Category 5	14	Move to Category 5	14	Move to Category 5
DDT	Not categorized	Not categorized	Move to Category 3	18	Move to Category 3	18	Move to Category 3
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Total PCBs	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	16	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.22. Reconciliation of Categorization in Appendix 3.4 of IR in Lower Rock Creek (Segment 01)							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3

Table D.23. Reconciliation of Categorization in Appendix 3.4 of IR in Broad Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Move to Category 3	18	Move to Category 5	14	Move to Category 5
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Keep in Category 4a	5	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3

Table D.23. Reconciliation of Categorization in Appendix 3.4 of IR in Broad Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Move to Category 3	18	Move to Category 3

Table D.24. Reconciliation of Categorization in Appendix 3.4 of IR in Dumbarton Oaks							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	10	Move to Category 5	7	Move to Category 5
Copper	3	D	Remove from Category 3	13	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	16	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	16	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	3	D	Keep in Category 3	12	Keep in Category 3	12	Keep in Category 3
DDT	3	D	Move to Category 5	7	Move to Category 5	7	Move to Category 5
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Keep in Category 4a	1	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Keep in Category 4a	5	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.24. Reconciliation of Categorization in Appendix 3.4 of IR in Dumbarton Oaks							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.25. Reconciliation of Categorization in Appendix 3.4 of IR in Fenwick Branch

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.25. Reconciliation of Categorization in Appendix 3.4 of IR in Fenwick Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.26. Reconciliation of Categorization in Appendix 3.4 of IR in Klingle Valley

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.26. Reconciliation of Categorization in Appendix 3.4 of IR in Klingle Valley

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.27. Reconciliation of Categorization in Appendix 3.4 of IR in Luzon Branch

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.27. Reconciliation of Categorization in Appendix 3.4 of IR in Luzon Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.28. Reconciliation of Categorization in Appendix 3.4 of IR in Melvin Hazen Valley Branch

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	10	Move to Category 5	7	Move to Category 5
Copper	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Chlordane	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDD	3	D	Keep in Category 3	12	Keep in Category 3	12	Keep in Category 3
DDE	3	D	Keep in Category 3	12	Keep in Category 3	12	Keep in Category 3
DDT	3	D	Move to Category 5	7	Move to Category 5	7	Move to Category 5
Dieldrin	4a	D	Remove from Category 4a	3	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	3	D	Keep in Category 3	9	Move to Category 5	7	Move to Category 5
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.28. Reconciliation of Categorization in Appendix 3.4 of IR in Melvin Hazen Valley Branch

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	9	Keep in Category 3

Table D.29. Reconciliation of Categorization in Appendix 3.4 of IR in Normanstone Creek

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.29. Reconciliation of Categorization in Appendix 3.4 of IR in Normanstone Creek							
Pollutant	**Current Categor-ization in 2020 IR**	**Impaired Use Class in 2020 IR**	**Reevaluation Categorization Decision for Class C**		**Reevaluation Categorization Decision for Class D**		**Categorization Decision for 2022 IR Appendix 3.4**
			Decision	**Case #**	**Decision**	**Case #**	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.30. Reconciliation of Categorization in Appendix 3.4 of IR in Pinehurst Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.30. Reconciliation of Categorization in Appendix 3.4 of IR in Pinehurst Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.31. Reconciliation of Categorization in Appendix 3.4 of IR in Piney Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.31. Reconciliation of Categorization in Appendix 3.4 of IR in Piney Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.32. Reconciliation of Categorization in Appendix 3.4 of IR in Portal Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.32. Reconciliation of Categorization in Appendix 3.4 of IR in Portal Branch							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.33. Reconciliation of Categorization in Appendix 3.4 of IR in Soapstone Creek

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Copper	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Chlordane	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Heptachlor epoxide	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	4	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.33. Reconciliation of Categorization in Appendix 3.4 of IR in Soapstone Creek							
Pollutant	**Current Categor-ization in 2020 IR**	**Impaired Use Class in 2020 IR**	**Reevaluation Categorization Decision for Class C**		**Reevaluation Categorization Decision for Class D**		**Categorization Decision for 2022 IR Appendix 3.4**
			Decision	**Case #**	**Decision**	**Case #**	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Other Waterbodies

Table D.34. Reconciliation of Categorization in Appendix 3.4 of IR in C&O Canal

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDD	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDE	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
DDT	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Dieldrin	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Heptachlor epoxide	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Total PCBs	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Acenaphthene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Anthracene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluorene (PAH1)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Naphthalene (PAH1)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Benzo_a_anthracene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Chrysene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Fluoranthene (PAH2)	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Pyrene (PAH2)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.34. Reconciliation of Categorization in Appendix 3.4 of IR in C&O Canal							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_b_fluoranthene (PAH3	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Benzo_k_fluoranthene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Dibenzo_a_h_anthracene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action
Indeno_1_2_3_cd_pyrene (PAH3)	Not categorized	Not categorized	Not listed - take no action	0	Not listed - take no action	15	Not listed - take no action

Table D.35. Reconciliation of Categorization in Appendix 3.4 of IR in Tidal Basin							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDD	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDE	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
DDT	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Dieldrin	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Heptachlor epoxide	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Total PCBs	4a	D	Move to Category 3	2	Move to Category 3	2	Move to Category 3
Acenaphthene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	8	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	8	Remove from Category 3	8	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.35. Reconciliation of Categorization in Appendix 3.4 of IR in Tidal Basin							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Remove from Category 3	8	Remove from Category 3

Table D.36. Reconciliation of Categorization in Appendix 3.4 of IR in Washington Ship Channel							
Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Arsenic	Not categorized	Not categorized	Not listed - take no action	15	Move to Category 5	14	Move to Category 5
Copper	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Lead	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	0	Not listed - take no action
Mercury	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Zinc	Not categorized	Not categorized	Not listed - take no action	15	Not listed - take no action	15	Not listed - take no action
Chlordane	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDD	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDE	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
DDT	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Dieldrin	3	D	Remove from Category 3	10	Keep in Category 3	9	Keep in Category 3
Heptachlor epoxide	3	D	Keep in Category 3	9	Keep in Category 3	9	Keep in Category 3
Total PCBs	4a	D	Move to Category 3	2	Keep in Category 4a	1	Keep in Category 4a
Acenaphthene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Anthracene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Fluorene (PAH1)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Naphthalene (PAH1)	3	D	Remove from Category 3	10	Remove from Category 3	0	Remove from Category 3
Benzo_a_anthracene (PAH2)	3	D	Remove from Category 3	0	Move to Category 5	7	Move to Category 5
Chrysene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	13	Remove from Category 3
Fluoranthene (PAH2)	3	D	Remove from Category 3	10	Remove from Category 3	10	Remove from Category 3
Pyrene (PAH2)	3	D	Remove from Category 3	0	Remove from Category 3	10	Remove from Category 3
Benzo_a_pyrene (PAH3)	3	D	Remove from Category 3	0	Keep in Category 3	12	Keep in Category 3

Table D.36. Reconciliation of Categorization in Appendix 3.4 of IR in Washington Ship Channel

Pollutant	Current Categor-ization in 2020 IR	Impaired Use Class in 2020 IR	Reevaluation Categorization Decision for Class C		Reevaluation Categorization Decision for Class D		Categorization Decision for 2022 IR Appendix 3.4
			Decision	Case #	Decision	Case #	
Benzo_b_fluoranthene (PAH3	3	D	Remove from Category 3	0	Move to Category 5	7	Move to Category 5
Benzo_k_fluoranthene (PAH3)	3	D	Remove from Category 3	0	Move to Category 5	7	Move to Category 5
Dibenzo_a_h_anthracene (PAH3)	3	D	Remove from Category 3	0	Move to Category 5	7	Move to Category 5
Indeno_1_2_3_cd_pyrene (PAH3)	3	D	Remove from Category 3	0	Move to Category 5	7	Move to Category 5

Appendix 3.3 2017-2021 Statistical Summary Reports

Appendix 3.3 2017-2021 Statistical Summary Reports

Total Statistical Summary Report

Waterbody	Station Data Used	Temp % Violation	pH % Violation	DO % Violation	Turb % Violation	Class A *E. coli* % Violation*
DCAKL00L	KNG01, KNG02	0.00	0.00	12.35	50.62	40.00
DCANA00E SEG1	ANA19, ANA21, ANA24	0.00	1.11	5.00	8.94	23.81
DCANA00E SEG2	ANA01, ANA05, ANA08, ANA11, ANA14	0.00	1.61	17.36	25.24	34.15
DCPMS00E SEG1	PMS37, PMS44	0.00	0.00	0.00	9.88	12.50
DCPMS00E SEG2	PMS10, PMS21	1.04	4.17	0.00	16.23	13.95
DCPMS00E SEG3	PMS01	0.00	2.50	0.00	15.00	17.50
DCPTB01L	PTB01	0.00	12.50	0.00	2.44	20.51
DCPWC04E	PWC04	0.00	7.87	0.00	1.14	14.29
DCRCR00R SEG1	RCR09	0.00	1.22	0.00	14.63	71.26
DCRCR00R SEG2	RCR01	0.00	0.76	0.00	16.15	50.00
DCTBK01R	TBK01	0.00	3.70	0.00	0.00	24.00
DCTBR01R	TBR01	0.00	4.00	0.00	0.00	65.38
DCTCO01L	TCO01, TCO06	0.00	3.45	3.23	0.00	6.25
DCTDA01R	TDA01	0.00	0.00	0.00	0.00	80.77
DCTDO01R	TDO01	0.00	0.00	0.00	3.70	28.00
DCTDU01R	TDU01	0.00	0.00	4.17	33.33	50.00
DCTFB02R	TFB02	0.00	0.00	0.00	11.54	28.00
DCTFC01R	TFC01	0.00	0.00	0.00	23.08	65.38

Waterbody	Station Data Used	Temp % Violation	pH % Violation	DO % Violation	Turb % Violation	Class A *E. coli* % Violation*
DCTFD01R	TFD01	0.00	0.00	3.70	51.85	51.85
DCTFE01R	TFE01	0.00	0.00	0.00	0.00	23.08
DCTFS01R	TFS01	0.00	0.00	0.00	29.63	48.15
DCTHR01R	THR01	0.00	0.00	2.50	32.84	96.51
DCTKV01R	TKV01	0.00	0.00	0.00	3.85	19.23
DCTLU01	TLU01	0.00	0.00	0.00	11.11	80.77
DCTMH01R	TMH01	0.00	0.00	0.00	14.81	34.62
DCTNA01R	TNA01	0.00	0.00	0.00	22.22	69.23
DCTNS01R	TNS01	0.00	0.00	0.00	0.00	72.00
DCTOR01R	TOR01	0.00	0.00	3.85	19.23	61.54
DCTPB01R	TPB01	0.00	0.00	0.00	7.41	29.63
DCTPI01R	TPI01	0.00	0.00	0.00	0.00	36.36
DCTPO01R	TPO01	0.00	3.85	0.00	0.00	52.00
DCTPY01R	TPY01	0.00	0.00	0.00	0.00	41.67
DCTSO01R	TSO01	0.00	7.41	0.00	0.00	37.50
DCTTX27R	TTX27	0.00	0.00	3.85	30.77	53.85
DCTWB00R SEG1	TWB01	0.00	0.00	0.00	22.50	68.29
DCTWB00R SEG2	TWB05, TWB06	0.00	8.33	0.00	24.17	70.54

* Criteria – 410 MPN/mL single sample value

E. coli Statistical Summary Report (MPN/100mL)

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.*
DCAKL00L	KNG01, KNG02	17.00	4840.00	728.39	1003.64	189.00	40.00
DCANA00E SEG1	ANA21	16.00	3106.00	382.15	574.61	210.30	23.81

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.*
DCANA00E SEG2	ANA01, ANA08, ANA14	14.00	2420.00	481.67	632.00	219.60	34.15
DCPMS00E SEG1	PMS37, PMS44	1.00	1842.00	160.36	332.56	25.00	12.50
DCPMS00E SEG2	PMS10, PMS21	1.00	1120.00	138.49	235.02	36.16	13.95
DCPMS00E SEG3	PMS01	1.00	4840.00	333.88	870.15	26.50	17.50
DCPTB01L	PTB01	3.00	1120.00	205.92	304.23	59.00	20.51
DCPWC04E	PWC04	1.00	2420.00	233.92	431.26	102.00	14.29
DCRCR00R SEG1	RCR09	78.00	30931.45	2678.66	4587.68	1026.65	71.26
DCRCR00R SEG2	RCR01	62.00	2420.00	626.64	640.82	403.43	50.00
DCTBK01R	TBK01	30.00	2420.00	362.00	540.22	138.00	24.00
DCTBR01R	TBR01	28.00	2420.00	1042.35	885.66	797.00	65.38
DCTCO01L	TCO01, TCO06	1.00	2420.00	198.23	488.28	49.00	6.25
DCTDA01R	TDA01	38.00	2420.00	1267.27	917.80	949.50	80.77
DCTDO01R	TDO01	7.00	1300.00	297.92	333.98	172.00	28.00
DCTDU01R	TDU01	1.00	4839.00	868.00	1172.49	384.00	50.00
DCTFB02R	TFB02	4.00	2420.00	528.16	828.47	89.00	28.00
DCTFC01R	TFC01	15.00	2420.00	1245.62	1018.71	1251.50	65.38
DCTFD01R	TFD01	1.00	4839.00	913.89	1137.59	649.00	51.85
DCTFE01R	TFE01	30.00	1733.00	341.15	406.10	200.00	23.08
DCTFS01R	TFS01	1.00	24200.00	2403.37	6332.74	345.00	48.15
DCTHR01R	THR01	158.00	128685.66	9052.73	17566.25	2420.00	96.51
DCTKV01R	TKV01	8.00	2420.00	326.85	583.12	60.00	19.23
DCTLU01R	TLU01	150.00	2420.00	1577.35	917.99	1733.00	80.77
DCTMH01R	TMH01	18.00	2420.00	697.96	977.28	129.00	34.62
DCTNA01R	TNA01	75.00	2420.00	1092.73	973.42	596.00	69.23
DCTNS01R	TNS01	13.00	2420.00	1183.84	935.30	866.00	72.00
DCTOR01R	TOR01	77.00	2420.00	1121.35	1014.53	605.00	61.54
DCTPB01R	TPB01	10.00	2420.00	576.41	861.98	115.00	29.63
DCTPI01R	TPI01	82.00	2420.00	528.95	607.60	242.00	36.36
DCTPO01R	TPO01	34.00	2420.00	774.36	903.32	502.00	52.00
DCTPY01R	TPY01	34.00	2420.00	618.58	792.02	261.00	41.67

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.*
DCTSO01R	TSO01	14.00	2420.00	588.96	732.64	269.50	37.50
DCTTX27R	TTX27	9.00	24200.00	1753.58	4661.47	617.50	53.85
DCTWB00R SEG1	TWB01	42.00	24196.00	1800.24	3748.32	707.00	68.29
DCTWB00R SEG2	TWB05, TWB06	1.00	24200.00	2376.15	3901.50	980.00	70.54

* Criteria – 410 MPN/mL single sample value

Dissolved Oxygen Statistical Summary Report (mg/L)

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCAKL00L	KNG01, KNG02	2.40	13.63	7.35	3.20	7.49	12.35
DCANA00E SEG1	ANA19, ANA21, ANA24	1.30	14.63	7.68	2.91	7.29	5.00
DCANA00E SEG2	ANA01, ANA05, ANA08, ANA11, ANA14	1.43	13.84	6.92	3.21	6.57	17.36
DCPMS00E SEG1	PMS37, PMS44	6.40	14.42	10.43	2.38	10.80	0.00
DCPMS00E SEG2	PMS10, PMS21	5.87	15.68	9.89	2.19	9.16	0.00
DCPMS00E SEG3	PMS01	7.64	15.28	11.24	2.45	11.07	0.00
DCPTB01L	PTB01	7.38	15.75	11.05	2.12	10.57	0.00
DCPWC04E	PWC04	4.70	15.06	9.47	2.15	9.36	0.00
DCRCR00R SEG1	RCR09	7.22	14.54	9.91	2.03	9.08	0.00
DCRCR00R SEG2	RCR01	5.60	14.50	9.14	2.20	8.11	0.00
DCTBK01R	TBK01	8.28	16.27	11.53	2.06	11.70	0.00
DCTBR01R	TBR01	7.40	16.41	11.77	2.79	11.54	0.00
DCTCO01L	TCO01, TCO06	4.20	17.88	8.56	2.99	7.81	3.23

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCTDA01R	TDA01	6.90	15.57	10.21	2.36	10.02	0.00
DCTDO01R	TDO01	7.62	13.20	10.46	1.78	10.71	0.00
DCTDU01R	TDU01	1.23	13.70	10.62	2.66	11.39	4.17
DCTFB02R	TFB02	7.34	14.80	11.11	2.43	10.40	0.00
DCTFC01R	TFC01	4.30	13.08	9.23	2.56	9.53	0.00
DCTFD01R	TFD01	1.80	12.51	8.65	2.77	8.71	3.70
DCTFE01R	TFE01	6.70	14.18	10.44	2.36	9.89	0.00
DCTFS01R	TFS01	7.60	12.83	10.55	1.84	10.70	0.00
DCTHR01R	THR01	4.00	16.22	8.80	2.73	8.57	2.50
DCTKV01R	TKV01	8.30	14.53	11.06	2.03	11.35	0.00
DCTLU01R	TLU01	8.00	13.92	10.51	1.92	10.56	0.00
DCTMH01R	TMH01	8.40	14.40	11.24	1.96	11.47	0.00
DCTNA01R	TNA01	6.20	14.75	10.44	2.03	10.54	0.00
DCTNS01R	TNS01	7.63	13.86	10.51	1.96	10.68	0.00
DCTOR01R	TOR01	4.50	15.15	10.66	2.61	11.01	3.85
DCTPB01R	TPB01	5.42	12.41	9.19	2.30	9.30	0.00
DCTPI01R	TPI01	7.70	16.43	11.87	2.79	11.95	0.00
DCTPO01R	TPO01	6.90	14.34	9.99	2.37	9.53	0.00
DCTPY01R	TPY01	7.14	14.99	10.89	2.47	10.96	0.00
DCTSO01R	TSO01	8.28	14.87	11.25	2.17	11.53	0.00
DCTTX27R	TTX27	0.69	12.79	9.67	2.60	10.07	3.85
DCTWB00R SEG1	TWB01	5.86	16.58	10.16	2.97	10.05	0.00

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCTWB00R SEG2	TWB05, TWB06	6.75	14.56	10.40	2.01	10.54	0.00

pH Statistical Summary Report

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCAKL00L	KNG01, KNG02	6.74	8.28	7.41	0.29	7.42	0.00
DCANA00E SEG1	ANA19, ANA21, ANA24	5.30	8.31	7.39	0.38	7.39	1.11
DCANA00E SEG2	ANA01, ANA05, ANA08, ANA11, ANA14	4.50	8.28	7.23	0.43	7.22	1.61
DCPMS00E SEG1	PMS37, PMS44	6.72	8.24	7.80	0.23	7.81	0.00
DCPMS00E SEG2	PMS10, PMS21	6.68	8.76	8.00	0.30	8.01	4.17
DCPMS00E SEG3	PMS01	7.48	8.74	7.97	0.26	7.98	2.50
DCPTB01L	PTB01	7.57	8.94	8.09	0.33	7.99	12.50
DCPWC04E	PWC04	6.10	12.30	7.95	0.73	7.88	7.87
DCRCR00R SEG1	RCR09	6.97	8.67	7.70	0.23	7.67	1.22
DCRCR00R SEG2	RCR01	7.05	12.20	7.62	0.45	7.57	0.76
DCTBK01R	TBK01	7.61	8.52	7.85	0.18	7.83	3.70
DCTBR01R	TBR01	7.50	8.51	7.93	0.29	7.87	4.00
DCTCO01L	TCO01, TCO06	7.07	8.65	7.86	0.29	7.89	3.45
DCTDA01R	TDA01	7.35	8.19	7.65	0.20	7.64	0.00
DCTDO01R	TDO01	7.38	7.97	7.64	0.18	7.63	0.00
DCTDU01R	TDU01	6.75	7.74	7.38	0.24	7.44	0.00
DCTFB02R	TFB02	7.24	8.27	7.71	0.27	7.69	0.00
DCTFC01R	TFC01	7.04	7.78	7.43	0.19	7.42	0.00
DCTFD01R	TFD01	6.52	7.67	7.13	0.30	7.20	0.00
DCTFE01R	TFE01	7.12	7.97	7.46	0.22	7.42	0.00

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCTFS01R	TFS01	6.85	8.21	7.48	0.28	7.37	0.00
DCTHR01R	THR01	6.70	7.87	7.57	0.22	7.60	0.00
DCTKV01R	TKV01	6.85	8.44	7.55	0.27	7.55	0.00
DCTLU01R	TLU01	7.16	8.44	7.63	0.24	7.61	0.00
DCTMH01R	TMH01	7.22	8.21	7.74	0.20	7.73	0.00
DCTNA01R	TNA01	7.14	8.36	7.65	0.28	7.71	0.00
DCTNS01R	TNS01	7.23	8.48	7.69	0.29	7.68	0.00
DCTOR01R	TOR01	7.15	8.45	7.63	0.33	7.55	0.00
DCTPB01R	TPB01	6.88	7.76	7.27	0.26	7.23	0.00
DCTPI01R	TPI01	7.36	8.28	7.83	0.26	7.83	0.00
DCTPO01R	TPO01	7.02	9.67	7.52	0.47	7.48	3.85
DCTPY01R	TPY01	6.98	8.24	7.46	0.28	7.46	0.00
DCTSO01R	TSO01	7.37	9.10	7.85	0.39	7.77	7.41
DCTTX27R	TTX27	6.94	7.86	7.35	0.25	7.31	0.00
DCTWB00R SEG1	TWB01	7.28	8.38	7.75	0.25	7.77	0.00
DCTWB00R SEG2	TWB05, TWB06	7.19	8.81	7.85	0.39	7.74	8.33

Temperature Statistical Summary Report (°C)

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCAKL00L	KNG01, KNG02	0.01	30.56	14.41	8.93	11.93	0.00
DCANA00E SEG1	ANA19, ANA21, ANA24	0.86	31.80	17.76	8.80	20.00	0.00
DCANA00E SEG2	ANA01, ANA05, ANA08, ANA11, ANA14	0.36	31.90	17.62	8.65	19.41	0.00
DCPMS00E SEG1	PMS37, PMS44	0.35	29.00	14.90	8.74	14.10	0.00
DCPMS00E SEG2	PMS10, PMS21	0.19	35.67	19.42	8.56	21.85	1.04
DCPMS00E SEG3	PMS01	0.15	29.00	14.11	8.99	13.27	0.00

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCPTB01L	PTB01	1.80	29.82	14.64	9.12	13.25	0.00
DCPWC04E	PWC04	1.34	31.70	19.33	8.72	22.10	0.00
DCRCR00R SEG1	RCR09	0.52	26.30	17.40	7.38	20.70	0.00
DCRCR00R SEG2	RCR01	0.50	26.60	16.83	7.72	20.10	0.00
DCTBK01R	TBK01	1.10	22.98	11.02	6.70	9.02	0.00
DCTBR01R	TBR01	3.80	23.65	12.88	6.35	13.01	0.00
DCTCO01L	TCO01, TCO06	5.72	31.77	21.29	7.90	24.80	0.00
DCTDA01R	TDA01	4.23	23.57	13.46	5.75	11.75	0.00
DCTDO01R	TDO01	3.64	23.97	13.44	5.77	12.01	0.00
DCTDU01R	TDU01	1.50	25.70	12.49	6.95	9.36	0.00
DCTFB02R	TFB02	3.45	22.94	12.29	6.22	10.91	0.00
DCTFC01R	TFC01	5.10	24.30	13.46	6.03	11.27	0.00
DCTFD01R	TFD01	0.74	23.40	12.16	6.68	10.46	0.00
DCTFE01R	TFE01	2.45	24.43	13.18	6.79	11.25	0.00
DCTFS01R	TFS01	2.49	23.50	12.30	6.58	10.12	0.00
DCTHR01R	THR01	0.02	25.30	14.92	6.57	14.66	0.00
DCTKV01R	TKV01	2.16	24.50	12.25	6.41	10.39	0.00
DCTLU01R	TLU01	4.36	23.79	13.85	5.12	13.16	0.00
DCTMH01R	TMH01	2.46	22.90	12.45	6.16	10.60	0.00
DCTNA01R	TNA01	6.54	26.16	14.95	6.02	13.93	0.00
DCTNS01R	TNS01	5.80	22.75	12.51	5.70	10.08	0.00
DCTOR01R	TOR01	4.38	25.90	12.23	6.93	9.68	0.00
DCTPB01R	TPB01	5.05	25.10	12.44	6.88	9.32	0.00
DCTPI01R	TPI01	4.82	23.10	12.18	6.18	9.28	0.00
DCTPO01R	TPO01	5.69	23.59	13.21	6.36	10.66	0.00
DCTPY01R	TPY01	3.72	23.70	12.11	6.78	9.10	0.00
DCTSO01R	TSO01	4.85	23.18	12.49	6.33	9.20	0.00
DCTTX27R	TTX27	5.40	21.80	12.00	5.56	10.39	0.00
DCTWB00R SEG1	TWB01	0.04	25.44	13.65	7.19	12.21	0.00
DCTWB00R SEG2	TWB05, TWB06	0.00	26.40	13.63	6.90	11.12	0.00

Turbidity Statistical Summary Report (NTU)

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCAKL00L	KNG01, KNG02	2.70	175.00	29.68	27.71	21.60	50.62
DCANA00E SEG1	ANA19, ANA21, ANA24	1.70	158.00	12.39	15.29	8.28	8.94
DCANA00E SEG2	ANA01, ANA05, ANA08, ANA11, ANA14	3.23	217.00	18.55	19.14	13.28	25.24
DCPMS00E SEG1	PMS37, PMS44	2.25	57.40	10.18	8.67	7.36	9.88
DCPMS00E SEG2	PMS10, PMS21	0.38	138.00	13.50	21.74	5.60	16.23
DCPMS00E SEG3	PMS01	0.20	145.00	14.81	28.00	5.65	15.00
DCPTB01L	PTB01	1.27	35.56	7.57	5.56	6.53	2.44
DCPWC04E	PWC04	0.20	21.20	4.63	3.57	3.42	1.14
DCRCR00R SEG1	RCR09	0.00	200.00	13.01	30.02	3.24	14.63
DCRCR00R SEG2	RCR01	0.00	295.60	15.12	32.28	4.83	16.15
DCTBK01R	TBK01	0.00	2.76	0.67	0.82	0.40	0.00
DCTBR01R	TBR01	0.00	3.18	0.59	0.78	0.44	0.00
DCTCO01L	TCO01, TCO06	0.71	16.23	5.79	3.67	4.84	0.00
DCTDA01R	TDA01	0.00	2.36	0.75	0.81	0.52	0.00
DCTDO01R	TDO01	0.00	32.16	2.56	6.05	1.05	3.70
DCTDU01R	TDU01	1.58	1232.00	108.80	300.42	7.23	33.33
DCTFB02R	TFB02	0.00	519.00	24.36	101.72	0.36	11.54
DCTFC01R	TFC01	1.90	121.40	20.20	29.48	7.09	23.08
DCTFD01R	TFD01	2.68	307.00	47.23	70.32	21.90	51.85
DCTFE01R	TFE01	0.00	2.93	0.60	0.68	0.40	0.00
DCTFS01R	TFS01	0.58	1885.00	130.27	417.27	6.12	29.63
DCTHR01R	THR01	1.10	110.00	20.70	22.92	10.90	32.84
DCTKV01R	TKV01	0.00	32.10	2.30	6.76	0.26	3.85
DCTLU01R	TLU01	0.00	267.08	16.71	54.18	0.66	11.11
DCTMH01R	TMH01	0.00	132.19	13.48	32.10	0.92	14.81
DCTNA01R	TNA01	0.16	48.21	11.19	14.72	4.98	22.22

Waterbody	Station Data Used	Min. Value	Max Value	Avg. Value	Std. Dev.	Median Value	% Violation of WQ Std.
DCTNS01R	TNS01	0.00	12.57	1.05	2.73	0.15	0.00
DCTOR01R	TOR01	0.00	95.70	10.87	21.03	2.50	19.23
DCTPB01R	TPB01	3.30	264.00	24.71	51.42	13.07	7.41
DCTPI01R	TPI01	0.00	5.80	0.55	1.30	0.05	0.00
DCTPO01R	TPO01	0.00	14.63	1.47	3.07	0.52	0.00
DCTPY01R	TPY01	0.00	8.87	1.31	2.38	0.31	0.00
DCTSO01R	TSO01	0.00	13.59	1.10	2.89	0.28	0.00
DCTTX27R	TTX27	3.39	134.80	20.92	25.67	12.86	30.77
DCTWB00R SEG1	TWB01	0.50	433.00	28.93	76.38	4.72	22.50
DCTWB00R SEG2	TWB05, TWB06	0.00	459.70	26.03	59.78	4.65	24.17

Appendix 3.4 District of Columbia 303(d) List

Categorization of District of Columbia Waters

Category 1- All designated uses are supported, no use is threatened.

No DC waters fit this category.

Category 2- Available data and/or information indicate that some, but not all, designated uses are supported.

No DC waters fit this category.

Category 3- There is insufficient available data and/or information to make a use support determination.

Category 4- Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed.

See subcategories below:

Category 4A- TMDLs needed to result in a designated use attainment have been approved or established by EPA.

Category 4B- TMDL not required. Other pollution control requirements (such as permits, strategies) are expected to address waterbody/pollutant combinations and result in attainment of the water quality standards in a reasonable period of time.

Category 4C- Impaired or threatened waters for one or more designated uses. TMDL is not required as impairment is not caused by a pollutant.

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

Geographic Location: 02070010- Potomac watershed   02070008- Middle Potomac-Catoctin watershed

DISTRICT OF COLUMBIA

LIST OF IMPAIRED WATERBODIES

Category 3 - There is insufficient available data and/or information to make a use support determination

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutants for which there is insufficient information to make use determination
2022	02070010	DCTBK01R	Battery Kemble Creek	C	Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTCO01L	Chesapeake and Ohio Canal	C	Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070008	DCTDA01R	Dalecarlia Tributary	C	Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTFE01R	Fenwick Branch	C	DDT Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment

Category 3 - There is insufficient available data and/or information to make a use support determination

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutants for which there is insufficient information to make use determination
					Benthic macroinvertebrate assessment
2022	02070010	DCTKV01R	Klingle Valley Creek	C	Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTNS01R	Normanstone Creek	C	Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTPI01R	Pinehurst Branch	C	Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTPY01R	Piney Branch	C	Chlordane Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment

Category 3 - There is insufficient available data and/or information to make a use support determination					
Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutants for which there is insufficient information to make use determination
					Benthic macroinvertebrate assessment
2022	02070010	DCTPO01R	Portal Branch	C	Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCTSO01R	Soapstone Creek	C	Chlordane Dieldrin Heptachlor epoxide Total PCBs Physical habitat assessment Benthic macroinvertebrate assessment
2022	02070010	DCRCR00R	Upper Rock Creek	D	Chlordane Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTCO01L	Chesapeake and Ohio Canal	D	Total PCBs

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
2022	02070010	DCANA00E	Upper Anacostia River- segment 2	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCANA00E	Upper Anacostia River- segment 2	B	Trash Turbidity	Trash TSS
2022	02070010	DCANA00E	Upper Anacostia River- segment 2	C	DDD DDE DDT Heptachlor epoxide Total PCBs TSS Phosphorus (Total) Nitrogen (Total) Chlorophyll-a DO BOD Turbidity Oil & Grease	DDD DDE DDT Heptachlor epoxide Total PCBs TSS Phosphorus (Total) Nitrogen (Total) Oil & Grease BOD
2022	02070010	DCANA00E	Upper Anacostia River- segment 2	D	Arsenic DDD DDE DDT Dieldrin Heptachlor Epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3)	Arsenic DDD DDE DDT Dieldrin Heptachlor Epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3)

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs Total PCBs (fish tissue)	Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs
2022	02070010	DCANA00E	Lower Anacostia River- segment 1	A	*E. coli*	*E. coli*
2022	02070010	DCANA00E	Lower Anacostia River- segment 1	B	Trash	Trash
2022	02070010	DCANA00E	Lower Anacostia River- segment 1	C	DDD DDT TSS Phosphorus (Total) Nitrogen (Total) BOD Chlorophyll-a	DDD DDT TSS Phosphorus (Total) Nitrogen (Total) BOD
2022	02070010	DCANA00E	Lower Anacostia	D	Arsenic Chlordane DDD DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2)	Arsenic Chlordane DDD DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3)

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Chrysene (PAH2) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs Total PCBs (fish tissue)	Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Chrysene (PAH2) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs
2022	02070010	DCPMS00E	Lower Potomac River- segment 1	A	*E. coli*	*E. coli*
2022	02070010	DCPMS00E	Lower Potomac River- segment 1	C	TSS Phosphorus (Total) Nitrogen (Total) Chlorophyll-a	TSS Phosphorus (Total) Nitrogen (Total)
2022	02070010	DCPMS00E	Lower Potomac River- segment 1	D	Total PCBs Total PCBs (fish tissue)	Total PCBs
2022	02070010	DCPMS00E	Middle Potomac River- segment 2	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCPMS00E	Middle Potomac River- segment 2	B	Turbidity	TSS

Category 4a - TMDL has been approved to address identified impairment causes

Assess ment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
2022	02070010	DCPMS00E	Middle Potomac River- segment 2	C	TSS Phosphorus (Total) Nitrogen (Total) Turbidity Chlorophyll-a	TSS Phosphorus (Total) Nitrogen (Total)
2022	02070010	DCPMS00E	Middle Potomac River- segment 2	D	Total PCBs Total PCBs (fish tissue)	Total PCBs
2022	02070010	DCPMS00E	Upper Potomac River- segment 3	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCPMS00E	Upper Potomac River- segment 3	B	Turbidity	TSS
2022	02070010	DCPMS00E	Upper Potomac River- segment 3	C	TSS Phosphorus (Total) Nitrogen (Total) Turbidity Chlorophyll-a	TSS Phosphorus (Total) Nitrogen (Total)
2022	02070010	DCPMS00E	Upper Potomac River- segment 3	D	Total PCBs Total PCBs (fish tissue)	Total PCBs
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	A	*E. coli*	*E. coli*
2022	02070010	DCRCR00R	Upper Rock Creek- segment 2	A	*E. coli*	*E. coli*
2022	02070010	DCTBK01R	Battery Kemble Creek	A	*E. coli*	*E. coli*
2022	02070010	DCTBR01R	Broad Branch	C	Heptachlor Epoxide	Heptachlor Epoxide
2022	02070010	DCTBR01R	Broad Branch	D	Dieldrin	Dieldrin Heptachlor Epoxide

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Heptachlor Epoxide Total PCBs	Total PCBs
2022	02070008	DCTDA01R	Dalecarlia Tributary	A	*E. coli*	*E. coli*
2022	02070008	DCTDA01R	Dalecarlia Tributary	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTDO01R	Dumbarton Oaks	C	Chlordane Heptachlor Epoxide	Chlordane Heptachlor Epoxide
2022	02070010	DCTDO01R	Dumbarton Oaks	D	Chlordane Dieldrin Heptachlor Epoxide Total PCBs	Chlordane Dieldrin Heptachlor Epoxide Total PCBs
2022	02070010	DCTFE01R	Fenwick Branch	D	DDT Dieldrin Heptachlor epoxide Total PCBs	DDT Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTFC01R	Fort Chaplin	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTFC01R	Fort Chaplin	B	Turbidity	TSS
2022	02070010	DCTFC01R	Fort Chaplin	C	Turbidity	TSS
2022	02070010	DCTFC01R	Fort Chaplin	D	Arsenic	Arsenic
2022	02070010	DCTFD01R	Fort Davis	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTFD01R	Fort Davis	B	Turbidity	TSS
2022	02070010	DCTFD01R	Fort Davis	C	Turbidity	TSS
2022	02070010	DCTFD01R	Fort Davis	D	Arsenic	Arsenic
2022	02070010	DCTDU01R	Fort Dupont	A	*E. coli*	*E. coli*

Category 4a - TMDL has been approved to address identified impairment causes

Assess ment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Turbidity	TSS
2022	02070010	DCTDU01R	Fort Dupont	B	Turbidity	TSS
2022	02070010	DCTDU01R	Fort Dupont	C	Turbidity	TSS
2022	02070010	DCTDU01R	Fort Dupont	D	Arsenic Total PCBs	Arsenic Total PCBs
2022	02070010	DCTFS01R	Fort Stanton	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTFS01R	Fort Stanton	B	Turbidity	TSS
2022	02070010	DCTFS01R	Fort Stanton	C	Turbidity	TSS
2022	02070010	DCTFS01R	Fort Stanton	D	Arsenic Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Total PCBs	Arsenic Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Total PCBs
2022	02070010	DCTFB02R	Foundry Branch	A	*E. coli*	*E. coli*
2022	02070010	DCTHR01R	Hickey Run	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTHR01R	Hickey Run	B	Turbidity	TSS
2022	02070010	DCTHR01R	Hickey Run	C	Turbidity	TSS
2022	02070010	DCTHR01R	Hickey Run	D	DDE Benzo_a_anthracene (PAH2) Total PCBs	DDE Benzo_a_anthracene (PAH2) Total PCBs
2022	02070010	DCAKL00L	Kingman Lake	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCAKL00L	Kingman Lake	B	Turbidity	TSS
2022	02070010	DCAKL00L	Kingman Lake	C	DO BOD Oil & Grease DDT	Oil & Grease DDT TSS Phosphorus (Total)

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Turbidity Phosphorus (Total) Nitrogen (Total) TSS	Nitrogen (Total) BOD
2022	02070010	DCAKL00L	Kingman Lake	D	Arsenic DDD DDT Dieldrin Chlordane Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs Total PCBs (fish tissue)	Arsenic DDD DDT Dieldrin Chlordane Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
2022	02070010	DCTKV01R	Klingle Valley Creek	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTLU01	Luzon Branch	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTMH01R	Melvin Hazen Valley Branch	D	Dieldrin Total PCBs	Dieldrin Total PCBs
2022	02070010	DCTNA01R	Nash Run	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTNA01R	Nash Run	B	Turbidity	TSS
2022	02070010	DCTNA01R	Nash Run	C	Turbidity	TSS
2022	02070010	DCTNA01R	Nash Run	D	Arsenic Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3)	Arsenic Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_a_pyrene (PAH3) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	
2022	02070010	DCTNS01R	Normanstone Creek	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTOR01R	Oxon Run	A	*E. coli*	*E. coli*
2022	02070010	DCTOR01R	Oxon Run	D	Dieldrin	Dieldrin
2022	02070010	DCTPI01R	Pinehurst Branch	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTPY01R	Piney Branch	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTPB01R	Pope Branch (Hawes Run)	A	*E. coli*	*E. coli*
2022	02070010	DCTPB01R	Pope Branch (Hawes Run)	C	Chlordane	Chlordane
2022	02070010	DCTPB01R	Pope Branch (Hawes Run)	D	Chlordane DDE Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3)	Chlordane DDE Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3)

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Dibenzo_a_h_anthracene (PAH3) Indeno_1_2_3_cd_pyrene (PAH3) Total PCBs	Total PCBs
2022	02070010	DCTPO01R	Portal Branch	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTSO01R	Soapstone Creek	D	Dieldrin Heptachlor epoxide Total PCBs	Dieldrin Heptachlor epoxide Total PCBs
2022	02070010	DCTTX27R	Texas Avenue Tributary	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTTX27R	Texas Avenue Tributary	B	Turbidity	TSS
2022	02070010	DCTTX27R	Texas Avenue Tributary	C	Turbidity DDD	TSS DDD
2022	02070010	DCTTX27R	Texas Avenue Tributary	D	Arsenic Chlordane DDD DDE DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2)	Arsenic Chlordane DDD DDE DDT Dieldrin Heptachlor epoxide Benzo_a_anthracene (PAH2) Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3)

Category 4a - TMDL has been approved to address identified impairment causes

Assessment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
					Benzo_b_fluroanthene (PAH3) Benzo_k_fluroanthene (PAH3) Total PCBs	Total PCBs
2022	02070010	DCPTB01L	Tidal Basin	A	*E. coli* pH	*E. coli* Phosphorus (Total) Nitrogen (Total)
2022	02070010	DCPTB01L	Tidal Basin	B	pH	Phosphorus (Total) Nitrogen (Total)
2022	02070010	DCPTB01L	Tidal Basin	C	Phosphorus (Total) Nitrogen (Total) TSS pH	Phosphorus (Total) Nitrogen (Total) TSS
2022	02070010	DCPTB01L	Tidal Basin	D	Total PCBs (fish tissue)	
2022	02070010	DCPWC04E	Washington Ship Channel	A	*E. coli*	*E. coli*
2022	02070010	DCPWC04E	Washington Ship Channel	C	Phosphorus (Total) Nitrogen (Total) TSS	Phosphorus (Total) Nitrogen (Total) TSS
2022	02070010	DCPWC04E	Washington Ship Channel	D	Total PCBs	Total PCBs
2022	02070010	DCTWB00R	Watts Branch DC (Upper) Seg 02	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTWB00R	Watts Branch DC (Upper) Seg 02	B	Turbidity	TSS

Category 4a - TMDL has been approved to address identified impairment causes						
Assess ment Year	Geo location	WB ID	WB Name	Use Class	Pollutant(s) or Indicator(s) Causing Impairment	Pollutants for which TMDLs have been developed to address impairment causes
2022	02070010	DCTWB00 R	Watts Branch DC (Upper) Seg 02	C	Turbidity	TSS
2022	02070010	DCTWB00 R	Watts Branch DC (Upper) Seg 02	D	Dieldrin Total PCBs	Dieldrin Total PCBs
2022	02070010	DCTWB00 R	Watts Branch DC (Lower) Seg 01	A	*E. coli* Turbidity	*E. coli* TSS
2022	02070010	DCTWB00 R	Watts Branch DC (Lower) Seg 01	B	Turbidity	TSS
2022	02070010	DCTWB00 R	Watts Branch DC (Lower) Seg 01	C	Turbidity	TSS
2022	02070010	DCTWB00 R	Watts Branch DC (Lower) Seg 01	D	Dieldrin Total PCBs	Dieldrin Total PCBs

Category 4C- Impaired or threatened waters for one or more designated uses. TMDL is not required as impairment is not caused by a pollutant

303d Assessment Year	Geographic Location	WBID	WB Name	Impairment Parameter
2022	02070010	DCRCR00R_02	Upper Rock Creek	Habitat assessment, benthic macroinvertebrate bioassessments
2022	02070010	DCTHR01R_00	Hickey Run	Habitat assessment, benthic macroinvertebrate bioassessments
2022	02070010	DCTLU01R_00	Luzon Branch	Habitat assessment, benthic macroinvertebrate bioassessments
2022	02070010	DCTNA01R_00	Nash Run	Habitat assessment, benthic macroinvertebrate bioassessments
2022	02070010	DCTPO01R_00	Portal Branch	Habitat assessment
2022	02070010	DCTPY01R_00	Piney Branch	Habitat assessment, benthic macroinvertebrate bioassessments
2022	02070010	DCTWB00R_02	Upper Watts Branch	Habitat assessment

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

303d Listing Year	Geographic Location	WBID[1]	WB Name	Pollutant(s) or Indicator(s) Causing Impairment	Pollutant for which TMDL Will Be Done	Priority Ranking for TMDL Development	Targeted for TMDL within 2 years	TMDL Establishment Date
2022	02070010	DCANA00E	Lower Anacostia River- segment 1	Dieldrin (fish tissue)	Dieldrin (fish tissue)	High		
2022	02070010	DCANA00E	Upper Anacostia River- segment 2	Dieldrin (fish tissue)	Dieldrin (fish tissue)	High		
2022	02070010	DCPMS00E	Lower Potomac River- segment 1	Arsenic	Arsenic	High		
2022	02070010	DCPMS00E	Lower Potomac River- segment 1	Dieldrin (fish tissue)	Dieldrin (fish tissue)	High		
2022	02070010	DCPMS00E	Middle Potomac River – segment 2	Arsenic	Arsenic	High		
2022	02070010	DCPMS00E	Middle Potomac River – segment 2	Dieldrin	Dieldrin	High		
2022	02070010	DCPMS00E	Middle Potomac River – segment 2	Dieldrin (fish tissue)	Dieldrin	High		
2022	02070010	DCPMS00E	Upper Potomac River – segment 3	Arsenic	Arsenic	High		
2022	02070010	DCPMS00E	Upper Potomac River – segment 3	Dieldrin (fish tissue)	Dieldrin	High		

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

303d Listing Year	Geographic Location	WBID[1]	WB Name	Pollutant(s) or Indicator(s) Causing Impairment	Pollutant for which TMDL Will Be Done	Priority Ranking for TMDL Developm ent	Targeted for TMDL within 2 years	TMDL Establishment Date
2014	02070010	DCRCR00R	Lower Rock Creek- segment 1	Turbidity	Total suspended solids (TSS)	Low		2022
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	Arsenic	Arsenic	High		
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	DDE	DDE	High		
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	Dieldrin	Dieldrin	High		
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	Heptachlor epoxide	Heptachlor epoxide	High		
2022	02070010	DCRCR00R	Lower Rock Creek- segment 1	Total PCBs	Total PCBs	High		
2018	02070010	DCRCR00R	Upper Rock Creek- segment 2	Turbidity	Total suspended solids (TSS)	Low		2024
2014	02070010	DCTBR01R	Broad Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2022	02070010	DCTBR01R	Broad Branch	Arsenic	Arsenic	High		
2022	02070010	DCTBR01R`	Broad Branch	DDT	DDT	High		
2014	02070010	DCTDO01R	Dumbarton Oaks	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2022	02070010	DCTDO01R	Dumbarton Oaks	Arsenic	Arsenic	High		

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

303d Listing Year	Geographic Location	WBID[1]	WB Name	Pollutant(s) or Indicator(s) Causing Impairment	Pollutant for which TMDL Will Be Done	Priority Ranking for TMDL Development	Targeted for TMDL within 2 years	TMDL Establishment Date
2022	02070010	DCTDO01R	Dumbarton Oaks	DDT	DDT	High		
2014	02070010	DCTFE01R	Fenwick Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2022	02070010	DCTFB02R	Foundry Branch	Turbidity	TSS	Low		
1998	02070010	DCTHR01R	Hickey Run	Total residual chlorine	Total residual chlorine	Low		
2022	02070010	DCAKL00L	Kingman Lake	Dieldrin (fish tissue)	Dieldrin	High		
2014	02070010	DCTKV01R	Klingle Valley	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2014	02070010	DCTLU01R	Luzon Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2022	02070010	DCTLU01R	Luzon Branch	Turbidity	Total suspended solids (TSS)	Low		2028
2014	02070010	DCTMH01R	Melvin Hazen Valley Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2018	02070010	DCTMH01R	Melvin Hazen Valley Branch	Turbidity	Total suspended solids (TSS)	Low		2026
2022	02070010	DCTMH01R	Melvin Hazen Valley Branch	Arsenic	Arsenic	High		
2022	02070010	DCTMH01R	Melvin Hazen Valley Branch	DDT	DDT	High		
2022	02070010	DCTMH01R	Melvin Hazen Valley Branch	Heptachlor epoxide	Heptachlor epoxide	High		
2014	02070010	DCTNS01R	Normanstone Creek	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2018	02070010	DCTOR01R	Oxon Run	Turbidity	Total suspended solids (TSS)	Low		2026

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

303d Listing Year	Geographic Location	WBID[1]	WB Name	Pollutant(s) or Indicator(s) Causing Impairment	Pollutant for which TMDL Will Be Done	Priority Ranking for TMDL Development	Targeted for TMDL within 2 years	TMDL Establishment Date
2014	02070010	DCTPI01R	Pinehurst Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2014	02070010	DCTPY01R	Piney Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2014	02070010	DCTPO01R	Portal Branch	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2014	02070010	DCTSO01R	Soapstone Creek	Escherichia coli (E. coli)	Escherichia coli (E. coli)	Medium		2022
2022	02070010	DCPTB01L	Tidal Basin	Dieldrin (fish tissue)	Dieldrin	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Arsenic	Arsenic	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Dieldrin (fish tissue)	Dieldrin	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Benzo_a_anthracene	Benzo_a_anthracene	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Benzo_b_fluoranthene	Benzo_b_fluoranthene	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Benzo_k_fluoranthene	Benzo_k_fluoranthene	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Dibenzo_a_h_anthracene	Dibenzo_a_h_anthracene	High		
2022	02070010	DCPWC04E	Washington Ship Channel	Indeno_1_2_3_cd_pyrene	Indeno_1_2_3_cd_pyrene	High		
2022	02070010	DCTWB00R	Lower Watts Branch – segment 1	Arsenic	Arsenic	High		

Category 5- Available data and/or information indicate that a designated use is not being supported or is threatened, and a TMDL is needed.

303d Listing Year	Geographic Location	WBID[1]	WB Name	Pollutant(s) or Indicator(s) Causing Impairment	Pollutant for which TMDL Will Be Done	Priority Ranking for TMDL Development	Targeted for TMDL within 2 years	TMDL Establishment Date
2022	02070010	DCTWB00R	Upper Watts Branch – segment 2	Arsenic	Arsenic	High		

Appendix 3.5 303(d) Program New Vision: Stakeholders Engagement Strategy and Prioritization Strategy

District Department of Energy and Environment (DOEE)

303(d) Program New Vision

Stakeholders Engagement Strategy (SES)

(2016-2022)

April 2016

DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

Summary

- A stakeholder is an individual or group with an interest in the District's Department of Energy & Environment's (DOEE's) broader environmental management mandate, stewardship, and services.

- DOEE has a large and diverse stakeholder group. DOEE therefore recognizes that it should engage with different stakeholders for different reasons and that it should enable diverse interests and individuals to contribute to DOEE policy making, including engaging in constructive dialogue in which all voices have an opportunity to contribute.

- This stakeholder engagement strategy outlines DOEE's approach to communicating and working with stakeholders for water resource related topics. It is an integral part of developing an understanding of its stakeholders. This helps DOEE shape regulations and future plans and priorities.

- Stakeholder engagement is a key part of DOEE's regulatory activities and an important contributor to DOEE's mandate and responsibility to the residents of the District of Columbia.

- DOEE also recognizes the level of interest and the degree of influence on the agency varies among its stakeholders. Because different issues have different stakeholders, DOEE engagement will vary as appropriate. As issues emerge, DOEE will develop new relationships to better manage change in service provided to District residents.

- DOEE will publish this draft *Engagement Strategy* to solicit feedback. Public comments will be incorporated into Section 6 of this draft strategy to ensure stakeholders' contributions are not just visible, but are also items for implementation and further action.

1. Introduction

As part of the implementation of the "*Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act (CWA) Section 303(d) Program,*" the District's Department of Energy & Environment (DOEE) is required to develop a strategy to "engage" stakeholders[1]. This "Stakeholder Engagement Strategy" outlines DOEE's engagement framework, consultation approaches, and includes metrics by which outcomes will be measured.

1.1 Background[2]

On December 5, 2013, the U.S. Environmental Protection Agency (EPA) announced a new collaborative framework for managing CWA 303(d) program responsibilities, entitled *"A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program[3]"* (Vision). This new Vision reflects the successful collaboration among states and the EPA, which began in August 2011. The vision enhances the overall efficiency of the CWA 303(d) program. For example, it encourages states to focus attention on priority waters. It also provides states with the flexibility to use available tools beyond Total Maximum Daily Loads (TMDLs) to effectively restore and protect water quality. There is no "one size fits all" approach to restoring and protecting water resources; flexibility allows each state, including the District of Columbia (the District), to more efficiently develop tailored strategies to implement their CWA 303(d) Program responsibilities within the context of its own water quality goals.

Accountability is ensured through new CWA 303(d) Program measures by which the success of implementation efforts is tracked. This ensures restoration and protection of the nation's streams, rivers and lakes is achieved. While the Vision provides a new framework for implementing the CWA 303(d) Program, it does not alter state and EPA responsibilities or authorities under the CWA 303(d) regulations.

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[1] Within the meaning of this strategy, a stakeholder is an individual or group with interest in DOEE, its mandate and its services as it implements the CWA 303(d) Program, including Sections 319 and 305. Stakeholder engagement is a key part of DOEE's regulatory activities and an important contributor to DOEE's objectives. See Appendix B for a list of categories of DOEE stakeholders. See Appendix C for a "Snapshot of the District of Columbia's community."

[2] http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/programvision.cfm

[3] A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (PDF)

2. Stakeholder Engagement Framework

2.1 Definition of Stakeholder Engagement

Stakeholder engagement is the process of involving people in the decisions that affect their lives. It lends transparency to the process and increases accountability. It illustrates the value of stakeholders and provides them with a sense of ownership and shared responsibilities for decision making. More importantly, stakeholder engagement helps build trust in the decisions DOEE makes consistent with its mandate.

Stakeholder engagement is a key part of DOEE's plan to deliver on the six goals of the Vision. DOEE will use collaboration, partnerships and innovative media initiatives to bring this plan to fruition.

2.2 The spectrum of stakeholder engagement[4]

The International Association of Public Participation (IAP2) is the gold standard framework for best management practices in planning public engagement in a decision making process. A standard approach in the IAP2 framework is that the level of engagement is determined from within the best practices spectrum. Informing is at one end of the spectrum; empowerment is at the other (Fig. 1).

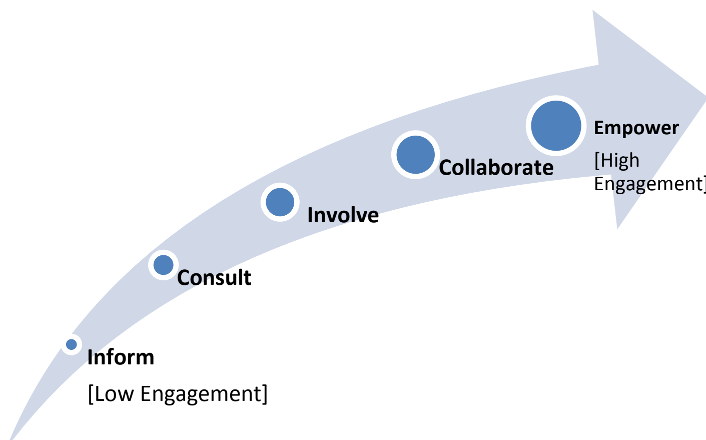

Figure 1: A diagrammatic representation of IAP2 Public Participation Spectrum.

The meaning of each level of participation in the spectrum is as follows:

- **Informing:** takes place when a decision has already been made or action is required, and the stakeholders are being informed to ensure that those affected are aware of the facts.
- **Consultation:** learning about stakeholders' views.
- **Involving:** a deepening of the consultation process, i.e., using stakeholders as advisors on an ongoing basis.
- **Collaboration:** working in partnership with the stakeholders to reach a decision.
- **Empowerment**: putting decision-making responsibility in the hands of the stakeholders.

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[4] https://www.iap2.org.au/documents/item/84

In all engagement processes, DOEE will lead in determining the level of stakeholder participation. See appendix A.

3. Principles of Stakeholder Engagement

The following principles guide DOEE's approach to stakeholder engagement:

1. **Transparency:** Engagement should be clear in scope and purpose.
2. **Consistent communication:** Engagement should promote dialogue and enable genuine discussion. It should be supported by timely and accurate information, providing a space to weigh options and develop a common understanding.
3. **Enhanced understanding of program objectives:** Ensuring stakeholders are well informed increases the probability decisions in a consistent manner, rooted in scientific understanding.
4. **Influence:** Engagement should be reflected in outcomes; stakeholders should be able to identify the impact of their involvement.
5. **Inclusiveness:** Engagement should be accessible and balanced; it should capture a full range of values and perspectives. Mechanisms and frameworks that support an accessible and inclusive engagement program include:

    - Stakeholder Advisory Panel;
    - District government inter-agency forums;
    - Regularly scheduled meetings with federal agencies;
    - A range of avenues for the public to provide feedback on new policies and projects;
    - Workshops with local schools and organizations;
    - A network of neighborhood service centers that provide information on current state of engagement;
    - Targeted outreach to the broad range of cultural groups in the District; and
    - Platforms to facilitate online engagement.

These principles are informed by the IAP2 core values[5] and reflect DOEE's values of quality, partnership, integrity, and respect.

DOEE will:

1. Ensure engagement is timely, accessible, and consistent;
2. Undertake engagement activities to overcome barriers to stakeholder participation and build their capacity play a role in the decision-making process.
3. Review and evaluate, with the stakeholders, the effectiveness of this engagement strategy.
4. Implement any statutory consultation required by the District or federal laws.

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[5] http://www.iap2.org/?page=A4

4. Strategy Goal and Objectives

4.1 Goal

To ensure that DOEE stakeholders have an opportunity to contribute to the full range of the *Section 303(d) Vision Program* goals[6] (engagement, prioritization, protection, integration, alternatives, and assessment, including evaluation of accomplishments) in a manner that meets their needs.

4.2 Objective

To ensure a stakeholder's opportunity to participate is meaningful and effective.

Specific engagement objectives include:

1. Providing opportunities for stakeholders to participate in DOEE's decision-making process to ensure outcomes that benefit District residents;
2. Building a strong foundation for understanding and working with stakeholders to promote confidence in DOEE's decision-making process;
3. Developing and sustaining partnerships and utilizing modern approaches to empower stakeholders to achieve the Section 303(d) Long-Term Vision goals.

5. Stakeholder Engagement Approaches

DOEE will offer a range of opportunities and activities for stakeholders to provide feedback to help inform and improve DOEE's environmental decision-making, policies and actions.

Specific engagement opportunities and activities include:

1. Stakeholder meetings: workshops, seminars, talks, conversations, community and/or local events, drop-in sessions, and roundtables.
2. Public exhibitions, etc.
3. Information sharing using traditional and new media, e.g., websites, social media, and public libraries).
4. Online consultation portal.
5. Stakeholder/community reference groups.
6. Advisory panels, non-governmental organizations (NGOs) fora, and outreach to volunteers and other interest groups.
7. High school/college outreach workshops.
8. Stakeholders/community satisfaction surveys.
9. Notifications/signage.
10. Neighborhood service centers and community centers.

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[6] http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf

6. This Strategy's Priorities[7]

DOEE's specific priorities to make sure that the new Vision's stakeholder engagement goal is realized in the District include the following:

1. Establishing a Stakeholder Advisory Panel (SAP).
2. Strengthening partnerships.
3. Holding community forums or open houses.
4. Providing support and services to stakeholders (e.g., gathering a task force to target a specific, ongoing issue).
5. Creating volunteer opportunities.
6. Giving public presentations.
7. Getting the word out.
8. Letting someone else open the door for us (DOEE).
9. Inviting the community to contact us (DOEE).
10. Performing stakeholder surveys to evaluate achievement and progress.
11. Developing a DOEE policy on stakeholder engagement.
12. Strengthening data collection, data quality, utilization and sharing.

7. Implementation

This strategy will be implemented by DOEE's Natural Resources Administration (NRA) Divisions: Water Quality Division (WQD), Stormwater Management Division (SWMD), and Watershed Protection Division (WPD). NRA will:

1. Coordinate the execution of this strategy's priorities (section 6 above) to ensure consistency and integration across programs and services offered by NRA in support of the Section 303d New Vision.
2. Deliver feedback to stakeholders on key outcomes of engagement through DOEE's existing communication protocols.
3. Ensure this strategy is integrated with the other goals of the Section 303(d) New Vision.
4. Review the strategy as necessary.

[7] See **Appendix D** for details on additional *Strategic Areas* under consideration.

Appendix A: Stakeholder Matrix on Engagement Processes

Engagement Level	Goal	Communication	What DOEE will do	Engagement Approach
INFORM	Inform or educate stakeholders.	One-way (DOEE to stakeholder – no invitation to reply).	DOEE will keep stakeholders informed.	Forums Periodic meetings Surveys Campaigns Digital media Social media Integrated Reports (IR) [issued every 2 years]
CONSULT	Gain information and feedback from stakeholders to inform decision made internally.	Limited two-way: DOEE will share documents, or ask questions and receive stakeholders' comments or answers.	DOEE will keep stakeholders informed, listen to their concerns, consider their insights and provide feedback on its decision.	Regulatory impact assessments Surveys One-to-one meetings Periodic meetings IR
INVOLVE	Work directly with stakeholders to ensure their concerns are fully understood and considered in decision-making.	Two-way or multi-way between DOEE and stakeholders. Learning on both sides, but each act separately.	DOEE will work with stakeholders to ensure their concerns are understood, to develop alternative proposals and provide feedback about how stakeholders' views influenced the decision-making.	Forums Periodic Meetings Surveys Campaigns Digital media Social media IR
COLLABORATE	Partner with or convene a network of stakeholders to develop mutually agreed solutions and joint plan of action.	Two-way or multi-way: Learning, negotiation and decision-making on both sides. Stakeholders work together to take action.	DOEE will look to stakeholders for direct advice and participation in finding and implementing solutions to shared challenges.	Projects; Memorandum of Understanding (MOU), IR; Memorandum of Agreement; Joint Funding Agreement; Grants; etc.
EMPOWER	Delegate decision-making on a particular issue to stakeholders.	Stakeholders have formal role in decision-making or decision-making is partly or wholly delegated to stakeholders.	DOEE will implement what stakeholders decide.	Partnerships IR

Appendix B: Categories of DOEE Stakeholders

Category	Sub-category
Employee	Senior Management Staff Consultants Staff Forum
Customer	Engineers Scientists Consultants District of Columbia Building Industry Association (DCBIA) District of Columbia Water and Sewer Authority (DC Water) Companies Public
Technical Services Providers	Vendors of materials/ services Agencies, companies, etc. Consultants/engineers
Government and Regulators	Federal government regulators (e.g., EPA) Surrounding local government departments (e.g., DC Water)
Political	Federal Government • United States Congress DC Government • Council of the District of Columbia (DC Council) • Executive Office of the Mayor (EOM)
Partners	Local Authorities (e.g., Prince George's County) Other Government Departments Awarding Organizations
Local District Wards and Communities	Community/Ward Representatives/Leader Community Job Training Centers (e.g., THEARC) Coordinators
Academic	Universities • University of District of Columbia (UDC) • University of Maryland (UM) Approved training providers (e.g., US Army Corps of Engineers)
Media	Print Broadcast Digital (Bloggers, etc.)
Industry and Trade Associations	DCBIA
Local Non-Governmental Organizations	Anacostia Riverkeeper Potomac Riverkeeper Anacostia Watershed Society (AWS) DC Environmental Network Anacostia Watershed Citizens Advisory Committee (AWACS)
National Non-Governmental Organizations (with Chapters in the District)	Earthjustice Natural Resources Defense Council (NRDC)
Non-Governmental Organizations (with Specific Regional Mandates)	Interstate Commission on Potomac River Basin (ICPRB) Metropolitan Washington Council of Governments (MWCOG)
Others	To be identified

Appendix C: A Snapshot of the District's Community[8,9]

Category	Description
National/ International Stakeholders Nexus	District of Columbia: • Has a total land area of 69 square miles. • Is the nation's (United States of America's) capital and is home to the three branches of US Federal Government (The Legislature (the House and the Senate; the Judiciary; and the Executive (under which are 16 Departments and approximately 121 agencies and quasi-agencies)). The federal footprint is approximately 30% of the total physical land area (21 square miles). The District also hosts 187 accredited foreign embassies. • Is home to over 658,000 residents and provides over 760,000 jobs. Including visitors and students, it is estimated that there are more than one (1) million people in the District during the day. • Is one of the fastest growing local government areas in Washington Metropolitan Area (WMA) in terms of residential population in the last 10 years. The July 2014 population estimate was 658,893 people. • It is also home to many national museums, creative and performing arts, and businesses. • Is the Headquarters of the United States Environmental Protection Agency (EPA). • The District bequeathed the "Daily Means Daily" mantra to the nation following the *U.S. Court of Appeals for the D.C. Circuit in Friends of the Earth, Inc. v. EPA, et al., No. 05-5015, (April 25 2006,)*).
Demographic Profile	• Median age of 33.8 years – some 2.5 years younger than the metropolitan area average. • Nearly half of city residents are aged between 18 and 44 years, compared to less than 37% in all of the United States (The 2010 Census). • 82 % of city residents live in family households with a partner and/or children or other relatives or non-relatives; over 17.7% of city residents live alone in one-person households. • 25% of city residents are currently attending an educational institution, including more than one (1) in 7 of those aged 15 and over undertaking a postsecondary course. • 55% of residents have a bachelor degree or higher and 24 % of the city resident workforce work is in a professional occupation.
Cultural Diversity	• 14% of city residents were born overseas. Residents born in Africa now comprise 2.5 % and Asia another 2.5 % of the population of the city, respectively. Currently, nearly 17 % of the city workforce was born overseas. • 18 % of the resident population speaks a language other than English. Apart from English, the most common languages spoken at home are Spanish, French, Chinese, Korean and Tagalog.
Residents, Workers and Transportation	• 66 % of residents who work do so at a location within the city. • 63 % of households in the city own a car, compared to 94% for the WMA. • The number of walk-to-work workers increased by 2.5 % and those bicycling has gone up by 2.3 % in the last 5 years.
Housing	• 42% of the city households own their dwellings (the 2010 Census).

[8] Most of the data and information were provided by DC Office of Planning (DCOP) on 06/12/15 (Courtesy: Dr. Joy Phillips).
[9] http://quickfacts.census.gov/qfd/states/11000.html

Appendix D: An Expanded "Low Hanging Fruit" Version of the Strategic Direction

1. Involving stakeholders in the planning process.
During the design and development of problem-solving projects, WQD, SWMD and WPD personnel will engage key stakeholders as follows: holding focus groups and meetings, convening steering committees, and conducting surveys, etc. In meetings, conversations and surveys, DOEE wants to focus on getting the stakeholders talking about what they see as local resources as well as local problems and suggested responses. The goal is to inform program design and build a base of long-term support – based on trust; shared responsibility for decisions or actions; come up with solutions; cost-saving; improved working relationships; and enhanced communication and coordination.

"Stakeholders need to be involved at each stage of the watershed planning process. Their knowledge of local social, economic, political, and ecological conditions provides the yardstick against which proposed solutions must be measured. Also, the goals, problems, and remediation strategies generated by stakeholders define what's desirable and achievable. Weaving stakeholder input, legal requirements, and resource protection strategies into an integrated tapestry for managing surface water and groundwater resources is what the watershed approach is all about."

http://www.epa.gov/owow/watershed/outreach/documents/stakeholderguide.pdf

Objective key measure(s):

a. DOEE developing its own version of "Outreach" Guidance and documents, or simply incorporate by reference all relevant EPA documents.
b. Number of outreach initiatives

2. Assembling stakeholder's advisory panel.
Adding stakeholders' voices is often useful. A "Stakeholder Advisory Board" can be an effective vehicle for adding stakeholders' voices. A "Stakeholder Advisory" board may comprise key members who meet regularly to discuss a variety of local problems and how they are being resolved. Representatives can include Riverkeepers, other environmentalists or their representatives and volunteers, thereby ensuring accountability to District citizens and residents. This added voice brings both diversity and outside perspective into the inside and helps keep DOEE grounded and focused on the stakeholders DOEE is serving.

Objective key measure(s):

a. DOEE assembling a "Stakeholder Advisory Board/Panel."
b. Number of stakeholder advisory board's meetings held.
c. Number of advisory board recommendations that are incorporated in decision making.

3. Holding stakeholder/community forums or open houses.
Some problem-solving initiatives require holding open houses to help educate the public and to brainstorm solutions to problems. These meetings are typically held in the early evening and may have open agendas or be focused on an urgent problem (e.g., the on-going dialogue with stakeholders regarding the MS4 Implementation Plan). Stakeholders may also use these gatherings to discuss other topical public issues amongst themselves. DOEE officials may also use these opportunities to answer questions or complaints, highlight successes, address issues and begin discussions on new or emerging initiatives.

Objective key measure(s):

a. Number of "open houses" held.
b. Number of invitations received by DOEE staff to attend "open houses."
c. Number of invitations sent by DOEE staff to stakeholders to attend "open houses."

4. Gathering a task force to target a specific ongoing issue.
A task force/ Tiger Team or standing committee can successfully be used to target a specific problem. For example, DOEE can create a task force to address problems associated with illegal dumping sites. At monthly meetings, members may focus on new sites, track clean-ups, and come up with a strategic plan to prevent further dumping.

Objective key measure(s):

a. Number of task force groups/ Tiger Teams constituted.
b. Number of issues raised and resolved, or not resolved.
c. Number of invitations sent by DOEE staff to stakeholders to attend "open houses."

5. Creating opportunities for volunteers.
Volunteers can strengthen bonds between DOEE and the communities it serves. Volunteers can perform tasks, conduct surveys and act as mentors or tutors to younger and budding volunteers. Some problem-solving initiatives use volunteers to identify areas in their community in need of attention (e.g., site cleanup, illegal dumping). Here in the District, volunteers have participated in removing trash from rivers in response to trash menace and the trash TMDL. They have helped remove litter and clean up schools, streets, and parks. They have also participated in DOEE's own "all-hands-on-deck" community clean-ups. These kinds of volunteer participation are great ways of making volunteers, particularly the young, learn to take responsibility in creating a healthier environmental setting not just for them, but also for the entire District community. Volunteerism also inculcates into the participants concrete skills that people like and easily support. Learned skillsets can easily be built into practical and specific problem-solving skills, which could then be extended and integrated into deepening DOEE's community outreach.

Sample "Involving Youth in your Agency Sustainability Activities" Guidance:

http://www.ca-ilg.org/document/involving-youth-your-agencys-sustainability-activities

Objective Key Measure(s):

a. Development of a clear DOEE volunteer support strategy.
b. Number of volunteer groups supported.
c. Number of volunteer activities organized by DOEE in support of, or jointly in collaboration with, volunteers.

6. Giving presentations at public meetings and agencies.
Public meetings hosted by DOEE's technical "Administrations," such as the NRA, and Environmental Services Administration (ESA), are a great place for practitioners to talk about their programs. To get stakeholder/community buy-in, the lead technical personnel give presentations about the project's goals and objectives and then invite stakeholder/community representatives to offer their views.

Objective Key Measure(s):

a. Number of presentations held.
b. Number of public meetings held.
c. Number of project's information made available online.

7. Perform stakeholders/community surveys.
A survey gathers information from hundreds and potentially thousands of stakeholders, giving planners and practitioners a detailed picture of a community's priorities, expectations, and awareness. Survey design should be simple and as readily accessible as possible. The surveys, where appropriate, should be conducted using low-cost online survey tools (e.g., http://www.surveymonkey.com) and used to evaluate impact(s) of, say, a potential decision, on DOEE's communities/stakeholders. Assessment of impact(s) on a community is a critical input in decision-making.

Sample "Making Decision Process Visible" Guidance:

http://www.ca-ilg.org/making-decision-process-visible

http://www.ca-ilg.org/sites/main/files/file-attachments/part_2_making_the_decision_process_visible_1.pdf

Objective Key Measure(s):

a. Number of surveys conducted.
b. Number of different topics on which surveys are conducted.
c. Support for analysis of survey responses received.
d. Number of survey results incorporated in decision-making and made visible.

8. Getting the word out.
DOEE can use a number of methods to share information (e.g., success stories) with stakeholders and obtain feedback. These methods include using local media, websites, newsletters, listservs, emails, public libraries, campaigns/events, new media (Facebook, Twitter, etc.). By regular sharing information with and receiving feedback from stakeholders on problem-solving strategies, alternative solutions, implementation outcomes, and other results, DOEE can demonstrate to stakeholders that it is their real partner on issues that matter to them. For example, DOEE project staff can create an online journal (or "blog"), say, "Successes and Issues in District Watersheds" (http://whatishappeninginyourdcwatershed.blogspot.com/), that details the project's successes and failures and invites stakeholders and the general public to engage in discussions.

Sample "Getting Word out" Guidance and documents:

http://www.ca-ilg.org/getting-word-out

http://www.ca-ilg.org/sites/main/files/file-attachments/part_3_getting_the_word_out_1.pdf

Samples "Providing & Storing Detailed Information" Guidance:

http://www.ca-ilg.org/providing-storing-detailed-information

http://www.ca-ilg.org/sites/main/files/part_1_no_page_numbers.pdf

Sample "Emerging Technologies" Guidance:

http://www.ca-ilg.org/sites/main/files/file-attachments/part_5_no_page_numbers.pdf

http://www.ca-ilg.org/overview/emerging-technologies

Objective Key Measure(s):

a. Number of campaigns held.
b. Creation of a website for sharing success stories.
c. Traffic/number of visitors to the website.
d. Number of issues of newsletters shared with the stakeholders/public.
e. Setting up of listserv.
f. Number of articles/advertisements in local media.
g. Number of issues/subject matter of the advertisements.
h. Development of DOEE's own guidance documents similar to the above examples.

9. Letting someone else open the door for DOEE.
To gain credibility with District wards, neighborhoods and community groups, NRA divisions will work to form relationships with respected community members and let them introduce NRA staff to their wards and neighborhoods. For example, DC Council members or neighborhood leaders should be appropriately approached and encouraged to help introduce DOEE events at their respective Wards and neighborhood events.

Objective Key Measure(s):

a. Number of “open houses” held.
b. Number of invitations received by DOEE staff to attend “open houses.”
c. Number of invitations sent by DOEE staff to stakeholders to attend “open houses.”

10. Inviting Stakeholders to contact DOEE.
Make staff accessible to the stakeholders and the community at large. Include contact information and/or feedback forms on websites and in brochures.

Sample “Inviting Public Input” Guidance and documents:

http://www.ca-ilg.org/overview/inviting-public-input

http://www.ca-ilg.org/sites/main/files/file-attachments/part_4_inviting_public_input_1.pdf

Objective Key Measure(s):

a. DOEE’s own version of “Inviting Public/Stakeholder Input” guidance and documents.

11. Develop DOEE policy on Stakeholder Engagement and related issues.
DOEE believes that having a stakeholder engagement policy will signal agency commitment and help strengthen and improve DOEE’s overall communication and involvement with its stakeholders.

Objective Key Measure(s):

a. DOEE’s own version of “Inviting Public/Stakeholder Input” Guidance and documents.

12. Strengthening data collection, data quality, utilization and sharing.
Data is or will be the new currency of communicating with DOEE’s stakeholders. Many of the District’s stakeholders are digitally empowered. DOEE should enhance this digital empowerment by collecting and sharing high quality data with its stakeholders. Quality enhancement should occur both in the geographic and monitoring data spaces.

Objective Key Measure(s):

a. Support and develop finer-scale mapping that meet federal geospatial data standards and to improve water resources planning.
b. Support and allocate funds to acquire modern laboratory equipment with capabilities to meet both the requirements of 40 CFR Part 136 and the “Most Sensitive Methods.”
c. Support the establishment of Water Quality Exchange (WQX) and Integrated Compliance Information System–National Pollutant Discharge Elimination System (*ICIS-NPDES*) data flows to facilitate both Quality Assurance/ Quality Control (QA/QC) and public sharing of water quality monitoring data.

District of Columbia
Department of Energy & Environment

303(d) Program New Vision

Prioritization Strategy
(2016-2022)

May 2016

DEPARTMENT OF ENERGY & ENVIRONMENT
GOVERNMENT OF THE DISTRICT OF COLUMBIA

Contents

Summary

As part of the implementation of the US EPA "Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act (CWA) Section 303(d) Program" (Vision), the Department of Energy & Environment (DOEE) is required to develop a prioritization strategy to express CWA 303(d) Program priorities in the context of specific District of Columbia's (District) broader, overall water quality goals and values. This strategy provides a framework for identifying high, medium, and low priority waters for total maximum daily loads (TMDL) development efforts, and alternative actions that are best suited to the broader water quality goals and values in the District.

The Vision's Prioritization goal states that "for the 2016 integrated reporting cycle and beyond, States review, systematically prioritize, and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate State strategic planning for achieving water quality goals."

The intent of the Vision's *Prioritization Goal* is for states, including the District, to express their Clean Water Act's Section 303(d) Program priorities in order to ensure that the available District resources are used efficiently to achieve water quality goals.

In determining priority waters for restoration and protection in the District, a "universe" is first compiled comprising of new Category 5 listings, the existing TMDLs which are earmarked for revisions (for various reasons, e.g., court order or new information, etc.), and TMDL development projects that stakeholders would like to be prioritized.

As a first prioritization step, each item in the universe's subsets is evaluated for priority ranking by using a combination of "mechanisms" and "factors." *Mechanisms* are the primary level factors that include protection of human health and aquatic life, support non-violations of the District's water quality standards, etc. - and are rated as *high*, *medium*, or *low*. *Factors* are secondary level considerations that, amongst others, examine the severity of impairment to the designated use classification(s) – and are also rated as *high*, *medium*, or *low*. Where both mechanisms and factors are rated as high, those waters would be deemed high priority. The result of this priority ranking and similar analyses are then summarized and put in a list consistent with Section 303(d) of the CWA. Impairments that are candidates for *alternative* are also annotated in the list at this stage. In the second step, the listings of ranked priorities are assigned a schedule for TMDL development based on a matrix approach. The matrix consists of six criteria: urgency, potential impact, actionable/ feasible, resources, stakeholder interest and readiness, and integration, each of which, if ranked as high earns 3 points; medium, 2 points; and low, 1 point. The points awarded are then summed up and the project that receives the highest total points is then slated as the one to move forward first. The results of both steps one and two are then consolidated into a preliminary list called "Pre-303(d) list" and made available for an initial public comments. A revised "Pre-303(d) list" following public comments is called "draft 303(d) List." Upon completion, a draft Integrated Report (IR) incorporating "draft 303(d) List" will be made available to the public for comment for 30days. If no comments are received on the "draft 303(d) List", the list will be considered final and submitted to EPA.

Consistent with this strategy, the District's overall TMDL development priority for the fiscal year (FY) 2016 through 2022 will be dominated by the need to satisfy the 2009 TMDL consent decree.

DOEE will publish this draft *Prioritization Strategy* to solicit feedback. Comments received will be considered and used to revise the document as appropriate before submittal to EPA for approval. After EPA approval this strategy will become final and implemented

1. Introduction

As part of the implementation of the "*Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program"* (Vision)[1], the Department of Energy & Environment (DOEE) is required to develop a prioritization strategy to express CWA 303(d) Program priorities in the context of specific District of Columbia's (District) broader, overall water quality goals and values. This strategy provides a framework for identifying high, medium, and low priority waters for total maximum daily loads (TMDL) development efforts, including alternative actions that are best suited to the broader water quality goals and values in the District.

1.1. Background[2]

On December 5, 2013, the U.S. Environmental Protection Agency (EPA) announced a new collaborative framework for managing CWA 303(d) program responsibilities, entitled *"A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program[3]"* (Vision). This new Vision reflects the successful collaboration among states and the EPA, which began in August 2011. The vision enhances the overall efficiency of the CWA 303(d) program. For example, it encourages states to focus attention on priority waters. It also provides states with the flexibility to use available tools beyond TMDLs to effectively restore and protect water quality. There is no "one size fits all" approach to restoring and protecting water resources; flexibility allows each state, including the District, to more efficiently develop tailored strategies to implement their CWA 303(d) Program responsibilities within the context of its own water quality goals. While the Vision provides a new framework for implementing the CWA 303(d) Program, it does not alter state and EPA responsibilities or authorities under the CWA 303(d) regulations. The Vision's Prioritization goal states:

> "*States should review, systematically prioritize, and report priority watersheds or waters for restoration and protection in their biennial integrated reports to facilitate state strategic planning for achieving water quality goals*."

Priorities are important because they provide the foundation to guide the planning and implementation of the other Vision goals. Specifically, the CWA 303(d) program priorities are essential to ensure that the available resources are used efficiently to achieve water quality goals and that allocation is not done in an ad hoc way, but in a manner respectful of the entirety of the District's water quality values.

The Vision expects states, including the District to engage their general public and stakeholders in the establishment of CWA 303(d)-related priorities. EPA also expects states and the District to articulate how input from the public is considered and addressed as part of their rationale for supporting prioritization.

2. Definition and Principles of Prioritization

2.1. Definition

Prioritization is the process of evaluating[4] a group of projects/activities and ranking them in their order of importance or urgency.

[1] http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf
[2] http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/programvision.cfm
[3] A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act Section 303(d) Program (PDF)
[4] Evaluation is the process of taking different possible courses of action, setting them side by side and drawing a conclusion as to their respective merits.

2.2. Principles of Prioritization

Principles are statements of *values* that guide actions. Principles are used to frame a concise set of criteria which, in turn, are used to develop priorities or ranking. The following principles guide DOEE's approach to its Vision prioritization:

1. **Transparency:** Prioritization should be clear and contain robust and transparent selection criteria developed to maximize measurable water quality improvements and positive environmental impacts.
2. **Engagement:** Constructive engagement, supported by timely and accurate information containing analysis based on reliable data, enables dialogue and genuine discussions, which, in turn, increases the chance of quality *prioritization* decision-making.
3. **Resources:** Consideration of resource implications of doing a TMDL project/activity, including, but not limited to, whether or not the resource requirements of the project are within budgetary limits; the period over which resources will be needed; DOEE's institutional and technical capacity to implement the plan; and benefits.
4. **Impact:** Prioritizing TMDLs for development starts by considering the scope and severity of water pollution and risks to public health and aquatic life[5]. Also consideration should be given to whether or not the proposed TMDL development/activity has additional strategic significance or impacts (e.g., risk to threatened or endangered species).
5. **Influence:** *Priorities* should reflect input of stakeholders' involvement.
6. **Inclusiveness:** Prioritization is effective when a wide range of stakeholders are *engaged* in their diversity, uniqueness and perspective. Accounting for all these and developing a unified set of *priorities* requires balance and judgment.
7. **Time:** Prioritization is multi-dimensional, in part, because values, which are at the core of it, are. Time is the other dimension. The time dimension involves consideration of scheduling issues (such as re-programming to meet court orders) to determine what comes first, and what follows later. Timing and phasing are key factors in aligning priorities.
8. **Alignment:** TMDL development *priorities* should fit within DOEE's overall strategic water quality improvement agenda and be in accord with the new Vision goals.
9. **Implementation Potential:** Assessing the implementation potential of a TMDL project/activity is a real challenge. Three factors that are closely related to the potential for a successful TMDL project/activity implementation include the following: assessment data reliability; organizational resources readiness; consistent application of *prioritization* appraisal criteria; and uncertainty.

2.3. Prioritization Best Practices

Best practices are effective procedures that reliably tend to lead to a desired result. They are chosen to fit with goals, including what needs to be done and how. Since not each and every best practice is related to each and every issue of interest, or necessarily aimed at the same target outcomes, they should always be reviewed and updated.

The following are some best practices that apply to the District's 303(d) prioritization.

It is good practice to:

1. Give careful consideration to the criteria for prioritizing projects and agree on them in advance;
2. Systematically evaluate all potential projects at the same time - to minimize bias;

[5] **Hall, *et. al.* (2014).** An ecological function and services approach to total maximum daily load (TMDL) prioritization. Environmental Monitoring and Assessment, Vol. 186, Issue 4, pp 2413-2433.

3. Schedule priorities;
4. Allow limited priority overrides due to executive prerogative on special cases;
5. Ensure that the people impacted by priorities are informed and know what those priorities are; and
6. Review periodically the priority status of projects.

3. Strategy Goal and Objective

3.1 Goal

The strategy goal is to ensure that DOEE and stakeholders review, systematically prioritize, and report priority watersheds or waterbodies for restoration and protection in the bi-annual Integrated Report (IR) to facilitate strategic planning for achieving water quality goals.

3.2 Objective

The strategy objective is to identify where DOEE and stakeholders should focus resources for TMDLs development in fiscal year (FY) 2016 through FY2022.

4. General 303 (d) Prioritization Framework

4.1. Framework Elements

The following are examples of how the framework elements may apply to DOEE:

1. **Mechanism for Prioritization -** Protection of human and aquatic life, consent decree.
2. **Factors Considered in Prioritization -** Funding availability, indicators used in Recovery Potential Screening, pollutants/impairments, sources.
3. **Consideration of EPA National and Regional Priorities -** An explanation of how the District collaborates with the Region on prioritization and how EPA's priorities fit into its framework. This does not mean that the District must choose EPA priorities as their designations; rather the District should recognize EPA's priorities as an important factor in the prioritization process.
4. **Plan for Where the State Will Begin Work -** This could be general, and may be based on monitoring or permitting cycles, or other appropriate processes.
5. **Statement on Flexibility -** Reflecting the District's approach to changing priorities.
6. **Description of Shifts or Changes -** Evaluate the past prioritization scheme compared to what the District will be doing under the new Vision by explaining what is different or new compared to what stays the same.

4.2. Other Considerations

1. **Public Engagement Approach -** An explanation regarding how the District will involve stakeholders in the process and share the final designated priorities. At a minimum, priorities should be clearly identified in the 2016 Integrated Report (2016 IR) for the public to provide comments. DOEE's Stakeholders' Engagement Strategy (SES) is incorporated herein by reference.
2. **Integration Approach -** Deals with how DOEE will use a combination of District-wide programs and other on-the-ground projects to achieve water quality benefits; and the extent to which water quality improvement efforts are harmonized with other relevant District and Federal programs; namely:
    a. **When and how the District will Review and Update the Prioritization Scheme -** Assessment is a critical piece of the new Vision; the District will consider and adapt new information on the status of waters, interest and engagement from stakeholders and partners, and the effectiveness of their chosen scheme.

b. **Choice of Priority Designations -** Once the District has completed the process of determining its 303(d) priorities, the information should be included as an appendix/update to the strategy document.

c. **Availability of the Prioritization Framework to the Public -** The District plans to make the prioritization documents available to the public (via DOEE's website, public notice in the DC Register, including joint public-notice with the 2016 IR) to facilitate transparency and stakeholder engagement.

5. Detailed District's Priority and Ranking Assignment Scheme

The District assigns TMDL development priority in two main steps, namely: an *Initial Ranking and Scheduling Step,* and the *Integrated Report Step*; with each step having sub-steps as follows:

Step 1: *Initial Ranking and Scheduling Step*

a. Assessment:

Assessment identifies water bodies requiring TMDLs and consolidates these into an IR form pursuant to Sections 303(d), 305(b), 314 and 319 of the Clean Water Act.

Section 303(d) and the implementing regulations at 40 CFR 130.7 require states and the District to identify those water bodies that are not meeting surface water quality standards and to prioritize and schedule them for the development of TMDLs. The 303(d) listing process classifies waters impaired by point and non-point sources of pollutants into the following categories.

- Category 1: Waters with the status that all designated uses are being met.
- Category 2: Waters that meet some (at least three) of their designated uses, but there is insufficient data to determine if remaining designated uses are met.
- Category 3: Waters for which insufficient data exists to determine whether any designated uses are met.
- Category 4: Waters that are impaired or threatened but a TMDL is not needed. (*This category and its sub-categories may include TMDLs that may or may not need to be revised for one reason or another, including court orders, consent decrees, availability of new information.)*
- Category 5: Waters that are impaired or threatened and need new TMDLs to be developed. (*The development of new TMDLs is the primary driver for prioritization and ranking*.)

Section 305(b) codifies the process in which water bodies are evaluated with respect to their capacity to support designated uses as defined in each of the states'/District's surface water quality standards. These uses include aquatic life support, fish and shellfish consumption, and primary (e.g., swimming) and secondary (e.g., boating) contact recreation. Where possible, the causes and sources of use impairment are also identified.

Section 314 is mostly concerned with lakes and reservoirs and has little or no relevance in the District's assessment scheme.

Section 319 grants and State Revolving Funds (SRF) are given to watershed clean-up projects that are consistent with TMDL Program requirements.

a (i). Priority Assignment Process

The District defines its Section 303(d) list *initial* priority assignment in terms of broader programmatic primary factors (or *mechanisms*) and secondary factors (hereinafter referred to simply as *factors*).

Mechanisms are based on consideration of primary factors such as severity of impairment to the designated use classification(s) for a water body. There are also secondary factors (or simply, "*factors*") which are used to modify the initial prioritization to an overall or final prioritization. *Factors* may either elevate a water body into a higher priority group (e.g., public interest, executive prerogative needs) or reduce the priority ranking (e.g., funding availability, cleanup action in progress). Together, both mechanisms and factors help to provide structure to the prioritization process by explaining, for example, the extent or complexity of impairment. They help to describe the availability of information (e.g., monitoring data, models), and thus indicate whether or not priority decisions are made based on substantial or scanty information. At the same time, factors are meant to be:

- Flexible for each water body;
- Subject to periodic review to reflect new scientific information, newly developed water quality criteria;
- Accommodative of changing stakeholder considerations or concerns; and
- Cognizant of efficient and effective use and allocation of resources.

Mechanisms' and factors' levels are rated as *high, medium,* and *low* as briefly described below:

Mechanisms' Rating Levels and Description:

- **High level**: Includes protection of human health and aquatic life; factors supporting non-violations of the District's water quality standards, recreational use; programmatic geographic focus; funding.
- **Medium level**: Includes, partnership with stakeholders e.g., federal agencies; issue complexities; national water quality initiatives; environmental justice.
- **Low level**: Includes, a variety of technical screening tools (e.g., EPA's Recovery Potential Tool).

Factors' Rating Levels and Description:

- **High level**: Includes, funding availability; specific pollutant that is causing or contributing to water quality impairment; data availability; restoration potential.
- **Medium level**: e.g., straight-to-implementation via NPDES Permit; water quality trends.
- **Low level**: e.g., pollutant source.

A list of *mechanisms* and *factors* and their ratings that DOEE uses to prioritize District's waters, is provided in Appendix A, Table 1 and Table 2.

A generalized ranking scheme based on combining *mechanisms* and *factors* information into an initial priority designation for TMDL projects, is shown in Table 3.

Table 3: Combination of *Mechanisms* and *Factors* to assign overall priority level

		Levels of Factor(s) (Complexity/Cost/Other Considerations)		
		High	Medium	Low
Levels of Prioritization Mechanisms	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

a (ii). Rank Schedule Assignment Process

This strategy uses a prioritization matrix approach to evaluate the relative order of importance of candidate TMDL development projects by deriving a criteria-based numerical value for the priority (rank) of each project or activity. See Appendix B.

b. Pre-303(d) List development

Pre-303(d) list is developed by consolidating *priority* and *ranking/ scheduling* information into a single list. The list will be shared with stakeholders. The comments received, and any additional information will be considered and the Pre-303(d) list may be revised, as appropriate. Stakeholders can identify specific projects of interest through a process outlined in Appendix F. The revised Pre-303(d) list will be used to develop the *draft 303(d) list* to be incorporated into the draft Integrated Report.

Step 2: *Integrated Report Step*

Upon completion, the draft IR incorporating the revised Pre-303(d)[6] list will be made available to the public for comment. If a comment is received on the priority and schedule assignment, consultation, or in some cases the prioritization matrix scheme (Appendix B), will be used to resolve the issue(s). If no comments are received on the "draft 303(d) List", the list will be considered final and will be submitted to EPA.

Appendix C shows a detailed process flow diagram (scheme) of the two steps discussed herein. The diagram also indicates that stakeholder input is considered in the prioritization process.

6. Changes and Shifts from Past Efforts

6.1. Past TMDL Development Efforts in the District

Before the Vision, the District managed its TMDL development priority process based on "Pace" framework; consent decree requirements; and to meet the Chesapeake Bay (Bay) TMDL Program needs.

6.1.1. The "Pace" Framework

"Pace" refers to the number of TMDLs that needed to be established consistent with national policy[7], i.e. generally within 8-13 years of listing of a waterbody as impaired. Under the "pace" framework, the District's priority was based on human health concerns, risk to aquatic life, programmatic needs (e.g., waste load allocations needed for permits), and availability of EPA-approved models and other technical

[6] A revised "Pre-303(d) list" that is incorporated in the IR is called a "draft 303(d) List."

[7] Perciasepe, R. 1997. New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs). http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/ratepace.cfm. *Last Accessed June 2011*. *Last Accessed June 2015.*

tools. Also within the "pace" framework, high priority TMDLs are typically developed within two years, medium priority within two to five years, and low priority more than five years.

Issues with the "pace" framework include the following:

1. It fails to properly reflect significant variability in types of TMDLs, or state/District listing methods.
2. It does not give credit to more robust TMDLs that better support implementation and water quality outcomes, i.e., "implementation-ready."
3. It does not take into account water quality improvement (output vs. outcome).
4. It improperly conveys the notion that states and the District require litigations to drive TMDLs development; i.e., the development of new TMDLs will not occur without litigation.
5. It incorrectly implies that as historic litigation driven TMDL consent decrees taper off, that TMDL "pace" (i.e. rate at which at which TMDLs are developed) will diminish.
6. It puts less emphasis on robust consultation of stakeholders and systematically incorporating their views in TMDL development process.
7. It places little emphasis on the integration among the CWA programs (303(d), 305(b), 314 and 319), or other collaborations.
8. It is weak in flexibly aligning TMDLs development with available resources.

DOEE is working collaboratively with stakeholders and EPA to develop strategies for each of the six Vision goals to address these issues – in order to improve the TMDLs development environment in the District.

6.1.2. Consent Decree

From FY2010 through FY2022, DOEE set its TMDL work load priority to revisions to satisfy the requirements of the settlement agreement reached between EPA and Anacostia Riverkeepers, Friends of the Earth, and Potomac Riverkeepers (Case No.: 1:09-cv-00098-JDB of January 15, 2009) that certain District TMDLs did not have a daily load expression established as required by *Friends of the Earth vs. the Environmental Protection Agency, 446 F.3d 140, 144* (D.C. Cir. 2006). The consent decree deadline is January 1, 2017.

Meeting consent decree dates remain a top priority in the District.

6.1.3. The Chesapeake Bay (Bay)TMDL Program Framework

The Bay TMDL is required under the federal Clean Water Act and responds to consent decrees in Virginia and the District of Columbia from the late 1990s. It represents a keystone commitment of a federal strategy to restore and protect the Bay, and covers approximately 64,000-square-mile watershed that includes all the jurisdiction partners (the District of Columbia and large sections of six states: Delaware, Maryland, New York, Pennsylvania, Virginia, and West Virginia.

The TMDL set limits that are necessary to meet applicable water quality standards in the Bay and its tidal rivers. The limits (for total nitrogen (TN), total phosphorus (TP), and sediment) are based on state-of-the-art modeling tools, and involve extensive monitoring data, peer-reviewed science, and close interaction with jurisdiction partners.

Because the Bay TMDLs are an important part of the District's water quality improvement strategy, no changes are expected on the District's commitments to the Bay TMDL programs and efforts.

6.2. Shifts and Changes

This strategy shifts the prioritization process from past practice in the following ways:

1. It places greater emphasis on systematic coordination of watershed and Municipal Separate Storm System (MS4) implementation action plans (collaborative non-point source management and implementation plans) by:
    a. Incorporating 319 Program elements into TMDL implementation plans (Appendix D).
    b. Programmatic needs (e.g., waste load allocations needed for MS4 permits).
    c. Increased number of stakeholder meetings to discuss and review water quality improvement (e.g., meeting stakeholders to review the District's performance against the Bay commitments, MS4 implementation plans).
2. It enhances the current 303(d) list development and TMDL development priority planning process by incorporating a new two-step public solicitations and notices:
    a. Step 1- which involves an initial publication of a *Pre-Draft 303(d) List* for public comment gives stakeholders a chance to familiarize themselves with what the 303(d) list will look like. It also ensures that stakeholders are made part of the 303(d) process as early as possible.
    b. Step 2 - which comprises using initial comments received following the publication of the *Pre-Draft 303(d) list* to refine the draft IR, provides stakeholders a second opportunity to re-engage, and also to verify that their views have been considered.
3. It includes an *alternative* provision, which allows for "*direct-to-implementation*" projects. This makes it easier to deal with those impairment cases where the development of a TMDL would be inappropriate.
4. It introduces a pathway to "*direct prioritization*" in which stakeholders can petition the Director of DOEE in special cases to have a project included in the priority list at any stage in the process (Appendix F). This provides additional opportunities to stakeholders to engage management on specific priority outcomes. Stakeholders can submit their priorities of interest(s) at any time, however, they will only be considered for the next IR.

7. Statement on Flexibility

This prioritization strategy term runs from 2016 to 2022 and will be flexible in the following respects (to account for new listings in the intervening period before 2022, including court orders and consent decrees, exercise of executive prerogative, and/or local public demand):

1. Aware that the development of this prioritization strategy in support of the Vision in the District will NOT be completed in time for adoption for the 2016 Listing Methodology, DOEE will:
    a. Include language in the 2016 Listing Methodology to recognize the shift in focus to the Vision's new prioritization approach; and that the changes that emerge following the adoption of the Vision's new prioritization approach will be applied in full in the 2018 listing/delisting.
        - The rationale: At this time, the District's TMDLs development priority is dominated by the need to satisfy the consent decree (see Appendix E). Under this scenario, it is clear that even if the District were to use the Vision prioritization approach, the final priority outcome would not change.
2. New 303(d) listings concerning pollutants that threaten human health and aquatic life will be added and prioritized in each IR's cycle.

3. Applicable new federal regulations, criteria or guidance will be incorporated as they become available. For waters with impairments related to new national and regional concerns, monitoring and assessment will be adjusted and, if necessary, re-prioritized to protect and restore the District's waters.

4. Adaptive management:
In consultation with stakeholders and EPA, DOEE will incorporate the principles of adaptive management so that lessons learned are used to inform the next steps of prioritization plans.

8. Plan for Where the District Will Begin Work

In order of priority, DOEE will begin work by addressing TMDLs:

1. That are subject to court order deadlines or consent decree agreement(s);
2. TMDL projects in which DOEE's and EPA's national and/or regional priorities intersect and where opportunities for collaboration exist.

Collaboration enhances efficiency and resources mobilization, and helps ensure that successful restoration will be more likely.

9. Implementation

This strategy will be implemented by DOEE's Natural Resources Administration (NRA) Divisions: Water Quality Division (WQD), Stormwater Management Division (SWMD), and Watershed Protection Division (WPD). Implementation will be coordinated:

1. To ensure prioritization consistency and integration across (CWA's 303(d), 305(b), and 319) programs in support of the new Vision;
2. To provide feedback to stakeholders on key outcomes of prioritization through robust engagement and other DOEE's existing communication protocols.

10. This Strategy's Priorities

This strategy's priorities include:

1. The District's FY2016-to-FY2022 Priority List (Appendix E).
2. Anacostia River Watershed in the District as the geographic focus for TMDL development.
3. Improving DOEE's data infrastructure by developing:
    - Data Management Plan.
    - Data Analysis Plan.
    - Data Sharing Plan.

APPENDICES

APPENDIX A

Table 1: Prioritization Mechanisms

	MECHANISM	MECHANISM LEVEL		
		High	Medium	Low
1.	Protection of human health and aquatic life	✓		
2.	Supporting DOEE's implementation and or revision of existing TMDLs and water quality improvement plans	✓		
	a) Court order/consent decree TMDLs			
	b) The Long-Term Control Plan (LTCP) and the Green Infrastructure (GI) projects			
	c) The MS4 TMDL Implementation Plan (MS4 TMDL-IP)			
	d) Implementation of the Chesapeake Bay TMDL WIPs			
	e) Anacostia River watershed and related restoration plan(s)			
3.	Geographic focus	✓		
	a) Anacostia River watershed			
4.	Partnerships and stakeholder interests		✓	
	a) Federal agency partnerships			
	b) Other partnerships			
5.	Issue complexity (e.g., modeling)		✓	
6.	Participation of volunteers and watershed groups		✓	
7.	National Water Quality Initiatives (NWQI)		✓	
	a) General			
	b) Specific national priorities			
	i. Nutrients			
8.	Regional priorities		✓	
	a) The Chesapeake Bay TMDLs			
9.	Protections of the District's waterbodies with sources upstream (i.e., watersheds in Maryland)		✓	
10.	Other strategic frameworks		✓	
	a) Environmental Justice (EJ)			
11.	Screening Tools			✓
	a) Recovery Potential Tool			
	b) USGS' SPARROW			
	c) WATERSCAPE			
12.	Emerging mechanisms			✓

Table 2: Prioritization Factors

	FACTOR	FACTOR LEVEL		
		High	Medium	Low
1.	Funding availability	✓		
2.	Pollutant causing impairment	✓		
3.	Available quality data	✓		
4.	Restoration potential	✓		
5.	Regulatory tools		✓	
6.	Straight to implementation		✓	
7.	Water quality and watershed related programs activities		✓	
8.	Water quality standards		✓	
9.	Water quality characteristics and trends		✓	
10.	Watershed characteristics		✓	
11.	Water quality/watershed models		✓	
12.	Pollutant sources			✓
13.	Other strategic frameworks			✓
14.	Screening tools			✓
15.	Emerging mechanisms			✓
16.	Funding availability			✓

APPENDIX B

GENERAL PRIORITIZATION MATRIX
for
Use with Stakeholders on TMDLs Development

How to Use this Prioritization Analysis Matrix

The Process:

1. As a group freely discuss all the project activities/projects that need to be prioritized.
2. Review list of activities/projects to determine relevance to disparities, reduce redundancy or duplication and clarify meaning. Consolidate activities/projects, if appropriate.
3. As a group, use the Prioritization Matrix below to rank order activities/projects. Rank activities/projects for each criterion using the following scale:

   High = 3 points; Medium = 2 points; Low = 1 point
   [This scale range is deliberately kept small because the line between high, medium, or low can be very thin]

4. Assign total points for each activities/projects.
5. Sum up all the total points for each project/activity to determine the priority score. Record the results in the provided worksheet.
6. Analyze the results and identify the top three activities/projects.
7. Continue discussions until DOEE and stakeholders achieve a consensus on the top three activities/projects.
8. Document the results of the consensus on priority, if consensus is achieved. If not, keep trying.

Criteria:

1. **Urgency:**
   a. Is this a priority project/activity that needs to be addressed in the next 1 year?
   b. Is this a priority project/activity that needs to be addressed in the next 2 years?
   c. Is this a priority project/activity that needs to be addressed in the next 3 years, or longer?
2. **Potential Impact:**
   a. Is it likely that addressing this critical issue will have a significant impact on one or more stakeholders?
   b. Is there a reason or reasons to believe you can be successful on this issue?
   c. Is it likely that addressing this critical issue will have a significant impact on one or more specific populations?
3. **Actionable/Feasible:**
   a. Are there opportunities for action to address the critical issue?
   b. Is there room to make meaningful improvement on the issue?
   c. Is this a priority issue subject to a court order/consent decree?
4. **Resources** (*funds, staff, water quality values/technical complexity interface, and expertise*)**:**
   a. Are resources readily available or likely resources can be obtained to address the critical issue?
   b. Are there stakeholder resources to work on the issue?
   c. If not, are there alternative ways to get the needed resources?
5. **Stakeholder Interest and Readiness:**
   a. Is this a critical issue identified as important by stakeholders?
   b. Are people in the community interested in the issue?
   c. Is there stakeholder definitive push to move this initiative forward?
6. **Integration:**
   a. Is there opportunity for collaboration?
   b. Is there opportunity to build on existing initiatives?
   c. Will this duplicate efforts?

Prioritization Analysis Matrix
(An Example)

Issue(s) to be Ranked/Scheduled:

Revision of consent decree TMDLs and their priority/ranking

Goal:

DOEE is collaborating with EPA and other stakeholders to revise toxic TMDLs to satisfy the requirements of the settlement agreement reached between the United States Environmental Protection Agency (EPA) and Anacostia Riverkeepers, Friends of the Earth, and Potomac Riverkeepers (Case No.: 1:09-cv-00098-JDB of January 15, 2009) that certain District TMDLs did not have a daily load expression established as required by *Friends of the Earth vs. the Environmental Protection Agency*, *446 F.3d 140*, *144* (D.C. Cir. 2006).

The settlement agreement requires the establishment of daily loads in District TMDLs by January 1, 2017.

Activity	Urgency	Potential Impact	Actionable/ Feasible	Resources	Stakeholder Readiness	Integration	Total Points
Sample Project/Activity #1: Toxics TMDLs revision	3	2	3	1	3	2	**14**
Sample Project/Activity #2: TSS TMDL revision.	3	2	3	2	3	3	**16**
Sample Project/Activity #3: Bacteria TMDLs revision	3	3	3	2	3	3	**17**

Note: High = 3 points; Medium = 2 points; Low = 1 point

Prioritization Analysis Matrix Sample Worksheet

Critical Issue: ______________________________

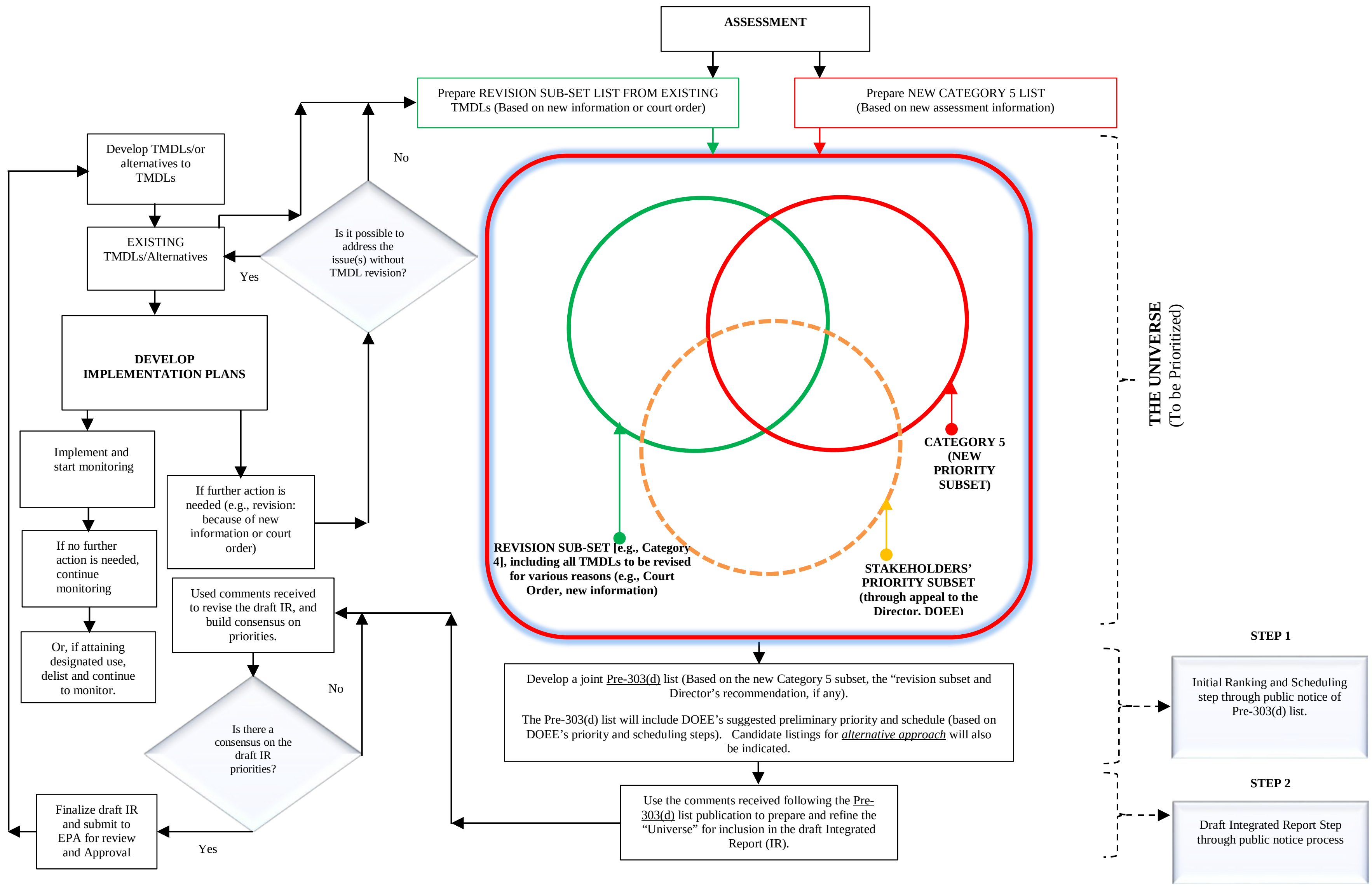
Goal: ______________________________

Activity	Urgency	Potential Impact	Actionable /Feasible	Resources	Stakeholder Readiness	Integration	Total Points
Project/Activity #1:							
Project/Activity #2:							
Project/Activity #3:							
Project/Activity #4:							
Project/Activity # n:							

Note: High = 3 points; Medium = 2 points; Low = 1 point

APPENDIX C

DOEE's PROPOSED SCHEME TO IMPLEMENT THE 303(D) NEW VISION'S PRIORITIZATION GOAL



APPENDIX D

The 319 Program Elements, Integration and Reporting

Table 4: Key Elements of an effective Section 319 & DOEE's Non-Point Source (NPS) program

Key Elements of an Effective NPS Program	How NPS addresses them in the District
1. Explicit short- and long-term goals, objectives, and strategies	• Annual grant solicitation for actions on high priority waters and District- wide stewardship goals. • 5 year goals in NPS Strategy.
2. Strengthened partnerships	• WPD process is a joint effort of multiple programs within DOEE (WQD, SWMD & WPD). • Grants are provided to local, community groups, NGOs. • WPD process is used to facilitate partnerships with federal agencies either through coordinating environmental projects for waters of common interest (e.g., NWQI, or by use of pass through funding to other agencies.
3. Integration of programs	• WPD factors in approved TMDLs. Partnerships include federal programs such as NWQI.
4. Resource allocation for protection and restoration	• Performance Partnership Agreement/ Performance Partnership Grant (PPA/PPG) annual commitments. • NPS Five-Year priority. • WPD annual process for allocating resources. DOEE's decisions regarding funding of the CWA Sections 303(d) are also considered.
5. Identification and prioritization of waters	• NPS Strategy – Five-year priority for waterbodies and actions. • b) Use WPD process for prioritizing waterbodies and identifying actions.
6. Adaptive management to achieve and maintain water quality standards	• WPD annual actions development considers previous activities and data collection and uses these to decide on best next steps to address areas of concern.
7. Efficient and effective implementation	WPD has an established process that effectively identifies priority waterbodies needing actions. Implementation occurs through: • PPA/PPG commitments • EPA grant administration • WPD/DOEE project funding mechanisms
8. Review, evaluation, and revision using measures of success	WPD process includes review and analysis step prior to annual grant solicitation. Projects are also subject to revision depending on ongoing communication and quarterly reporting.

Table 5: 303(d) New Vision's Goals & 319 Program Integration Interface

Schedule	The New 303(d) Vision Goal	How the District's WPD Addresses the Goal
2014	**Engagement** – inclusive, transparent, feedback loops	WPD selects priority watersheds based on community interest and restoration opportunities. Final WPD/Nonpoint Source (NPS) priorities and actions shared with stakeholders online.
	Assessment – initiate ongoing statewide statistical surveys	**Alternative approach:** WPD process targets water quality assessments reported in DOEE's Integrated Report and DOEE TMDL plan. Additional WPD's assessment and evaluation are also used.
2016	**Integration** – coordinate actions with other CWA programs; other agencies	WQD and SWMD participate in the WPD process. Increased internal CWA program integration including permitting, compliance, and water quality standards programs are also used.
	Prioritization – Priorities identified in the Integrated Report	WPD process provides for an annual review of priority waters and actions. Results of this review are incorporated in the NPS strategy and Integrated Report.
	Protection – Identify protection planning priorities and schedules for healthy waters consistent with the high priorities identified	Currently, no water body in District falls under the "Protection" goal. Instead, the WPD targeting process identifies water bodies for purposes of restoration. Restoration actions on waterbodies are identified in the NPS Strategy and posted on the DOEE's web page.
2018	**Alternatives –** Incorporate adaptive management and use alternative approaches to develop TMDLs implementation plans.	WPD actions are annually reviewed and are water body specific; includes elements of TMDL implementation.
2022	**Assessment** – Identify the extent of impaired and healthy waters within the District of Columbia	Assessment results and reviews are components of DOEE's Integrated Report. The Integrated Report's assessments results are subsequently incorporated in the NPS strategy.

Section 319 Reporting and Accountability

DOEE's NPS Program is accountable for implementing the District's requirements under CWA Sections 303(d) and 319. WPD demonstrates this accountability through numerous reports and obligations, including the following:

- Grants Reporting and Tracking System (GRTS)[8] reporting on WPD grants, contracts.
- PPA and PPG work plans and reports.
- Annual NPS Report.
- Integrated Report.
- Web posting of TMDLs, BMPs, Project Reports, Annual WPD priorities in grant solicitation, and other Nonpoint Source pages on DOEE's website.
- Annual EPA 319 Progress Evaluation.
- PPA and PPA work plan development and grant review process.
- Participation in annual WPD process.
- EPA review and approval of DOEE's 303(d) impaired waters list.
- Public participation:
    - Outreach events – public presentations/fairs/ Questions &Answers (Q&A) sessions at community meetings.
    - WPD water body targeting is based on active community engagement and restoration opportunities.
    - Chesapeake Bay Program participation.

[8] http://iaspub.epa.gov/apex/grts/f?p=110%3A199

APPENDIX E

Table 6: District's FY2016-to-FY2022 Priority List (The Consent Decree is incorporated herein by reference for specific schedules).

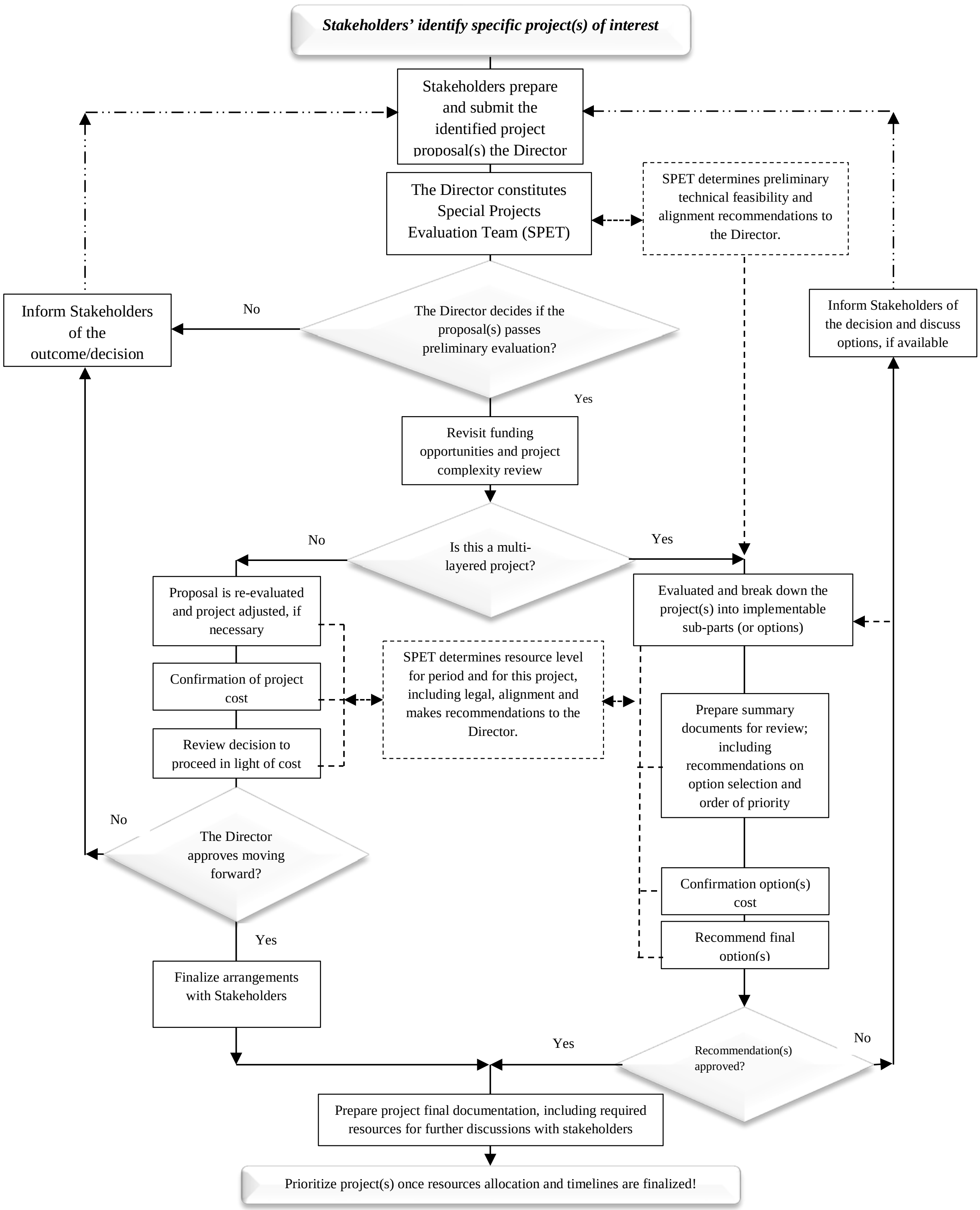
Assessment Unit ID	Assessment Unit Name	Cause Name
DCAKL00L_00	Kingman Lake	Arsenic
DCAKL00L_00	Kingman Lake	Chlordane
DCAKL00L_00	Kingman Lake	DDT
DCAKL00L_00	Kingman Lake	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCANA00E_01	Anacostia River	Arsenic
DCANA00E_01	Anacostia River	Chlordane
DCANA00E_01	Anacostia River	Copper
DCANA00E_01	Anacostia River	DDD
DCANA00E_01	Anacostia River	DDE
DCANA00E_01	Anacostia River	DDT
DCANA00E_01	Anacostia River	Dieldrin
DCANA00E_01	Anacostia River	Heptachlor Epoxide
DCANA00E_01	Anacostia River	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCANA00E_01	Anacostia River	Zinc
DCANA00E_02	Anacostia River	Arsenic
DCANA00E_02	Anacostia River	Chlordane
DCANA00E_02	Anacostia River	Copper
DCANA00E_02	Anacostia River	DDD
DCANA00E_02	Anacostia River	DDE
DCANA00E_02	Anacostia River	DDT
DCANA00E_02	Anacostia River	Dieldrin
DCANA00E_02	Anacostia River	Heptachlor Epoxide
DCANA00E_02	Anacostia River	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCANA00E_02	Anacostia River	Zinc
DCRCR00R_01	Rock Creek	Copper
DCRCR00R_01	Rock Creek	Lead
DCRCR00R_01	Rock Creek	Mercury
DCRCR00R_01	Rock Creek	Zinc
DCRCR00R_02	Rock Creek	Copper
DCRCR00R_02	Rock Creek	Lead
DCRCR00R_02	Rock Creek	Mercury
DCRCR00R_02	Rock Creek	Zinc
DCTBR01R_00	Broad Branch	Chlordane
DCTBR01R_00	Broad Branch	Dieldrin
DCTBR01R_00	Broad Branch	Heptachlor Epoxide
DCTBR01R_00	Broad Branch	Polychlorinated Biphenyls (PCBs)
DCTDA01R_00	Dalecarlia Tributary	Dieldrin
DCTDA01R_00	Dalecarlia Tributary	Heptachlor Epoxide
DCTDO01R_00	Dumbarton Oaks	Chlordane
DCTDO01R_00	Dumbarton Oaks	Dieldrin
DCTDO01R_00	Dumbarton Oaks	Heptachlor Epoxide
DCTDO01R_00	Dumbarton Oaks	Polychlorinated Biphenyls (PCBs)
DCTDU01R_00	Fort Dupont Creek	Arsenic
DCTFC01R_00	Fort Chaplin Run	Arsenic
DCTFD01R_00	Fort Davis Tributary	Arsenic

Assessment Unit ID	Assessment Unit Name	Cause Name
DCTFE01R_00	Fenwick Branch	DDT
DCTFE01R_00	Fenwick Branch	Dieldrin
DCTFE01R_00	Fenwick Branch	Heptachlor Epoxide
DCTFE01R_00	Fenwick Branch	Polychlorinated Biphenyls (PCBs)
DCTFS01R_00	Fort Stanton Tributary	Arsenic
DCTFS01R_00	Fort Stanton Tributary	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCTHR01R_00	Hickey Run	Chlordane
DCTHR01R_00	Hickey Run	DDE
DCTHR01R_00	Hickey Run	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCTKV01R_00	Klingle Valley	Dieldrin
DCTKV01R_00	Klingle Valley	Heptachlor Epoxide
DCTKV01R_00	Klingle Valley	Polychlorinated Biphenyls (PCBs)
DCTLU01R_00	Luzon Branch	Chlordane
DCTLU01R_00	Luzon Branch	Dieldrin
DCTLU01R_00	Luzon Branch	Heptachlor Epoxide
DCTLU01R_00	Luzon Branch	Polychlorinated Biphenyls (PCBs)
DCTMH01R_00	Melvin Hazen Valley Branch	Dieldrin
DCTMH01R_00	Melvin Hazen Valley Branch	Polychlorinated Biphenyls (PCBs)
DCTNA01R_00	Nash Run	Arsenic
DCTNA01R_00	Nash Run	Chlordane
DCTNA01R_00	Nash Run	Dieldrin
DCTNA01R_00	Nash Run	Heptachlor Epoxide
DCTNA01R_00	Nash Run	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCTNS01R_00	Normanstone Creek	Dieldrin
DCTNS01R_00	Normanstone Creek	Heptachlor Epoxide
DCTNS01R_00	Normanstone Creek	Polychlorinated Biphenyls (PCBs)
DCTOR01R_00	Oxon Run	Dieldrin
DCTPB01R_00	Popes Branch (Hawes Run)	Chlordane
DCTPB01R_00	Popes Branch (Hawes Run)	DDE
DCTPB01R_00	Popes Branch (Hawes Run)	Heptachlor Epoxide
DCTPB01R_00	Popes Branch (Hawes Run)	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCTPI01R_00	Pinehurst Branch	Dieldrin
DCTPI01R_00	Pinehurst Branch	Heptachlor Epoxide
DCTPI01R_00	Pinehurst Branch	Polychlorinated Biphenyls (PCBs)
DCTPO01R_00	Portal Branch	Dieldrin
DCTPO01R_00	Portal Branch	Heptachlor Epoxide
DCTPO01R_00	Portal Branch	Polychlorinated Biphenyls (PCBs)
DCTPY01R_00	Piney Branch	Chlordane
DCTPY01R_00	Piney Branch	Dieldrin
DCTPY01R_00	Piney Branch	Heptachlor Epoxide
DCTPY01R_00	Piney Branch	Polychlorinated Biphenyls (PCBs)
DCTSO01R_00	Soapstone Creek	Chlordane
DCTSO01R_00	Soapstone Creek	Dieldrin

Assessment Unit ID	Assessment Unit Name	Cause Name
DCTSO01R_00	Soapstone Creek	Heptachlor Epoxide
DCTSO01R_00	Soapstone Creek	Polychlorinated Biphenyls (PCBs)
DCTTX27R_00	Texas Avenue Tributary	Arsenic
DCTTX27R_00	Texas Avenue Tributary	Chlordane
DCTTX27R_00	Texas Avenue Tributary	DDD
DCTTX27R_00	Texas Avenue Tributary	DDE
DCTTX27R_00	Texas Avenue Tributary	DDT
DCTTX27R_00	Texas Avenue Tributary	Dieldrin
DCTTX27R_00	Texas Avenue Tributary	Heptachlor Epoxide
DCTTX27R_00	Texas Avenue Tributary	Polycyclic Aromatic Hydrocarbons (PAHs) (Aquatic Ecosystems)
DCTWB00R_01	Watts Branch	Chlordane
DCTWB00R_01	Watts Branch	Dieldrin
DCTWB00R_02	Watts Branch	Chlordane
DCTWB00R_02	Watts Branch	Dieldrin

APPENDIX F

Process for Stakeholders to Submit TMDL Priority of their interest to the Director



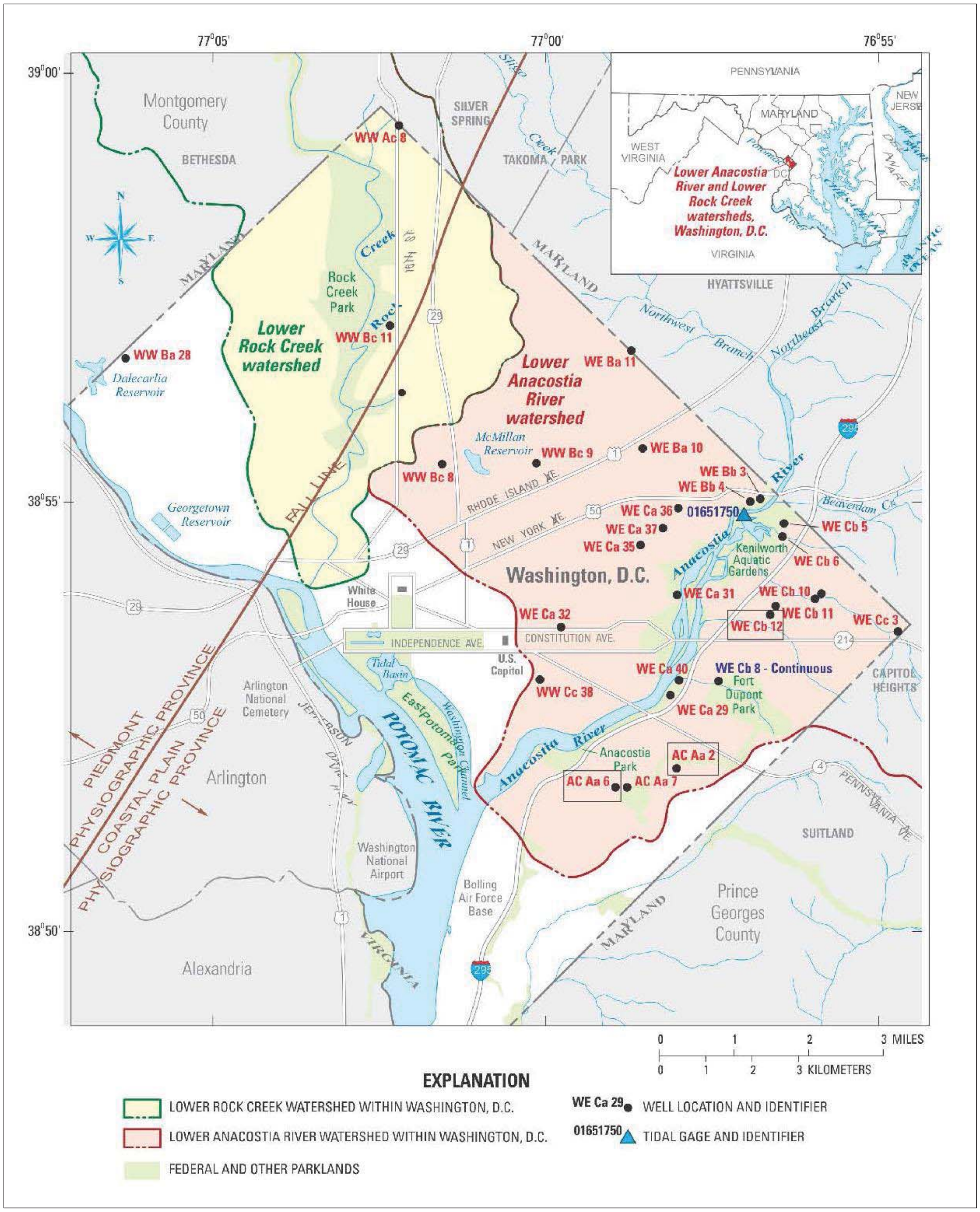
Appendix 5.1 Groundwater Monitoring Wells

USGS Site Name	USGS Site Number	DOEE Well Number	Site Location
AC Aa 1**	385225076590101	DCMW001-03	Anacostia Park Recreation Center
AC Aa 2	385157076580301	DCMW010-05	28th Street SE (near Hillcrest and Park Drives)
AC Aa 6	385138076585901	DCMW001-08	Fort Stanton Park (shallow)
AC Aa 7	385138076585902	DCMW002-08	Fort Stanton Park (deep)
AX Ac 1**	385219077002201	DCMW006-04	Earth Conservation Corps
WE Ba 9	385606076584101	DCMW012-05	Taft Recreation Center
WE Ba 10	385534076582101	DCMW007-05	Langdon Park
WE Ba 11*	385649076584201	DCMW003-08	Ft. Totten
WE Bb 3	385504076563801	DCMW001-02	New York Avenue (shallow)
WE Bb 4	385504076563802	DCMW004-02	New York Avenue (deep)
WE Ca 29	385238076581501	DCMW005-02	Anacostia Park
WE Ca 31	385355076575901	DCMW002-03	Langston Golf Course
WE Ca 32	385332076594701	DCMW001-04	Massachusetts Avenue and 7th Street
WE Ca 33	385349076592801	DCMW006-05	Reservation 210 (Maryland and F Streets)
WE Ca 34**	385245076583501	DCMW005-05	RFK near Barney Circle
WE Ca 35	385429076583601	DCMW004-04	U.S. National Arboretum Azalea Hill
WE Ca 36	385460076574801	DCMW003-04	U.S. National Arboretum Weather Station
WE Ca 37	385446076581001	DCMW005-04	U.S. National Arboretum Administration Building
WE Ca 39	385241076580901	DCMW001-14	DOEE Aquatic Education Center
WE Cb 5	385443076562801	DCMW002-02	Kenilworth Aquatic Gardens (shallow)
WE Cb 6	385443076562802	DCMW003-02	Kenilworth Aquatic Gardens (deep)
WE Cb 8	385252076572801	DCMW002-04	Fort DuPont Park
WE Cb 9**	385355076555501	DCMW001-05	Lederer Gardens #1
WE Cb 10	385354076555901	DCMW002-05	Lederer Gardens #2
WE Cb 11	385332076564101	DCMW003-05	Clay and Flint (shallow)
WE Cb 12	385332076564102	DCMW004-05	Clay and Flint (deep)
WE Cc 3	385327076544801	DCMW008-05	Watts Branch Park
WW Ac 8*	385929077020901	DCMW004-08	16th Street NW and Eastern Avenue

USGS Site Name	USGS Site Number	DOEE Well Number	Site Location
WW Ba 28*	385644077061101	DCMW007-08	Dalecarlia Parkway NW at Warren Place NW
WW Bc 8	385519077012601	DCMW009-05	Banneker Recreation Center
WW Bc 9	385527077000701	DCMW011-05	Edgewood Recreation Center
WW Bc 10*	385619077020701	DCMW005-08	Piney Branch Parkway
WW Bc 11*	385707077021801	DCMW006-08	Carter Barron Amphitheater
WW Cc 38	385257077001101	DCMW001-13	Capitol Hill Day School

*Well installed as part of the DC Pesticides project but monitored as part of the District Groundwater Network.
**Well no longer exists.

Appendix 5.2 Map of Groundwater Monitoring Network



Location of study area, including lower portions of the Anacostia River and Rock Creek watersheds, and Federal and other parklands in Washington, D.C. Wells enclosed with a rectangle designate locations where water quality samples were collected in 2017. Well WE Cb 8 which is screened in the Patuxent Aquifer and is continuously monitored is shown in blue text.

Appendix 5.3 Groundwater Quality Data

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
1	Dissolved oxygen, water, unfiltered, mg/L	(00300)	--	--	0.4	--	0.2	--	--
2	pH, water, unfiltered, field, standard units	(00400)	--	--	7.1	--	6.3	--	--
3	pH, water, unfiltered, laboratory, standard units	(00403)	E5.9	--	7.8	7.8	7.2	--	E6.1
4	Specific conductance, water, unfiltered, laboratory, microsiemens per centimeter at 25 degrees Celsius	(90095)	<5	--	212	222	195	--	<5
5	Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius	(00095)	--	--	195	--	225	--	--
6	Temperature, water, degrees Celsius	(00010)	--	--	18.2	--	17.2	--	--
7	Turbidity, water, unfiltered, broad band light source (400-680 nm), detection angle 90 +-30 degrees to incident light, nephelometric turbidity units (NTU)	(63675)	--	--	3.8	--	2.2	--	--
8	Oxidation reduction potential, relative to the standard hydrogen electrode (SHE), millivolts	(63002)	--	--	-50	--	0	--	--
49	Dissolved solids dried at 180 degrees Celsius, water, filtered, mg/L	(70300)	<20	--	123	135	156	--	<20
50	Calcium, water, filtered, mg/L	(00915)	<0.022	--	20.6	22.7	12.7	--	<0.022
51	Magnesium, water, filtered, mg/L	(00925)	<0.011	--	8.99	10	7.51	--	<0.011
52	Potassium, water, filtered, mg/L	(00935)	<0.30	--	5.96	5.84	4.71	--	<0.30

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
53	Sodium, water, filtered, mg/L	(00930)	<0.40	--	6.12	6.67	8.01	--	<0.40
54	Bromide, water, filtered, mg/L	(71870)	<0.010	--	0.018	0.016	0.079	--	<0.010
55	Chloride, water, filtered, mg/L	(00940)	<0.02	--	5	5.5	37.2	--	<0.02
56	Fluoride, water, filtered, mg/L	(00950)	<0.01	--	0.1	0.11	0.05	--	0.07
57	Hydrogen sulfide, water, unfiltered, mg/L	(71875)	--	--	U	--	U	--	--
58	Silica, water, filtered, mg/L as SiO2	(00955)	<0.050	--	17.8	17.5	19.5	--	<0.050
59	Sulfate, water, filtered, mg/L	(00945)	<0.02	--	9.61	9.84	2.58	--	<0.02
60	Ammonia (NH3 + NH4+), water, filtered, mg/L as nitrogen	(00608)	<0.01	--	0.03	0.03	0.2	--	<0.01
61	Nitrate plus nitrite, water, filtered, mg/L as nitrogen	(00631)	<0.01	--	0.08	0.05	<0.01	--	<0.01
62	Nitrite, water, filtered, mg/L as nitrogen	(00613)	<0.001	--	0.005	0.003	<0.001	--	<0.001
63	Orthophosphate, water, filtered, mg/L as phosphorus	(00671)	<0.004	--	0.093	0.114	<0.004	--	<0.004
64	Phosphorus, water, filtered, mg/L as phosphorus	(00666)	<0.003	--	0.125	0.162	0.114	--	<0.003
65	Fecal coliforms, M-FC MF (0.45 micron) method, water, colony forming units per 100 milliliters	(31616)	20	--	<20	<20	<20	<20	--
66	Aluminum, water, filtered, ug/L	(01106)	<3.0	--	<3.0	<3.0	<3.0	--	<3.0
67	Barium, water, filtered, ug/L	(01005)	<0.10	--	119	119	203	--	<0.10
68	Beryllium, water, filtered, ug/L	(01010)	<0.010	--	0.012	<0.010	0.048	--	<0.010

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
69	Cadmium, water, filtered, ug/L	(01025)	<0.030	--	<0.030	<0.030	<0.030	--	<0.030
70	Chromium, water, filtered, ug/L	(01030)	<0.50	--	<0.50	<0.50	<0.50	--	<0.50
71	Cobalt, water, filtered, ug/L	(01035)	0.367	--	0.04	0.083	0.058	--	<0.030
72	Copper, water, filtered, ug/L	(01040)	0.55	--	<0.40	<0.40	<0.40	--	<0.40
73	Iron, water, filtered, ug/L	(01046)	<10.0	--	2,340	2,220	12,000	--	<10.0
74	Lead, water, filtered, ug/L	(01049)	0.097	--	<0.020	<0.020	<0.020	--	<0.020
75	Lithium, water, filtered, ug/L	(01130)	<0.15	--	6.45	6.38	5.41	--	<0.15
76	Manganese, water, filtered, ug/L	(01056)	0.57	--	138	143	232	--	<0.40
77	Molybdenum, water, filtered, ug/L	(01060)	<0.050	--	0.687	0.878	0.058	--	<0.050
78	Nickel, water, filtered, ug/L	(01065)	0.23	--	0.58	0.79	<0.20	--	<0.20
79	Silver, water, filtered, ug/L	(01075)	<1.00	--	<1.00	<1.00	<1.00	--	<1.00
80	Strontium, water, filtered, ug/L	(01080)	<0.50	--	169	173	128	--	<0.50
81	Thallium, water, filtered, ug/L	(01057)	<0.020	--	<0.040	<0.040	<0.020	--	<0.020
82	Vanadium, water, filtered, ug/L	(01085)	<0.10	--	<0.10	<0.10	0.11	--	<0.10
83	Zinc, water, filtered, ug/L	(01090)	<2.0	--	<2.0	<2.0	4.9	--	<2.0
84	Antimony, water, filtered, ug/L	(01095)	<0.060	--	<0.060	<0.060	<0.060	--	<0.060

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
85	Arsenic, water, filtered, ug/L	(01000)	<0.10	--	<0.10	<0.10	<0.10	--	<0.10
86	Boron, water, filtered, ug/L	(01020)	<5	--	20	22	11	--	<5
87	Selenium, water, filtered, ug/L	(01145)	<0.05	--	<0.05	<0.05	<0.05	--	<0.05
88	1,2,3-Trichloropropane, water, total, ug/L	(77443)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
89	1,2-Dibromo-3-chloropropane, water, total, ug/L	(82625)	<5.0	<5.0	<5.0	<5.0	<5.0	--	<5.0
90	1,2-Dibromoethane, water, total, ug/L	(77651)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
91	1,2-Dichloroethane, water, total, ug/L	(32103)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
92	1,2-Dichloropropane, water, total, ug/L	(34541)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
93	1,3-Dichloropropane, water, total, ug/L	(77173)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
94	1,4-Dichlorobenzene, water, total, ug/L	(34571)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
95	1H-1,2,4-Triazole, water, filtered, recoverable, ng/L	(68498)	<50.0	--	<40.0	<40.0	<50.0	--	<50.0
96	2-(1-Hydroxyethyl)-6-methylaniline, water, filtered, recoverable, ng/L	(68611)	<94.0	--	<54.0	<54.0	<94.0	--	<94.0
97	2,3,3-Trichloro-2-propene-1-sulfonic acid (sodium salt), water, filtered, recoverable, ng/L	(68691)	<54.0	--	<55.0	<55.0	<54.0	--	<54.0
98	2,4,5-Trichlorophenol, water, total, ug/L	(77687)	--	--	<5.0	<5.0	<4.5	--	<4.5
99	2,4,6-Trichlorophenol, water, total, ug/L	(34621)	--	--	<5.0	<5.0	<4.5	--	<4.5
100	2,4-D, water, filtered, recoverable, ng/L	(68500)	<62.0	--	<62.0	<62.0	<62.0	--	<62.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
101	2,4-Dichlorophenol, water, total, ug/L	(34601)	--	--	<2.0	<2.0	<1.8	--	<1.8
102	2,4-Dimethylphenol, water, total, ug/L	(34606)	--	--	<5.0	<5.0	<4.5	--	<4.5
103	2-[(2-Ethyl-6-methylphenyl) amino]-1-propanol, water, filtered, recoverable, ng/L	(68595)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
104	2-Aminobenzimidazole, water, filtered, recoverable, ng/L	(68502)	<9.00	--	<10.0	<10.0	<9.00	--	<9.00
105	2-Amino-N-isopropylbenzamide, water, filtered, recoverable, ng/L	(68503)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
106	2-Chloro-2',6'-diethylacetanilide, water, filtered, recoverable, ng/L	(68525)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
107	2-Chloro-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, ng/L	(68552)	<25.0	--	<11.0	<11.0	<25.0	--	<25.0
108	2-Chloro-6-ethylamino-4-amino-s-triazine, water, filtered, recoverable, ng/L	(68550)	<20.0	--	<20.0	<20.0	<20.0	--	<20.0
109	2-Chloro-N-(2-ethyl-6-methylphenyl) acetamide, water, filtered, recoverable, ng/L	(68521)	<10.0	--	<5.00	<5.00	<10.0	--	<10.0
110	2-Hydroxy-4-isopropylamino-6-amino-s-triazine, water, filtered, recoverable, ng/L	(68659)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
111	2-Hydroxy-4-isopropylamino-6-ethylamino-s-triazine, water, filtered, recoverable, ng/L	(68660)	<8.00	--	<8.00	<8.00	<8.00	--	<8.00
112	2-Hydroxy-6-ethylamino-4-amino-s-triazine, water, filtered, recoverable, ng/L	(68656)	<100	--	<100	<100	<100	--	<100
113	2-Isopropyl-6-methyl-4-pyrimidinol, water, filtered, recoverable, ng/L	(68505)	<20.0	--	<8.0	<8.0	<20.0	--	<20.0
114	2-Methyl-4,6-dinitrophenol, water, total, ug/L	(30204)	--	--	<5.0	<5.0	<4.5	--	<4.5
115	3,4-Dichlorophenylurea, water, filtered, recoverable, ng/L	(68226)	<144	--	<108	<108	<144	--	<144
116	3-Hydroxy carbofuran, water, filtered, recoverable, ng/L	(68508)	<250	--	<250	<250	<250	--	<250

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
117	3-Phenoxybenzoic acid, water, filtered, recoverable, ng/L	(68873)	<100	--	<61.0	<61.0	<100	--	<100
118	4-(Hydroxymethyl) pendimethalin, water, filtered, recoverable, ng/L	(68511)	<213	--	<114	<114	<213	--	<213
119	4-Chloro-3-methylphenol, water, total, ug/L	(34452)	--	--	<5.0	<5.0	<4.5	--	<4.5
120	4-Chloroaniline, water, total, ug/L	(30343)	--	--	<5.0	<5.0	<4.5	--	<4.5
121	4-Chlorobenzylmethyl sulfoxide, water, filtered, recoverable, ng/L	(68514)	<3.20	--	<3.20	<3.20	<3.20	--	<3.20
122	4-Hydroxy molinate, water, filtered, recoverable, ng/L	(68515)	<7.00	--	<7.00	<7.00	<7.00	--	<7.00
123	4-Hydroxychlorothalonil, water, filtered, recoverable, ng/L	(68336)	<98.0	--	<98.0	<98.0	<98.0	--	<98.0
124	4-Hydroxyhexazinone A, water, filtered, recoverable, ng/L	(68517)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
125	4-Nitrophenol, water, total, ug/L	(34646)	--	--	<10	<10	<9	--	<9
126	Acephate, water, filtered, recoverable, ng/L	(68519)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
127	Acetochlor oxanilic acid, water, filtered, recoverable, ng/L	(68522)	<90.0	--	<65.0	<65.0	<90.0	--	<90.0
128	Acetochlor sulfinylacetic acid, water, filtered, recoverable, ng/L	(68524)	<176	--	<176	<176	<176	--	<176
129	Acetochlor sulfonic acid, water, filtered, recoverable, ng/L	(68523)	<320	--	<320	<320	<320	--	<320
130	Acetochlor, water, filtered, recoverable, ng/L	(68520)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
131	Alachlor oxanilic acid, water, filtered, recoverable, ng/L	(68526)	<84.0	--	<60.0	<60.0	<84.0	--	<84.0
132	Alachlor sulfinylacetic acid, water, filtered, recoverable, ng/L	(68527)	<169	--	<128	<128	<169	--	<169

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
133	Alachlor, water, filtered, recoverable, ng/L	(65064)	<10.0	--	<27.0	<27.0	<10.0	--	<10.0
134	Aldicarb sulfone, water, filtered, recoverable, ng/L	(68529)	<250	--	<250	<250	<250	--	<250
135	Aldicarb sulfoxide, water, filtered, recoverable, ng/L	(68530)	<2.20	--	<2.20	<2.20	<2.20	--	<2.20
136	Aldicarb, water, filtered, recoverable, ng/L	(68528)	<8.00	--	<8.00	<8.00	<8.00	--	<8.00
137	Ametryn, water, filtered, recoverable, ng/L	(68533)	<2.60	--	<2.60	<2.60	<2.60	--	<2.60
138	Asulam, water, filtered, recoverable, ng/L	(68536)	<250	--	<50.0	<50.0	<250	--	<250
139	Atrazine, water, filtered, recoverable, ng/L	(65065)	<6.80	--	<6.80	<6.80	<6.80	--	<6.80
140	Azinphos-methyl oxygen analog, water, filtered, recoverable, ng/L	(68211)	<25.0	--	<15.0	<15.0	<25.0	--	<25.0
141	Azinphos-methyl, water, filtered, recoverable, ng/L	(65066)	<8.00	--	<8.00	<8.00	<8.00	--	<8.00
142	Azoxystrobin, water, filtered, recoverable, ng/L	(66589)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
143	Bentazon, water, filtered, recoverable, ng/L	(68538)	<9.00	--	<9.00	<9.00	<9.00	--	<9.00
144	Bifenthrin, water, filtered, recoverable, ng/L	(65067)	<19.0	--	<19.0	<19.0	<19.0	--	<19.0
145	Bromacil, water, filtered, recoverable, ng/L	(68542)	<5.60	--	<10.0	<10.0	<5.60	--	<5.60
146	Bromomethane, water, total, ug/L	(34413)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
147	Bromoxynil, water, filtered, recoverable, ng/L	(68543)	<79.0	--	<60.0	<60.0	<79.0	--	<79.0
148	Butralin, water, filtered, recoverable, ng/L	(68545)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
149	Butylate, water, filtered, recoverable, ng/L	(65068)	<25.0	--	<10.0	<10.0	<25.0	--	<25.0
150	Carbaryl, water, filtered, recoverable, ng/L	(65069)	<5.60	--	<10.0	<10.0	<5.60	--	<5.60
151	Carbazole, water, total, ug/L	(77571)	--	--	<1.0	<1.0	<0.9	--	<0.9
152	Carbendazim, water, filtered, recoverable, ng/L	(68548)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
153	Carbofuran, water, filtered, recoverable, ng/L	(65070)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
154	Carbon disulfide, water, unfiltered, ug/L	(77041)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
155	Carboxy molinate, water, filtered, recoverable, ng/L	(68549)	<50.0	--	<54.0	<54.0	<50.0	--	<50.0
156	Chlorimuron-ethyl, water, filtered, recoverable, ng/L	(68872)	<8.80	--	<10.0	<10.0	<8.80	--	<8.80
157	Chlorodiamino-s-triazine, water, filtered, recoverable, ng/L	(68547)	<25.0	--	<25.0	<25.0	<25.0	--	<25.0
158	Chlorosulfonamide acid, water, filtered, recoverable, ng/L	(68551)	<75.0	--	<60.0	<60.0	<75.0	--	<75.0
159	Chlorpyrifos oxon, water, filtered, recoverable, ng/L	(68216)	<2.00	--	<4.40	<4.40	<2.00	--	<2.00
160	Chlorpyrifos, water, filtered, recoverable, ng/L	(65072)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
161	Chlorsulfuron, water, filtered, recoverable, ng/L	(61678)	<50.0	--	<250	<250	<50.0	--	<50.0
162	cis-1,3-Dichloropropene, water, total, ug/L	(34704)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
163	cis-Cyhalothric acid, water, filtered, recoverable, ng/L	(68553)	<250	--	<200	<200	<250	--	<250
164	cis-Permethrin, water, filtered, recoverable, ng/L	(68769)	<4.2	--	<4.2	<4.2	<4.2	--	<4.2

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
165	Cyanazine, water, filtered, recoverable, ng/L	(66592)	<50.0	--	<50.0	<50.0	<50.0	--	<50.0
166	DCPA monoacid, water, filtered, recoverable, ng/L	(68560)	<2,700	--	<2,700	<2,700	<2,700	--	<2,700
167	Dechlorofipronil, water, filtered, recoverable, ng/L	(68561)	<3.8	--	<3.8	<3.8	<3.8	--	<3.8
168	Dechlorometolachlor, water, filtered, recoverable, ng/L	(68562)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
169	Deiodo flubendiamide, water, filtered, recoverable, ng/L	(68563)	<10.0	--	<250	<250	<10.0	--	<10.0
170	Deisopropyl prometryn, water, filtered, recoverable, ng/L	(68564)	<2.80	--	<2.80	<2.80	<2.80	--	<2.80
171	Demethyl fluometuron, water, filtered, recoverable, ng/L	(68591)	<3.60	--	<3.60	<3.60	<3.60	--	<3.60
172	Demethyl hexazinone B, water, filtered, recoverable, ng/L	(68566)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
173	Demethyl norflurazon, water, filtered, recoverable, ng/L	(68567)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
174	Desamino metribuzin, water, filtered, recoverable, ng/L	(68568)	<9.00	--	<9.00	<9.00	<9.00	--	<9.00
175	Desamino-diketo metribuzin, water, filtered, recoverable, ng/L	(68569)	<200	--	<200	<200	<200	--	<200
176	Desulfinylfipronil amide, water, filtered, recoverable, ng/L	(68570)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
177	Desulfinylfipronil, water, filtered, recoverable, ng/L	(66607)	<3.80	--	<3.80	<3.80	<3.80	--	<3.80
178	Diazinon, water, filtered, recoverable, ng/L	(65078)	<2.80	--	<2.80	<2.80	<2.80	--	<2.80
179	Diazoxon, water, filtered, recoverable, ng/L	(68236)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
180	Dicamba, water, filtered, recoverable, ng/L	(68571)	<2,400	--	<800	<800	<2,400	--	<2,400

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
181	Dichlorvos, water, filtered, recoverable, ng/L	(68572)	<52.0	--	<52.0	<52.0	<52.0	--	<52.0
182	Dicrotophos, water, filtered, recoverable, ng/L	(68573)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
183	Didemethyl hexazinone F, water, filtered, recoverable, ng/L	(68574)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
184	Diflubenzuron, water, filtered, recoverable, ng/L	(68576)	<6.00	--	<6.00	<6.00	<6.00	--	<6.00
185	Diflufenzopyr, water, filtered, recoverable, ng/L	(68577)	<72.0	--	<72.0	<72.0	<72.0	--	<72.0
186	Diketonitrile-isoxaflutole, water, filtered, recoverable, ng/L	(68578)	<62.0	--	<24.0	<24.0	<62.0	--	<62.0
187	Dimethenamid oxanilic acid, water, filtered, recoverable, ng/L	(68581)	<85.0	--	<85.0	<85.0	<85.0	--	<85.0
188	Dimethenamid sulfinylacetic acid, water, filtered, recoverable, ng/L	(68583)	<189	--	<189	<189	<189	--	<189
189	Dimethenamid sulfonic acid, water, filtered, recoverable, ng/L	(68582)	<79.0	--	<79.0	<79.0	<79.0	--	<79.0
190	Dimethenamid, water, filtered, recoverable, ng/L	(68580)	<3.00	--	<3.00	<3.00	<3.00	--	<3.28
191	Dimethoate, water, filtered, recoverable, ng/L	(66596)	<4.60	--	<4.60	<4.60	<4.60	--	<4.60
192	Disulfoton oxon sulfone, water, filtered, recoverable, ng/L	(68588)	<6.00	--	<6.00	<6.00	<6.00	--	<6.00
193	Disulfoton oxon sulfoxide, water, filtered, recoverable, ng/L	(68587)	<6.00	--	<6.00	<6.00	<6.00	--	<6.00
194	Disulfoton oxon, water, filtered, recoverable, ng/L	(68586)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
195	Disulfoton sulfone, water, filtered, recoverable, ng/L	(68589)	<250	--	<9.00	<9.00	<250	--	<250
196	Disulfoton sulfoxide, water, filtered, recoverable, ng/L	(68590)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
197	Disulfoton, water, filtered, recoverable, ng/L	(67595)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
198	Diuron, water, filtered, recoverable, ng/L	(66598)	<10.0	--	<5.00	<5.00	<10.0	--	<10.0
199	EPTC degradate R248722, water, filtered, recoverable, ng/L	(68594)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
200	EPTC, water, filtered, recoverable, ng/L	(65080)	<206	--	<206	<206	<206	--	<206
201	Ethoprop, water, filtered, recoverable, ng/L	(68596)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
202	Etoxazole, water, filtered, recoverable, ng/L	(68598)	<4.20	--	<4.20	<4.20	<4.20	--	<4.20
203	Fenamiphos sulfone, water, filtered, recoverable, ng/L	(68600)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
204	Fenamiphos sulfoxide, water, filtered, recoverable, ng/L	(68601)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
205	Fenamiphos, water, filtered, recoverable, ng/L	(68599)	<2.00	--	<4.60	<4.60	<2.00	--	<2.00
206	Fenbutatin oxide, water, filtered, recoverable, ng/L	(68602)	<100	--	<120	<120	<100	--	<100
207	Fentin, water, filtered, recoverable, ng/L	(68603)	<30.0	--	<30.0	<30.0	<30.0	--	<30.0
208	Fipronil amide, water, filtered, recoverable, ng/L	(68604)	<9.20	--	<9.20	<9.20	<9.20	--	<9.20
209	Fipronil sulfide, water, filtered, recoverable, ng/L	(66610)	<4.20	--	<4.20	<4.20	<4.20	--	<4.20
210	Fipronil sulfonate, water, filtered, recoverable, ng/L	(68605)	<96.0	--	<96.0	<96.0	<96.0	--	<96.0
211	Fipronil sulfone, water, filtered, recoverable, ng/L	(66613)	<5.60	--	<5.60	<5.60	<5.60	--	<5.60
212	Fipronil, water, filtered, recoverable, ng/L	(66604)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
213	Flubendiamide, water, filtered, recoverable, ng/L	(68606)	<4.40	--	<4.40	<4.40	<4.40	--	<4.40
214	Flumetsulam, water, filtered, recoverable, ng/L	(61679)	<17.0	--	<17.0	<17.0	<17.0	--	<17.0
215	Fluometuron, water, filtered, recoverable, ng/L	(68608)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
216	Fonofos, water, filtered, recoverable, ng/L	(65084)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
217	Halosulfuron methyl, water, filtered, recoverable, ng/L	(61680)	<25.0	--	<12.0	<12.0	<25.0	--	<25.0
218	Hexachlorobenzene, water, total, ug/L	(39700)	--	--	<1.0	<1.0	<0.9	--	<0.9
219	Hexachlorodibenzo-p-dioxins (all isomers), water, total, picograms per liter	(62219)	<1.2	--	<1.3	<1.0	<1.6	--	<1.2
220	Hexazinone Transformation Product C, water, filtered, recoverable, ng/L	(68612)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
221	Hexazinone Transformation Product D, water, filtered, recoverable, ng/L	(68613)	<294	--	<294	<294	<294	--	<294
222	Hexazinone Transformation Product E, water, filtered, recoverable, ng/L	(68614)	<76.0	--	<76.0	<76.0	<76.0	--	<76.0
223	Hexazinone Transformation Product G, water, filtered, recoverable, ng/L	(68713)	<22.0	--	<22.0	<22.0	<22.0	--	<22.0
224	Hexazinone, water, filtered, recoverable, ng/L	(65085)	<3.60	--	<3.60	<3.60	<3.60	--	<3.60
225	Hydroxy didemethyl fluometuron, water, filtered, recoverable, ng/L	(68619)	<50.0	--	<50.0	<50.0	<50.0	--	<50.0
226	Hydroxy monodemethyl fluometuron, water, filtered, recoverable, ng/L	(68617)	<12.0	--	--	--	<12.0	--	<12.0
227	Hydroxyacetochlor, water, filtered, recoverable, ng/L	(68615)	<25.0	--	<20.0	<20.0	<25.0	--	<25.0
228	Hydroxyalachlor, water, filtered, recoverable, ng/L	(68616)	<6.00	--	<10.0	<10.0	<6.00	--	<6.00

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
229	Hydroxydiazinon, water, filtered, recoverable, ng/L	(68618)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
230	Hydroxyfluometuron, water, filtered, recoverable, ng/L	(68620)	<10.0	--	--	--	<10.0	--	<10.0
231	Hydroxymetolachlor, water, filtered, recoverable, ng/L	(68622)	<2.40	--	<2.50	<2.50	<2.40	--	<2.40
232	Hydroxyphthalazinone, water, filtered, recoverable, ng/L	(68623)	<46.0	--	<28.0	<28.0	<46.0	--	<46.0
233	Hydroxysimazine, water, filtered, recoverable, ng/L	(68624)	<100	--	<120	<120	<100	--	<100
234	Imazamox, water, filtered, recoverable, ng/L	(68625)	<28.0	--	<30.0	<30.0	<28.0	--	<28.0
235	Imazaquin, water, filtered, recoverable, ng/L	(61682)	<18.0	--	<18.0	<18.0	<18.0	--	<18.0
236	Imazethapyr, water, filtered, recoverable, ng/L	(61683)	<20.0	--	<8.00	<8.00	<20.0	--	<20.0
237	Imidacloprid, water, filtered, recoverable, ng/L	(68426)	<16.0	--	<16.0	<16.0	<16.0	--	<16.0
238	Indoxacarb, water, filtered, recoverable, ng/L	(68627)	<250	--	<5.20	<5.20	<250	--	<250
239	Isoxaflutole acid metabolite RPA 203328, water, filtered, recoverable, ng/L	(68633)	<9.20	--	<9.20	<9.20	<9.20	--	<9.20
240	Isoxaflutole, water, filtered, recoverable, ng/L	(68632)	<25.0	--	<18.0	<18.0	<25.0	--	<25.0
241	Kresoxim-methyl, water, filtered, recoverable, ng/L	(67670)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
242	Lactofen, water, filtered, recoverable, ng/L	(68638)	<250	--	<10.0	<10.0	<250	--	<250
243	Linuron, water, filtered, recoverable, ng/L	(68639)	<5.60	--	<5.60	<5.60	<5.60	--	<5.60
244	Malaoxon, water, filtered, recoverable, ng/L	(68240)	<250	--	<2.40	<2.40	<250	--	<250

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
245	Malathion, water, filtered, recoverable, ng/L	(65087)	<5.40	--	<5.40	<5.40	<5.40	--	<5.40
246	MCPA, water, filtered, recoverable, ng/L	(68641)	<95.0	--	<95.0	<95.0	<95.0	--	<95.0
247	Metalaxyl, water, filtered, recoverable, ng/L	(68437)	<6.00	--	<10.0	<10.0	<6.00	--	<6.00
248	Metconazole, water, filtered, recoverable, ng/L	(66620)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
249	Methamidophos, water, filtered, recoverable, ng/L	(68644)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
250	Methidathion, water, filtered, recoverable, ng/L	(65088)	<8.40	--	<8.40	<8.40	<8.40	--	<8.40
251	Methomyl oxime, water, filtered, recoverable, ng/L	(68646)	<2,000	--	<8,000	<8,000	<2,000	--	<2,000
252	Methomyl, water, filtered, recoverable, ng/L	(68645)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
253	Methoxyfenozide, water, filtered, recoverable, ng/L	(68647)	<2.20	--	<2.20	<2.20	<2.20	--	<2.20
254	Methyl paraoxon, water, filtered, recoverable, ng/L	(68648)	<19.0	--	<25.0	<25.0	<19.0	--	<19.0
255	Metolachlor hydroxy morpholinone, water, filtered, recoverable, ng/L	(68649)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
256	Metolachlor oxanilic acid, water, filtered, recoverable, ng/L	(68650)	<149	--	<149	<149	<149	--	<149
257	Metolachlor sulfonic acid, water, filtered, recoverable, ng/L	(68651)	<68.0	--	<68.0	<68.0	<68.0	--	<68.0
258	Metolachlor, water, filtered, recoverable, ng/L	(65090)	<9.0	--	<3.2	<3.2	<9.0	--	<9.0
259	Metribuzin DK, water, filtered, recoverable, ng/L	(68653)	<236	--	<236	<236	<236	--	<236
260	Metribuzin, water, filtered, recoverable, ng/L	(68652)	<20.0	--	<20.0	<20.0	<20.0	--	<20.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
261	Molinate, water, filtered, recoverable, ng/L	(65091)	<50.0	--	<28.0	<28.0	<50.0	--	<50.0
262	Myclobutanil, water, filtered, recoverable, ng/L	(66632)	<7.00	--	<7.00	<7.00	<7.00	--	<7.00
263	N-(3,4-Dichlorophenyl)-N'-methylurea, water, filtered, recoverable, ng/L	(68231)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
264	Naled, water, filtered, recoverable, ng/L	(68654)	<250	--	<250	<250	<250	--	<250
265	Nicosulfuron, water, filtered, recoverable, ng/L	(61685)	<12.0	--	<12.0	<12.0	<12.0	--	<12.0
266	Norflurazon, water, filtered, recoverable, ng/L	(67685)	<3.40	--	<3.40	<3.40	<3.40	--	<3.40
267	Novaluron, water, filtered, recoverable, ng/L	(68655)	<250	--	<50.0	<50.0	<250	--	<250
268	o-Cresol, water, total, ug/L	(77152)	--	--	<2.0	<2.0	<1.8	--	<1.8
269	O-Ethyl O-methyl S-propyl phosphorothioate, water, filtered, recoverable, ng/L	(68597)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
270	O-Ethyl S-methyl S-propyl phosphorodithioate, water, filtered, recoverable, ng/L	(68657)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
271	O-Ethyl S-propyl phosphorothioate, water, filtered, recoverable, ng/L	(68658)	<64.0	--	<64.0	<64.0	<64.0	--	<64.0
272	Omethoate, water, filtered, recoverable, ng/L	(68661)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
273	Orthosulfamuron, water, filtered, recoverable, ng/L	(68662)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
274	Oryzalin, water, filtered, recoverable, ng/L	(68663)	<12.0	--	<12.0	<12.0	<12.0	--	<12.0
275	Oxamyl oxime, water, filtered, recoverable, ng/L	(68665)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
276	Oxamyl, water, filtered, recoverable, ng/L	(68664)	<250	--	<2.00	<2.00	<250	--	<250

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
277	Oxyfluorfen, water, filtered, recoverable, ng/L	(65093)	<1,000	--	<500	<500	<1,000	--	<1,000
278	Paraoxon, water, filtered, recoverable, ng/L	(68666)	<3.40	--	<3.40	<3.40	<3.40	--	<3.40
279	Pendimethalin, water, filtered, recoverable, ng/L	(65098)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
280	Pentachlorophenol, water, total, ug/L	(39032)	--	--	<4.0	<4.0	<3.6	--	<3.6
281	Phorate oxon sulfoxide, water, filtered, recoverable, ng/L	(68671)	<7.00	--	<7.00	<7.00	<7.00	--	<7.00
282	Phorate oxygen analog sulfone, water, filtered, recoverable, ng/L	(68670)	<50.0	--	<20.0	<20.0	<50.0	--	<50.0
283	Phorate oxygen analog, water, filtered, recoverable, ng/L	(68669)	<100	--	<55.0	<55.0	<100	--	<100
284	Phorate sulfone, water, filtered, recoverable, ng/L	(68672)	<25.0	--	<36.0	<36.0	<25.0	--	<25.0
285	Phorate sulfoxide, water, filtered, recoverable, ng/L	(68673)	<4.60	--	<4.60	<4.60	<4.60	--	<4.60
286	Phorate, water, filtered, recoverable, ng/L	(68668)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
287	Phthalazinone, water, filtered, recoverable, ng/L	(68675)	<50.0	--	<25.0	<25.0	<50.0	--	<50.0
288	Piperonyl butoxide, water, filtered, recoverable, ng/L	(65102)	<60.0	--	<60.0	<60.0	<60.0	--	<60.0
289	Profenofos, water, filtered, recoverable, ng/L	(68676)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
290	Prometon, water, filtered, recoverable, ng/L	(67702)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
291	Prometryn, water, filtered, recoverable, ng/L	(65103)	<4.20	--	<4.20	<4.20	<4.20	--	<4.20
292	Propanil, water, filtered, recoverable, ng/L	(66641)	<12.0	--	<12.0	<12.0	<12.0	--	<12.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
293	Propargite, water, filtered, recoverable, ng/L	(68677)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
294	Propazine, water, filtered, recoverable, ng/L	(68678)	<3.20	--	<3.20	<3.20	<3.20	--	<3.20
295	Propiconazole, water, filtered, recoverable, ng/L	(66643)	<6.00	--	<6.00	<6.00	<6.00	--	<6.00
296	Propoxur, water, filtered, recoverable, ng/L	(68679)	<250	--	<3.20	<3.20	<250	--	<250
297	Propyzamide, water, filtered, recoverable, ng/L	(67706)	<2.40	--	<2.40	<2.40	<2.40	--	<2.40
298	Prosulfuron, water, filtered, recoverable, ng/L	(61687)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
299	Pyraclostrobin, water, filtered, recoverable, ng/L	(66646)	<2.40	--	<2.40	<2.40	<2.40	--	<2.40
300	Pyridaben, water, filtered, recoverable, ng/L	(68682)	<2.40	--	<2.40	<2.40	<2.40	--	<2.40
301	Pyriproxyfen, water, filtered, recoverable, ng/L	(68683)	<3.0	--	<3.0	<3.0	<3.0	--	<3.0
302	sec-Acetochlor oxanilic acid, water, filtered, recoverable, ng/L	(68684)	<100	--	<200	<200	<100	--	<100
303	sec-Alachlor oxanilic acid, water, filtered, recoverable, ng/L	(68685)	<135	--	<110	<110	<135	--	<135
304	Siduron, water, filtered, recoverable, ng/L	(68686)	<5.00	--	<5.00	<5.00	<5.00	--	<5.00
305	Simazine, water, filtered, recoverable, ng/L	(65105)	<7.20	--	<10.0	<10.0	<7.20	--	<7.20
306	Sulfentrazone, water, filtered, recoverable, ng/L	(68687)	<18.0	--	<18.0	<18.0	<18.0	--	<18.0
307	Sulfometuron-methyl, water, filtered, recoverable, ng/L	(68688)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
308	Sulfosulfuron ethyl sulfone, water, filtered, recoverable, ng/L	(68690)	<2.80	--	<2.80	<2.80	<2.80	--	<2.80

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
309	Sulfosulfuron, water, filtered, recoverable, ng/L	(68689)	<11.0	--	<25.0	<25.0	<11.0	--	<11.0
310	Tebuconazole, water, filtered, recoverable, ng/L	(66649)	<5.00	--	<15.0	<15.0	<5.00	--	<5.00
311	Tebufenozide, water, filtered, recoverable, ng/L	(68692)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
312	Tebupirimfos oxon, water, filtered, recoverable, ng/L	(68694)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
313	Tebupirimfos, water, filtered, recoverable, ng/L	(68693)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
314	Tebuthiuron Transformation Product 104, water, filtered, recoverable, ng/L	(68575)	<5.60	--	<5.60	<5.60	<5.60	--	<5.60
315	Tebuthiuron Transformation Product 106, water, filtered, recoverable, ng/L	(68714)	<76.0	--	<32.0	<32.0	<76.0	--	<76.0
316	Tebuthiuron Transformation Product 108, water, filtered, recoverable, ng/L	(68696)	<10.0	--	<10.0	<10.0	<10.0	--	<10.0
317	Tebuthiuron Transformation Product 109 (OH), water, filtered, recoverable, ng/L	(68697)	<38.0	--	<250	<250	<38.0	--	<38.0
318	Tebuthiuron Transformation Product 109, water, filtered, recoverable, ng/L	(68621)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
319	Tebuthiuron, water, filtered, recoverable, ng/L	(68695)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
320	Terbacil, water, filtered, recoverable, ng/L	(68698)	<21.0	--	<25.0	<25.0	<21.0	--	<21.0
321	Terbufos oxon sulfoxide, water, filtered, recoverable, ng/L	(68702)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
322	Terbufos oxon, water, filtered, recoverable, ng/L	(68700)	<4.00	--	<4.00	<4.00	<4.00	--	<4.00
323	Terbufos oxygen analog sulfone, water, filtered, recoverable, ng/L	(68701)	<11.0	--	<11.0	<11.0	<11.0	--	<11.0
324	Terbufos sulfone, water, filtered, recoverable, ng/L	(68703)	<25.0	--	<11.0	<11.0	<25.0	--	<25.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
325	Terbufos sulfoxide, water, filtered, recoverable, ng/L	(68704)	<3.00	--	<3.00	<3.00	<3.00	--	<3.00
326	Terbufos, water, filtered, recoverable, ng/L	(68699)	<6.80	--	<6.80	<6.80	<6.80	--	<6.80
327	Terbuthylazine, water, filtered, recoverable, ng/L	(66651)	<3.60	--	<3.60	<3.60	<3.60	--	<3.60
328	Tetraconazole, water, filtered, recoverable, ng/L	(66654)	<10.0	--	<7.00	<7.00	<10.0	--	<10.0
329	Thiobencarb, water, filtered, recoverable, ng/L	(65107)	<4.20	--	<4.20	<4.20	<4.20	--	<4.20
330	trans-1,3-Dichloropropene, water, total, ug/L	(34699)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
331	trans-Permethrin, water, filtered, recoverable, ng/L	(68708)	<3.80	--	<3.80	<3.80	<3.80	--	<3.80
332	Triallate, water, filtered, recoverable, ng/L	(68710)	<12.0	--	<12.0	<12.0	<12.0	--	<12.0
333	Tribufos, water, filtered, recoverable, ng/L	(68711)	<2.00	--	<2.00	<2.00	<2.00	--	<2.00
334	Triclopyr, water, filtered, recoverable, ng/L	(68712)	<88.0	--	36.8	29.3	<88.0	--	<88.0
335	Trifloxystrobin, water, filtered, recoverable, ng/L	(66660)	<2.80	--	<2.80	<2.80	<2.80	--	<2.80
336	Aroclor 1016, water, total, ug/L	(34671)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
337	Aroclor 1221, water, total, ug/L	(39488)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
338	Aroclor 1232, water, total, ug/L	(39492)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
339	Aroclor 1242, water, total, ug/L	(39496)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
340	Aroclor 1248, water, total, ug/L	(39500)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
341	Aroclor 1254, water, total, ug/L	(39504)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
342	Aroclor 1260, water, total, ug/L	(39508)	<0.1	--	<0.1	<0.1	<0.1	--	<0.1
343	Aroclor 1262, water, total, ug/L	(81649)	<0.09	--	<0.09	<0.09	<0.09	--	<0.09
344	Aroclor 1268, water, total, ug/L	(81650)	<0.093	--	<0.093	<0.093	<0.094	--	<0.093
345	Total Aroclors, water, total, ug/L	(63691)	<0.09	--	<0.09	<0.09	<0.09	--	<0.09
346	1,1,1,2-Tetrachloroethane, water, total, ug/L	(77562)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
347	1,1,1-Trichloroethane, water, total, ug/L	(34506)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
348	1,1,2,2-Tetrachloroethane, water, total, ug/L	(34516)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
349	1,1,2-Trichloro-1,2,2-trifluoroethane, water, total, ug/L	(77652)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
350	1,1,2-Trichloroethane, water, total, ug/L	(34511)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
351	1,1-Dichloroethane, water, total, ug/L	(34496)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
352	1,1-Dichloroethene, water, total, ug/L	(34501)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
353	1,1-Dichloropropene, water, total, ug/L	(77168)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
354	1,2,3,4,6,7,8,9-Octachlorodibenzofuran, water, total, picograms per liter	(62216)	<4.5	--	<5.0	<4.0	<4.9	--	<3.7
355	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin, water, total, picograms per liter	(62206)	<3.4	--	<3.8	<3.0	<3.4	--	<3.1
356	1,2,3,4,6,7,8-Heptachlorodibenzofuran, water, total, picograms per liter	(62214)	<1.2	--	<1.0	<0.7	<0.9	--	<1.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
357	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin, water, total, picograms per liter	(62205)	<2.0	--	<1.9	<2.0	<2.5	--	<2.4
358	1,2,3,4,7,8,9-Heptachlorodibenzofuran, water, total, picograms per liter	(62215)	<1.6	--	<1.3	<0.9	<1.3	--	<1.3
359	1,2,3,4,7,8-Hexachlorodibenzofuran, water, total, picograms per liter	(62210)	<1.0	--	<1.0	<0.8	<1.0	--	<1.0
360	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin, water, total, picograms per liter	(62202)	<1.4	--	<1.5	<1.2	<1.9	--	<1.4
361	1,2,3,6,7,8-Hexachlorodibenzofuran, water, total, picograms per liter	(62211)	<0.8	--	<0.9	<0.7	<0.8	--	<0.9
362	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin, water, total, picograms per liter	(62203)	<1.2	--	<1.3	<1.0	<1.6	--	<1.2
363	1,2,3,7,8,9-Hexachlorodibenzofuran, water, total, picograms per liter	(62212)	<1.2	--	<1.2	<1.0	<1.2	--	<1.3
364	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin, water, total, picograms per liter	(62204)	<1.3	--	<1.5	<1.2	<1.8	--	<1.4
365	1,2,3,7,8-Pentachlorodibenzofuran, water, total, picograms per liter	(62208)	<1.2	--	<1.1	<1.2	<1.1	--	<0.9
366	1,2,3,7,8-Pentachlorodibenzo-p-dioxin, water, total, picograms per liter	(62201)	<1.1	--	<1.1	<0.7	<1.1	--	<1.0
367	1,2,3-Trichlorobenzene, water, total, ug/L	(77613)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
368	1,2,4-Trichlorobenzene, water, total, ug/L	(34551)	<1.0	<1.0	<0.001	<1.0	<1.0	--	<1.0
369	1,2,4-Trimethylbenzene, water, total, ug/L	(77222)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
370	1,2-Dichlorobenzene, water, total, ug/L	(34536)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
371	1,2-Dichloroethene (cis & trans), water, total, ug/L	(45617)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
372	1,3,5-Trimethylbenzene, water, total, ug/L	(77226)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
373	1,3-Dichlorobenzene, water, total, ug/L	(34566)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
374	2,2-Dichloropropane, water, total, ug/L	(77170)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
375	2,3,4,6,7,8-Hexachlorodibenzofuran, water, total, picograms per liter	(62213)	<0.9	--	<1.0	<0.8	<0.9	--	<1.0
376	2,3,4,7,8-Pentachlorodibenzofuran, water, total, picograms per liter	(62209)	<1.0	--	<1.0	<1.0	<1.0	--	<0.8
377	2,3,7,8-Tetrachlorodibenzofuran, water, total, picograms per liter	(62207)	<1.7	--	<1.6	<1.5	<1.7	--	<1.5
378	2,3,7,8-Tetrachlorodibenzo-p-dioxin, water, total, picograms per liter	(62200)	<1.4	--	<1.4	<1.1	<1.3	--	<1.1
379	2,4-Dinitrophenol, water, total, ug/L	(34616)	--	--	<5	<5	--	--	<4
380	2,4-Dinitrotoluene, water, total, ug/L	(34611)	--	--	<1.0	<1.0	<0.9	--	<0.9
381	2,6-Dinitrotoluene, water, total, ug/L	(34626)	--	--	<1.0	<1.0	<0.9	--	<0.9
382	2-Chloronaphthalene, water, total, ug/L	(34581)	--	--	<2.0	<2.0	<1.8	--	<1.8
383	2-Chlorophenol, water, total, ug/L	(34586)	--	--	<5.0	<5.0	<4.5	--	<4.5
384	2-Chlorotoluene, water, total, ug/L	(77275)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
385	2-Methylnaphthalene, water, total, ug/L	(30194)	--	--	<1.0	<1.0	<0.9	--	<0.9
386	2-Nitroaniline, water, total, ug/L	(30195)	--	--	<5.0	<5.0	<4.5	--	<4.5
387	2-Nitrophenol, water, total, ug/L	(34591)	--	--	<5.0	<5.0	<4.5	--	<4.5
388	3,3'-Dichlorobenzidine, water, total, ug/L	(34631)	--	--	<2	<2	<2	--	<2

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
389	3-Nitroaniline, water, total, ug/L	(78300)	--	--	<5.0	<5.0	<4.5	--	<4.5
390	4-Bromophenyl phenyl ether, water, total, ug/L	(34636)	--	--	<2.0	<2.0	<1.8	--	<1.8
391	4-Chlorophenyl phenyl ether, water, total, ug/L	(34641)	--	--	<2.0	<2.0	<1.8	--	<1.8
392	4-Chlorotoluene, water, total, ug/L	(77277)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
393	4-Isopropyltoluene, water, total, ug/L	(77356)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
394	4-Nitroaniline, water, total, ug/L	(30196)	--	--	<5.0	<5.0	<4.5	--	<4.5
395	9H-Fluorene, water, total, ug/L	(34381)	--	--	<1.0	<1.0	<0.9	--	<0.9
396	Acenaphthene, water, total, ug/L	(34205)	--	--	<1.0	<1.0	<0.9	--	<0.9
397	Acenaphthylene, water, total, ug/L	(34200)	--	--	<1.0	<1.0	<0.9	--	<0.9
398	Acetone, water, total, ug/L	(81552)	43	41	29	27	18	--	19
399	Alachlor sulfonic acid, water, filtered, recoverable, ng/L	(68871)	<360	--	<800	<800	<360	--	<360
400	Anthracene, water, total, ug/L	(34220)	--	--	<1.0	<1.0	<0.9	--	<0.9
401	Benzene, water, total, ug/L	(34030)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
402	Benzo[a]anthracene, water, total, ug/L	(34526)	--	--	<1.0	<1.0	<0.9	--	<0.9
403	Benzo[a]pyrene, water, total, ug/L	(34247)	--	--	<1.0	<1.0	<0.9	--	<0.9
404	Benzo[b]fluoranthene, water, total, ug/L	(34230)	--	--	<1.0	<1.0	<0.9	--	<0.9

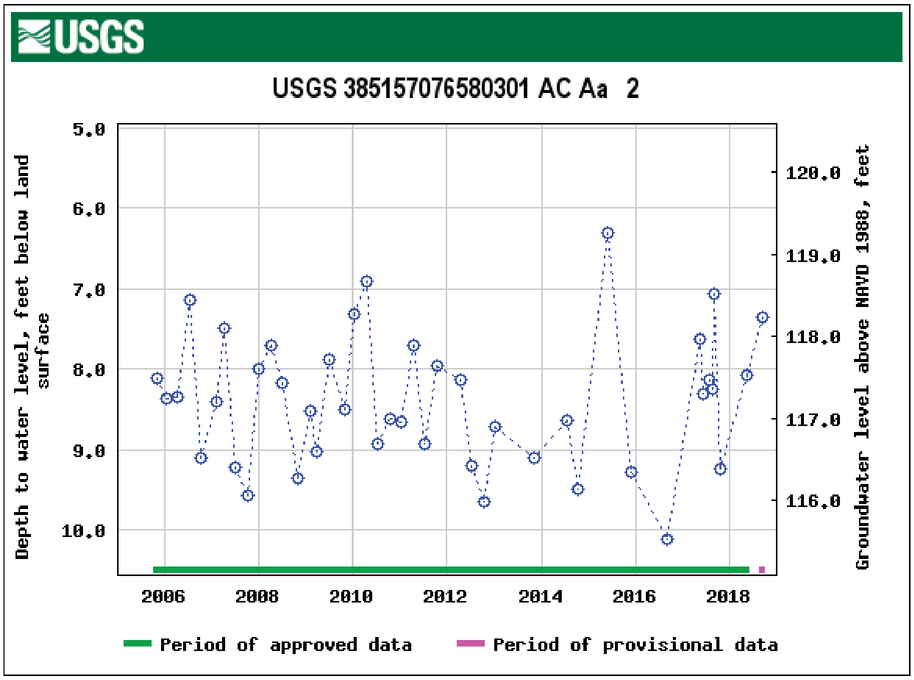
	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
405	Benzo[ghi]perylene, water, total, ug/L	(34521)	--	--	<1.0	<1.0	<0.9	--	<0.9
406	Benzo[k]fluoranthene, water, total, ug/L	(34242)	--	--	<1.0	<1.0	<0.9	--	<0.9
407	Benzoic acid, water, total, ug/L	(77247)	--	--	<2	<2	<2	--	<2
408	Benzyl alcohol, water, total, ug/L	(77147)	--	--	<2.0	<2.0	<1.8	--	<1.8
409	Benzyl n-butyl phthalate, water, total, ug/L	(34292)	--	--	<2.0	<2.0	<1.8	--	<1.8
410	Bis(2-chloro-1-methylethyl) ether, water, total, ug/L	(68200)	--	--	<2.00	<2.00	--	--	<1.80
411	Bis(2-chloroethoxy) methane, water, total, ug/L	(34278)	--	--	<2.0	<2.0	<1.8	--	<1.8
412	Bis(2-chloroethyl) ether, water, total, ug/L	(34273)	--	--	<2.0	<2.0	<1.8	--	<1.8
413	Bis(2-ethylhexyl) phthalate, water, total, ug/L	(39100)	--	--	<2.0	<2.0	<1.8	--	<1.8
414	Bromobenzene, water, total, ug/L	(81555)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
415	Bromochloromethane, water, total, ug/L	(77297)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
416	Bromodichloromethane, water, total, ug/L	(32101)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
417	Chlorobenzene, water, total, ug/L	(34301)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
418	Chloroethane, water, total, ug/L	(34311)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
419	Chloromethane, water, total, ug/L	(34418)	<1.0	0.9	0.8	0.8	<1.0	--	0.8
420	Chrysene, water, total, ug/L	(34320)	--	--	<1	<1	<0.91	--	<0.91

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
421	cis-1,2-Dichloroethene, water, total, ug/L	(77093)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
422	Dibenzo[a, h]anthracene, water, total, ug/L	(34556)	--	--	<1.0	<1.0	<0.9	--	<0.9
423	Dibenzofuran, water, total, ug/L	(81302)	--	--	<5.0	<5.0	<4.5	--	<4.5
424	Dibromochloromethane, water, total, ug/L	(32105)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
425	Dibromomethane, water, total, ug/L	(30217)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
426	Dichlorodifluoromethane, water, total, ug/L	(34668)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
427	Dichloromethane, water, total, ug/L	(34423)	0.4	0.5	0.3	<5.0	<5.0	--	0.4
428	Diesel range organic compounds (C10-C28), water, total, ug/L	(52138)	<190	--	<190	<190	<200	--	<190
429	Diethyl phthalate, water, total, ug/L	(34336)	--	--	<2.0	<2.0	<1.8	--	<1.8
430	Dimethyl phthalate, water, total, ug/L	(34341)	--	--	<2.0	<2.0	<1.8	--	<1.8
431	Di-n-butyl phthalate, water, total, ug/L	(39110)	--	--	<2.0	<2.0	<1.8	--	<1.8
432	Di-n-octyl phthalate, water, total, ug/L	(34596)	--	--	<2.0	<2.0	<1.8	--	<1.8
433	Ethylbenzene, water, total, ug/L	(34371)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
434	Fluoranthene, water, total, ug/L	(34376)	--	--	<1.0	<1.0	<0.9	--	<0.9
435	Gasoline range organic compounds, water, total, ug/L	(49892)	71	--	65	62	61	--	48
436	Heptachlorodibenzofurans (all isomers), water, total, picograms per liter	(62224)	<1.2	--	<0.989	<0.684	<0.936	--	<0.967
437	Heptachlorodibenzo-p-dioxins (all isomers), water, total, picograms per liter	(62220)	<2.0	--	<1.9	<2.0	<2.5	--	<2.4
438	Hexachlorobutadiene, water, total, ug/L	(39702)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
439	Hexachlorocyclopentadiene, water, total, ug/L	(34386)	--	--	<10	<10	<9.1	--	<9.1

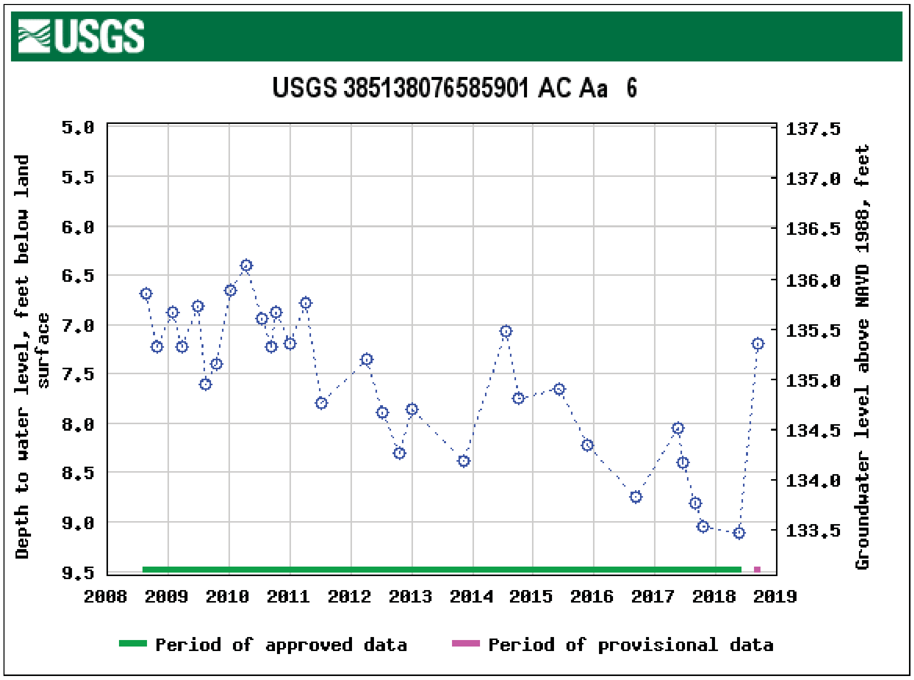
	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
440	Hexachlorodibenzofurans (all isomers), water, total, picograms per liter	(62223)	<0.825	--	<0.852	<0.719	<0.826	--	<0.903
441	Hexachloroethane, water, total, ug/L	(34396)	--	--	<2.0	<2.0	<1.8	--	<1.8
442	Indeno[1,2,3-cd] pyrene, water, total, ug/L	(34403)	--	--	<1.0	<1.0	<0.9	--	<0.9
443	Isobutyl methyl ketone, water, total, ug/L	(78133)	1.4	1.3	1.4	1.3	1	--	1.3
444	Isophorone, water, total, ug/L	(34408)	--	--	<2	<2	<2	--	<2
445	Isopropylbenzene, water, total, ug/L	(77223)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
446	Methyl ethyl ketone, water, total, ug/L	(81595)	<10	<10	<10	<10	<10	--	<10
447	Methyl tert-butyl ether, water, total, ug/L	(78032)	<1.0	<1.0	<1.0	<1.0	1.3	--	<1.0
448	m-Xylene plus p-xylene, water, total, ug/L	(85795)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
449	Naphthalene, water, total, ug/L	(34696)	<1.0	<1.0	<0.001	<1.0	<1.0	--	<1.0
450	n-Butyl methyl ketone, water, total, ug/L	(77103)	<2.0	<2.0	<2.0	<2.0	<2.0	--	<2.0
451	n-Butylbenzene, water, total, ug/L	(77342)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
452	Nitrobenzene, water, total, ug/L	(34447)	--	--	<1.0	<1.0	<0.9	--	<0.9
453	N-Nitrosodimethylamine (NDMA), water, total, ug/L	(34438)	--	--	<2.0	<2.0	<1.8	--	<1.8
454	N-Nitrosodi-n-propylamine, water, total, ug/L	(34428)	--	--	<2.0	<2.0	<1.8	--	<1.8
455	N-Nitrosodiphenylamine, water, total, ug/L	(34433)	--	--	<5.0	<5.0	<4.5	--	<4.5
456	n-Propylbenzene, water, total, ug/L	(77224)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
457	Organic carbon, water, filtered, mg/L	(00681)	0.23	--	0.6	0.55	0.24	--	0.75
458	o-Xylene, water, total, ug/L	(77135)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
459	Pentachlorodibenzofurans (all isomers), water, total, picograms per liter	(62222)	<0.888	--	<1.0	<0.845	<0.860	--	<0.834
460	Pentachlorodibenzo-p-dioxins (all isomers), water, total, picograms per liter	(62218)	<1.1	--	<1.1	<0.710	<1.1	--	<1.0
461	Phenanthrene, water, total, ug/L	(34461)	--	--	<1	<1	<0.91	--	<0.91
462	Phenol, water, total, ug/L	(34694)	--	--	<2.0	<2.0	<1.8	--	<1.8
463	Pyrene, water, total, ug/L	(34469)	--	--	<1.0	<1.0	<0.9	--	<0.9
464	sec-Butylbenzene, water, total, ug/L	(77350)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
465	Styrene, water, total, ug/L	(77128)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
466	tert-Butylbenzene, water, total, ug/L	(77353)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
467	Tetrachlorodibenzo-p-dioxins (all isomers), water, total, picograms per liter	(62217)	<1.4	--	<1.4	<1.1	<1.3	--	<1.1
468	Tetrachloroethene, water, total, ug/L	(34475)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
469	Tetrachloromethane, water, total, ug/L	(32102)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
470	Toluene, water, total, ug/L	(34010)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0

	Station name	Parameter	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 39	WE Ca 40	WE Ca 40	USGS TEST Main Lab at Research Park Dr
	Date	Code	9/19/2018	9/19/2018	9/25/2018	9/25/2018	9/19/2018	9/25/2018	9/18/2018
	Sample start time		1000	1400	1540	1545	1215	1500	1445
			Field Blank	Trip Blank	Environmental	Replicate	Environmental		Equipment Blank
471	trans-1,2-Dichloroethene, water, total, ug/L	(34546)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
472	Tribromomethane, water, total, ug/L	(32104)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
473	Trichloroethene, water, total, ug/L	(39180)	<1	<1	<1	<1	<1	--	<1
474	Trichlorofluoromethane, water, total, ug/L	(34488)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
475	Trichloromethane, water, total, ug/L	(32106)	1.9	2.2	<1.0	<1.0	<1.0	--	<1.0
476	Vinyl chloride, water, total, ug/L	(39175)	<1.0	<1.0	<1.0	<1.0	<1.0	--	<1.0
477	Xylene (all isomers), water, total, ug/L	(81551)	<3.0	<3.0	<3.0	<3.0	<3.0	--	<3.0
478	Radium-224, water, filtered, picocuries per liter	(50833)	R0.01	--	0.46	0.47	0.38	--	R-0.03
479	Radium-226, water, filtered, picocuries per liter	(09503)	R-0.004	--	0.36	0.33	0.48	--	R0.004
480	Radium-228, water, filtered, picocuries per liter	(81366)	R0.22	--	R0.36	0.41	0.8	--	0.4
481	Uranium (natural), water, filtered, ug/L	(22703)	<0.030	--	0.073	0.096	<0.030	--	<0.030

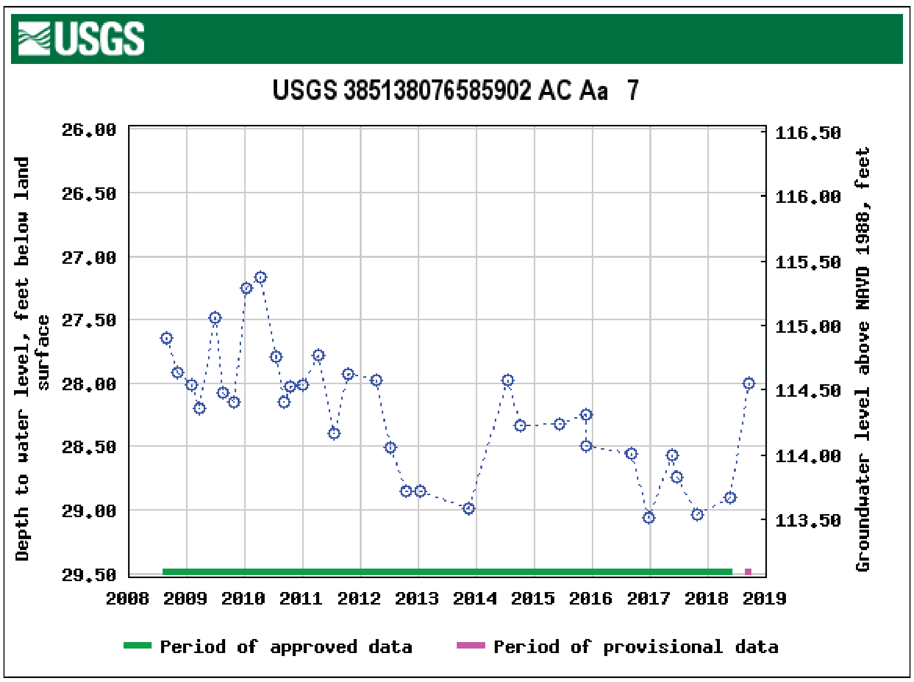
Appendix 5.4 Water Level Measurements for Monitoring Wells



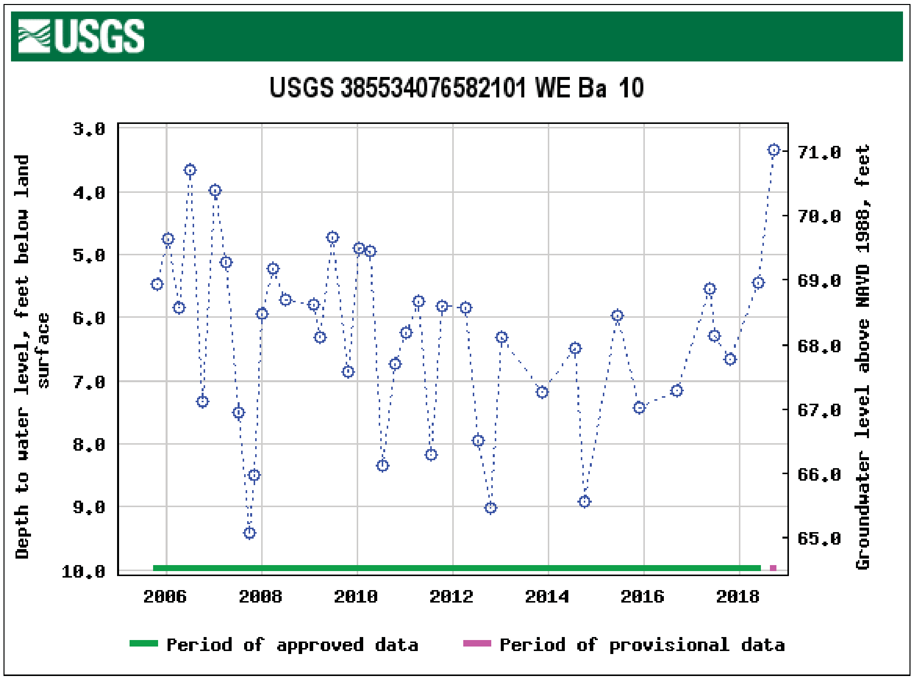
Graph of manual water-level measurements for well DCMW010-05 (AC Aa 2).



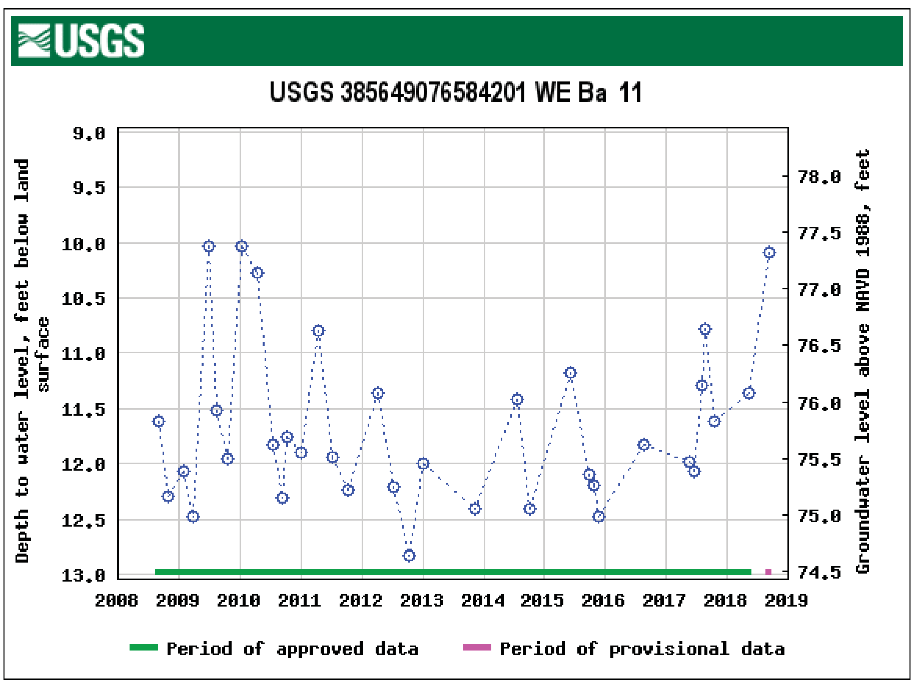
Graph of manual water-level measurements for well DCMW001-08 (AC Aa 6).



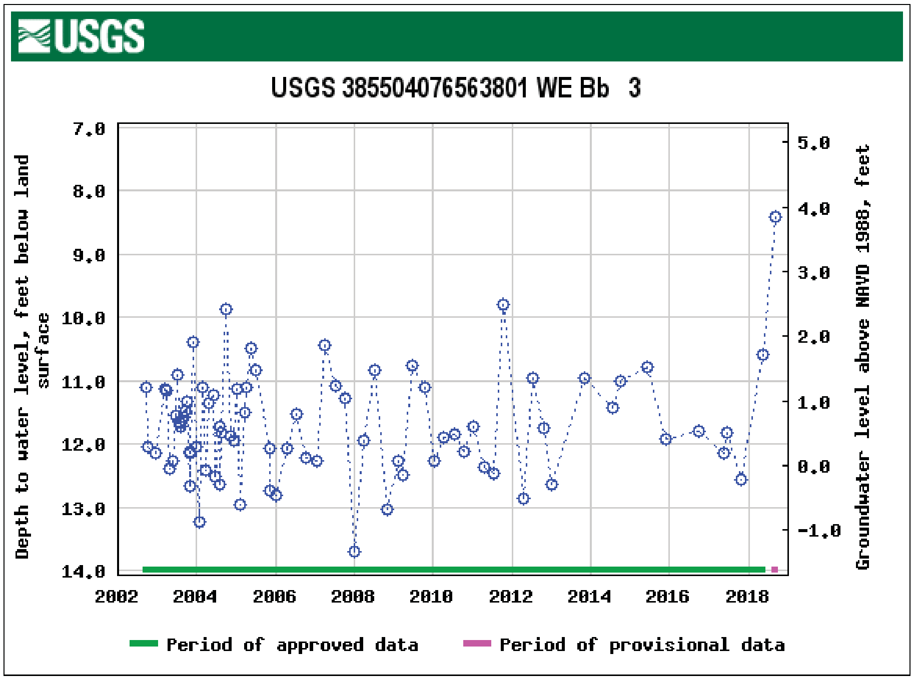
Graph of manual water-level measurements for well DCMW002-08 (AC Aa 7).



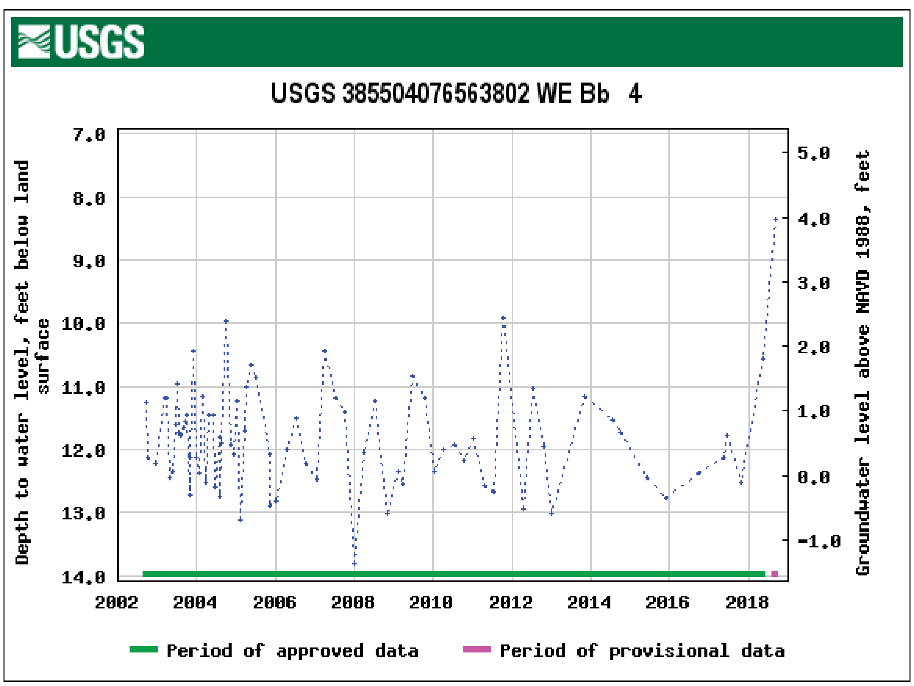
Graph of manual water-level measurements for well DCMW007-05 (WE Ba 10).



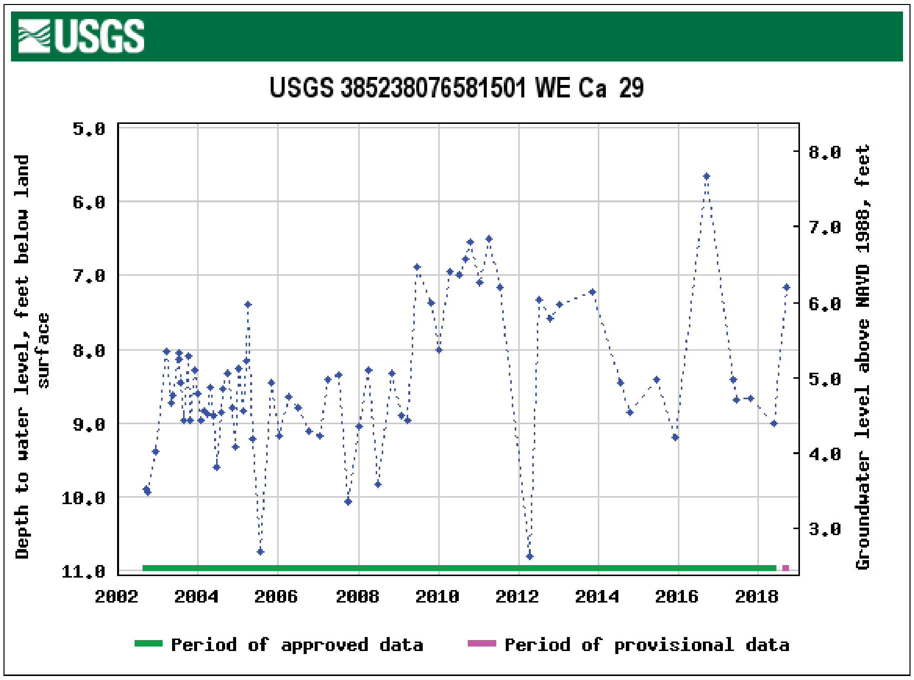
Graph of manual water-level measurements for well DCM003-8 (WE Ba 11).



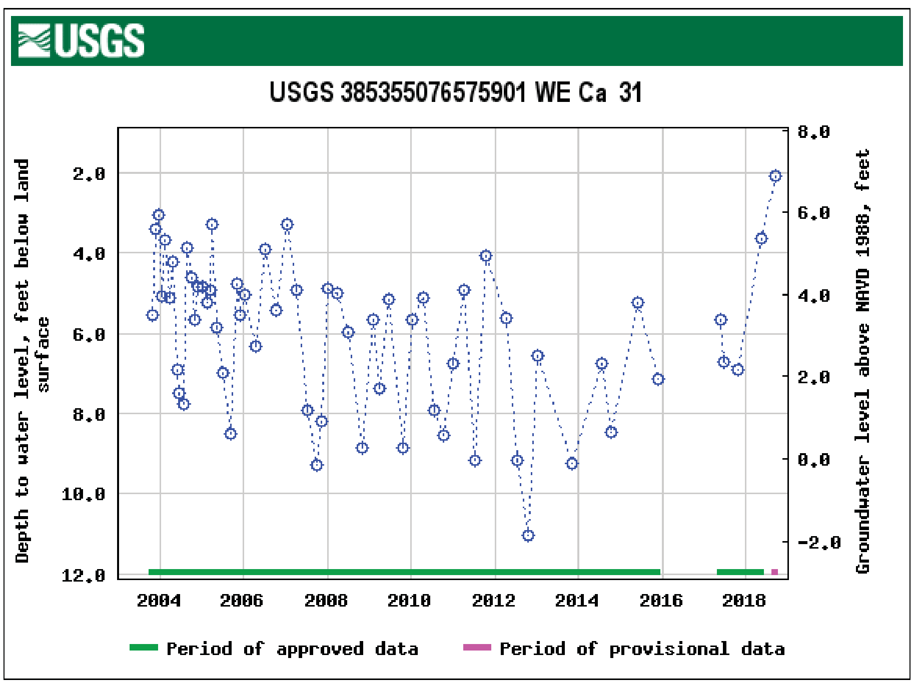
Graph of manual water-level measurements for well DCMW001-02 (WE Bb 3).



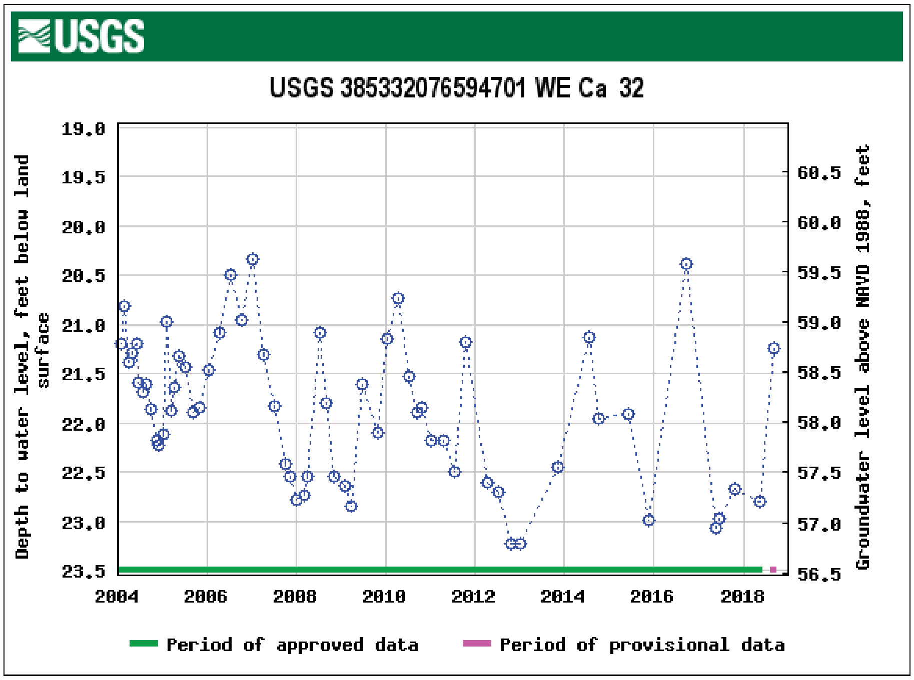
Graph of manual water-level measurements for well DCMW004-02 (WE Bb 4).



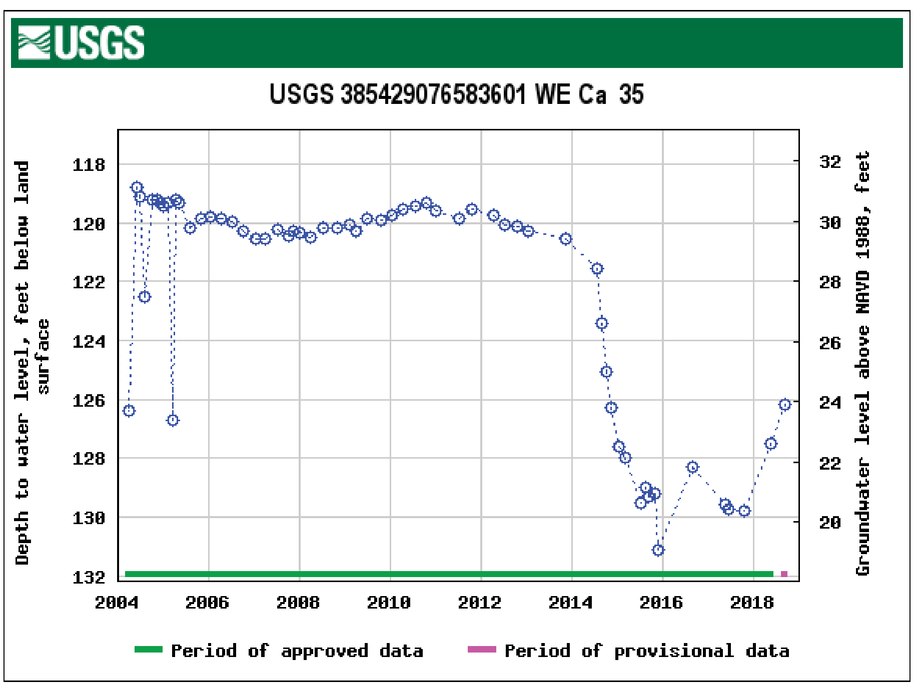
Graph of manual water-level measurements for well DCMW005-02 (WE Ca 29).



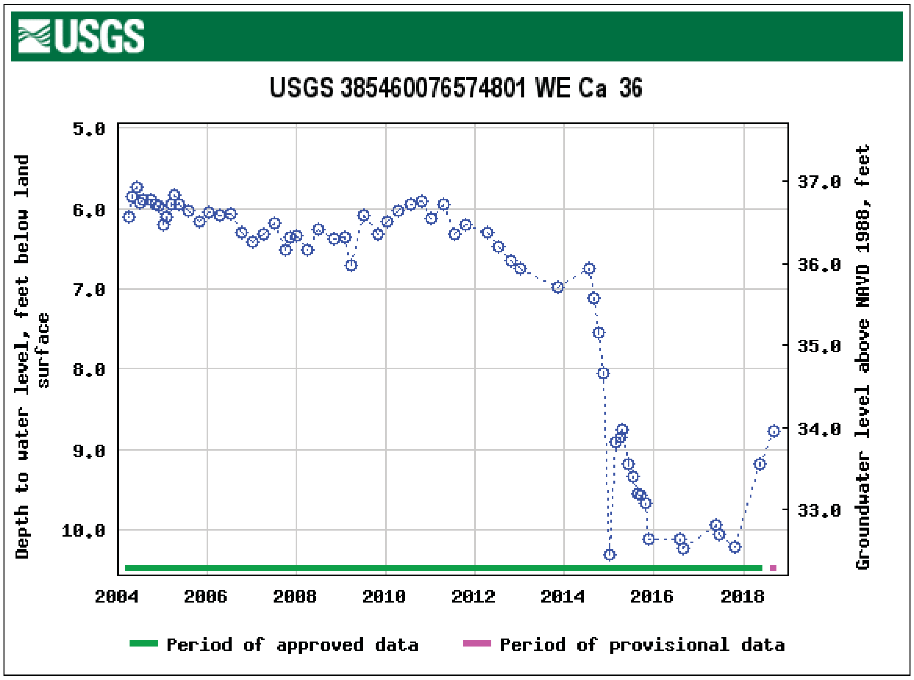
Graph of manual water-level measurements for well DCMW002-03 (WE Ca 31).



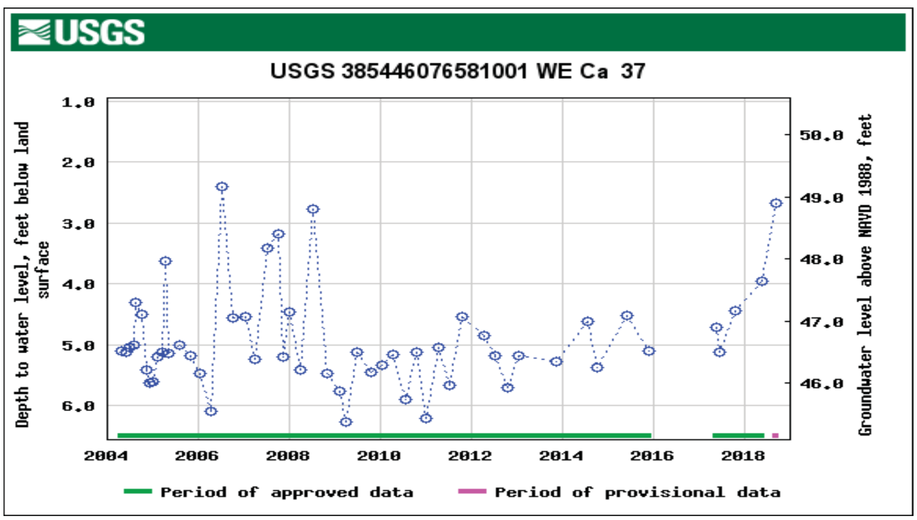
Graph of manual water-level measurements for well DCMW001-04 (WE Ca 32).



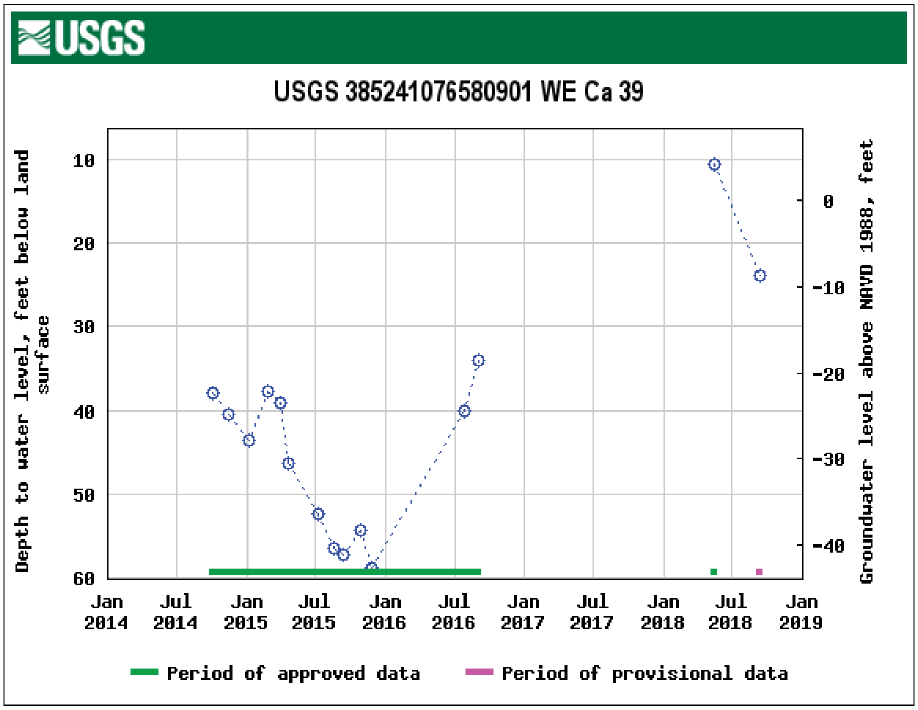
Graph of manual water-level measurements for well DCMW004-04 (WE Ca 35).



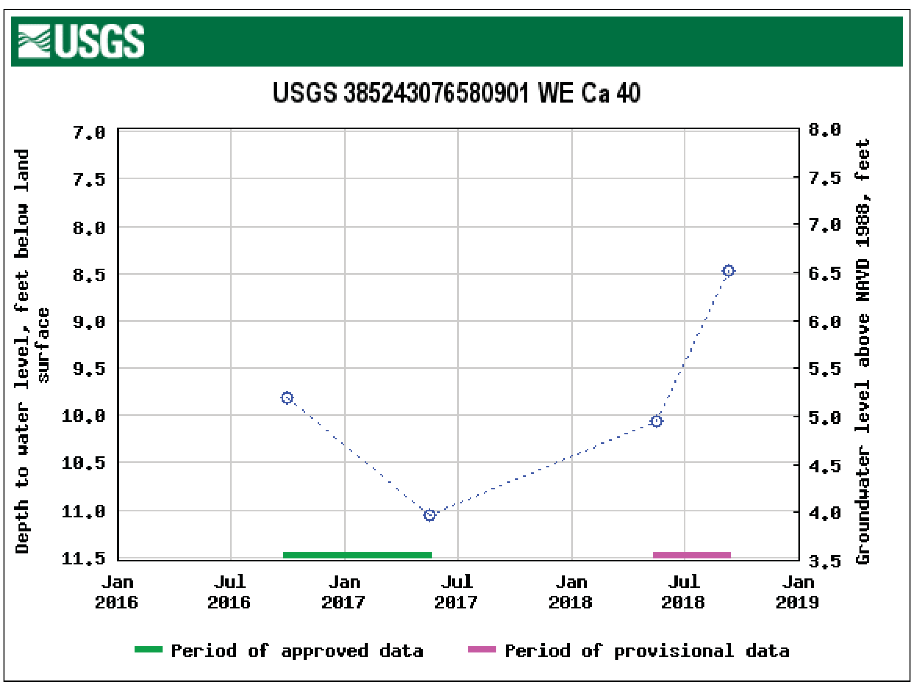
Graph of manual water-level measurements for well DCMW003-04 (WE Ca 36).



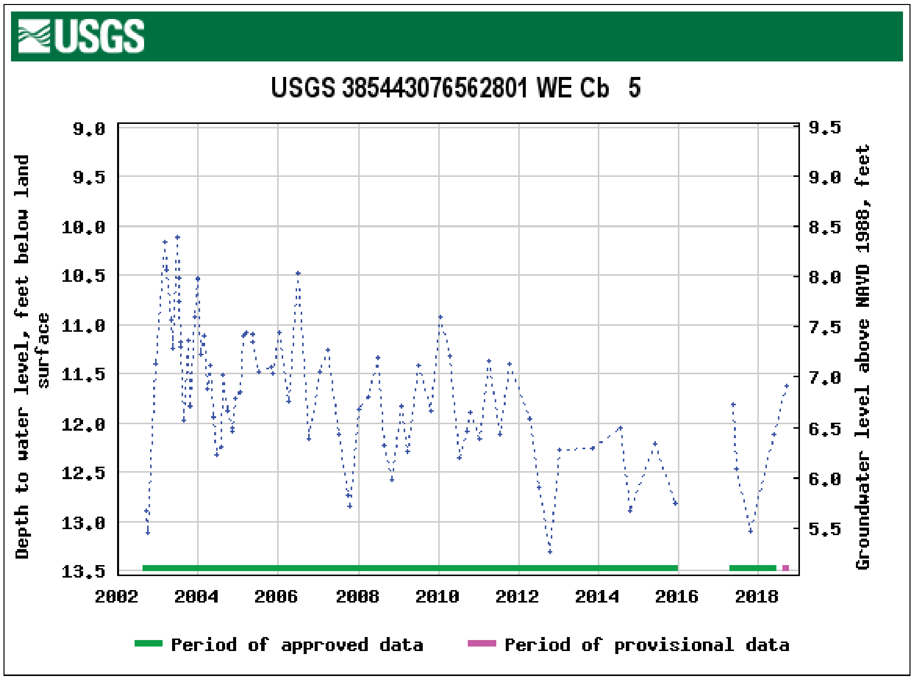
Graph of manual water-level measurements for well DCMW005-04 (WE Ca 37)



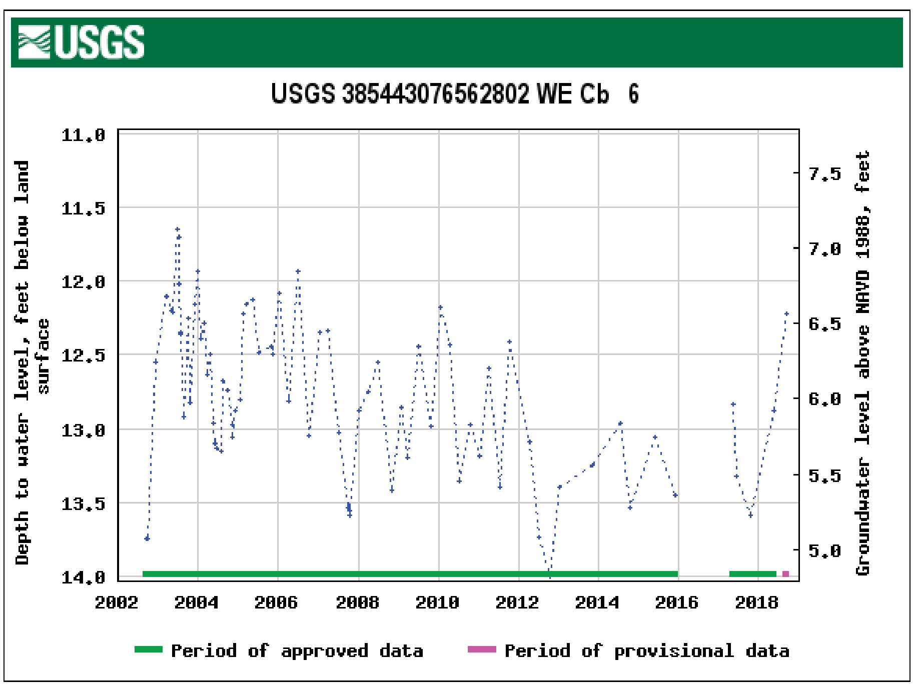
Graph of manual water-level measurements for well DCMW001-14 (WE Ca 39)



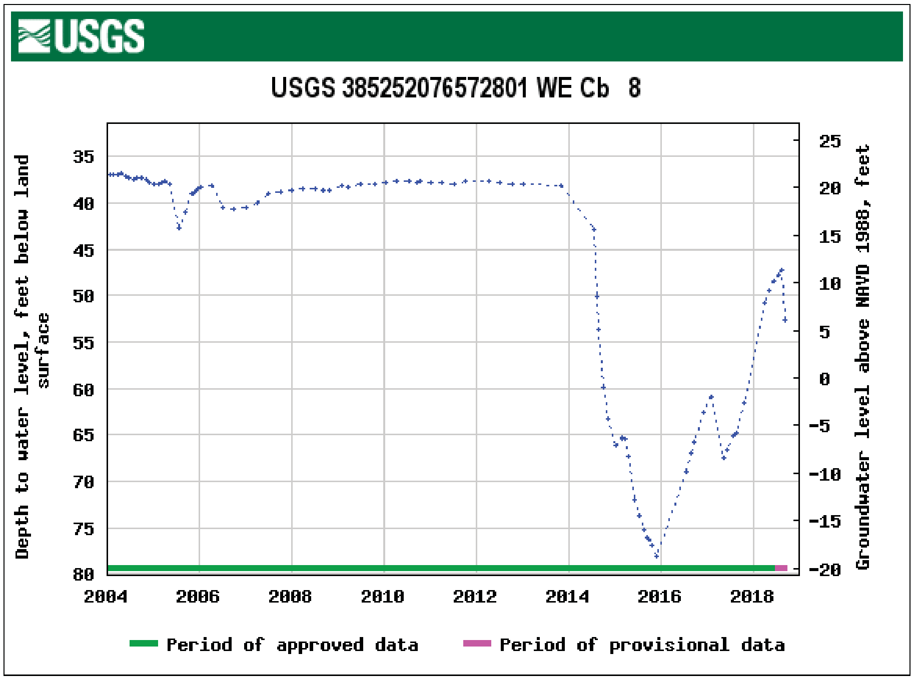
Graph of manual water-level measurements for well DCMW016-01 (WE Ca 40).



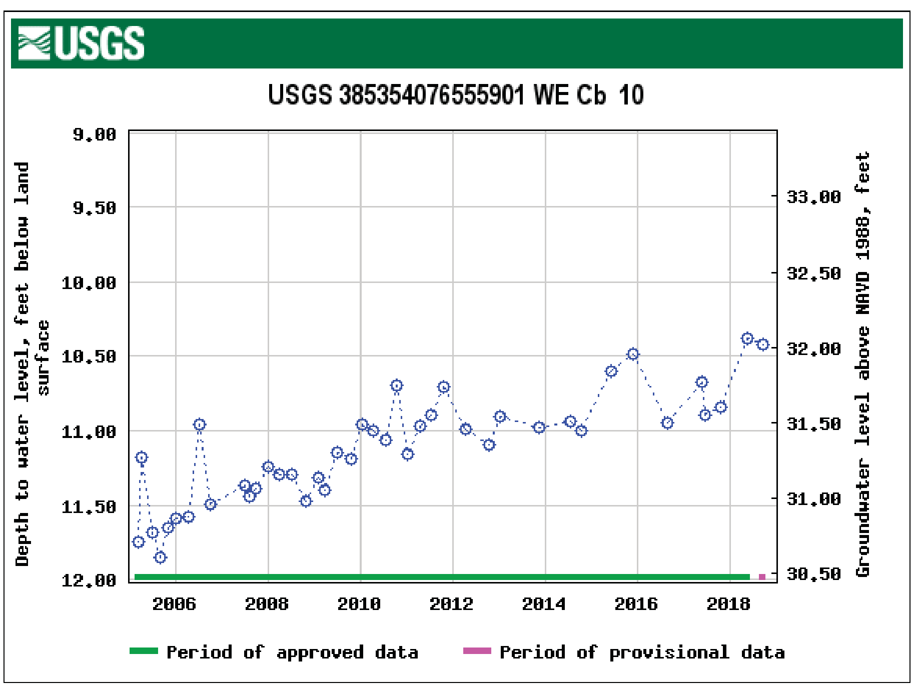
Graph of manual water-level measurements for well DCMW002-02 (WE Cb 5).



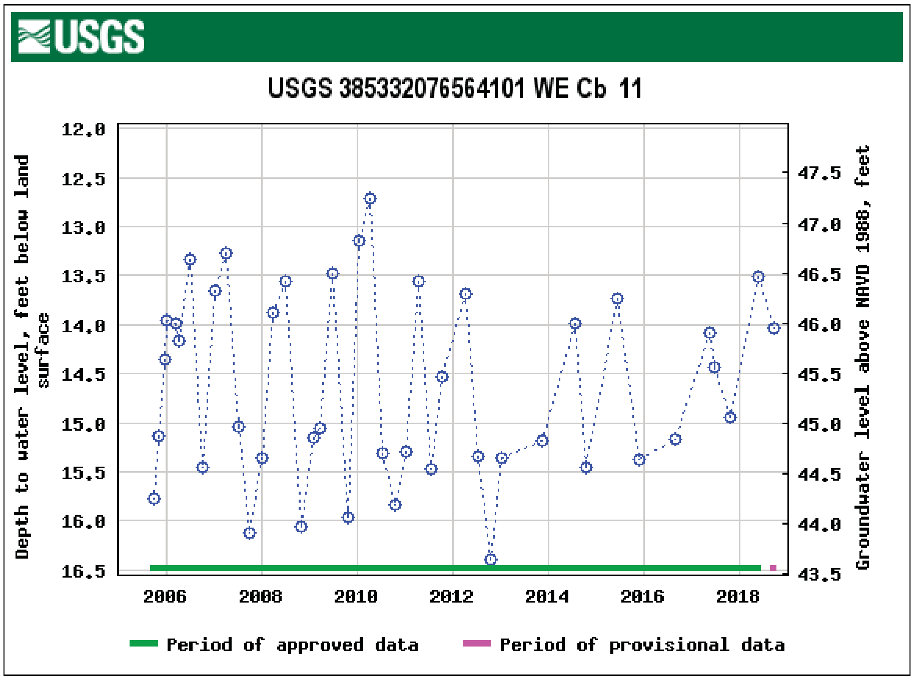
Graph of manual water-level measurements for well DCMW003-02 (WE Cb 6).



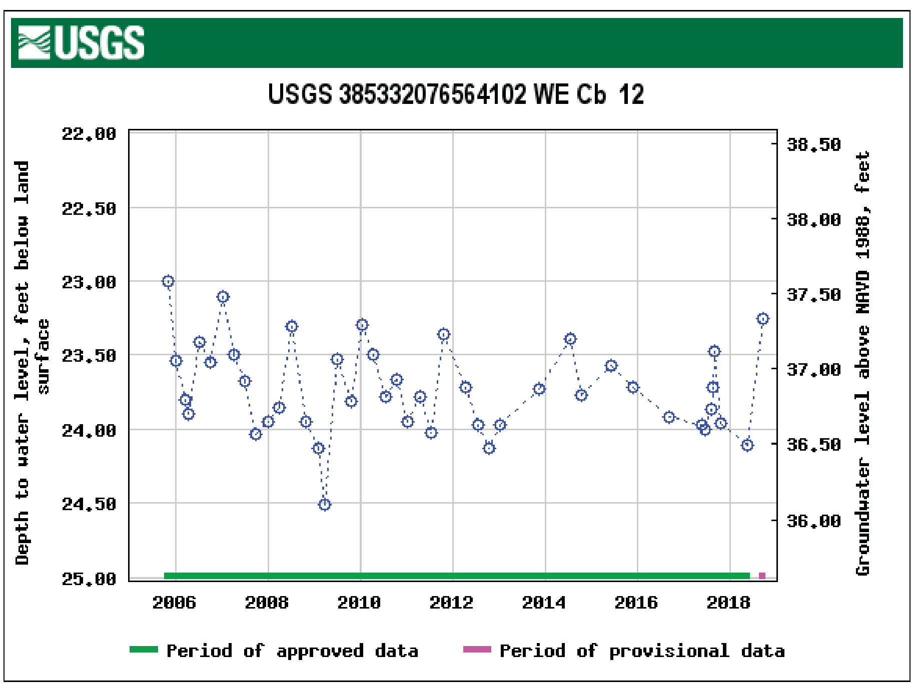
Graph of water-level measurements for well DCMW002-04 (WE Cb 8).



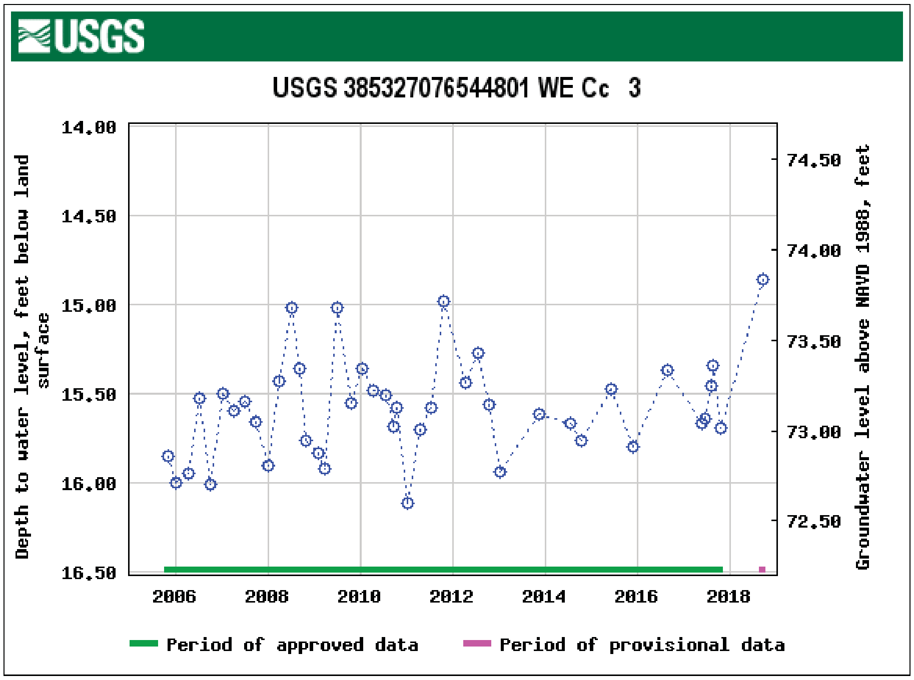
Graph of manual water-level measurements for well DCMW002-05 (WE Cb 10).



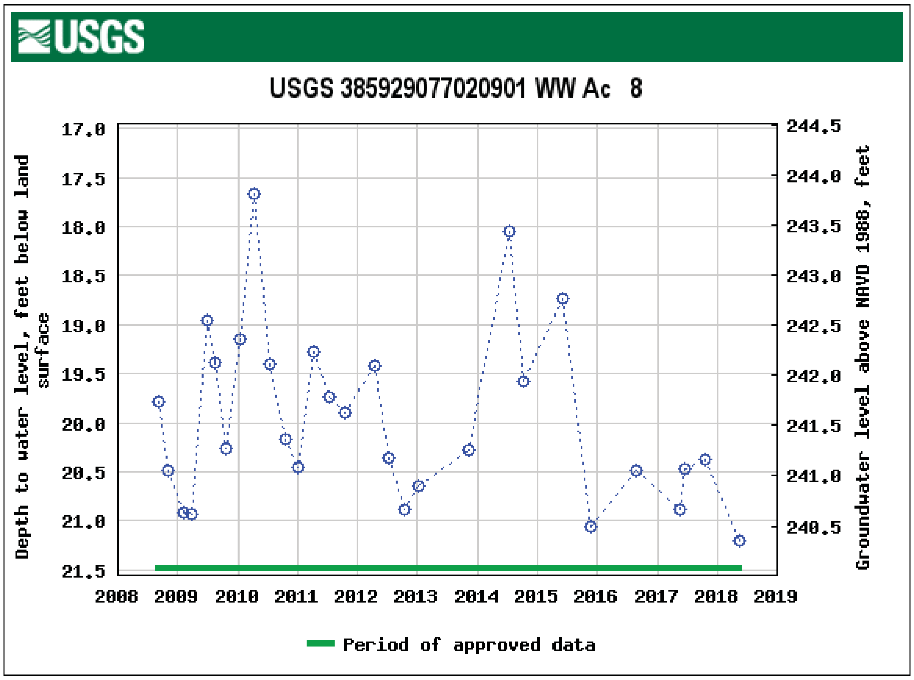
Graph of manual water-level measurements for well DCMW003-05 (WE Cb 11).



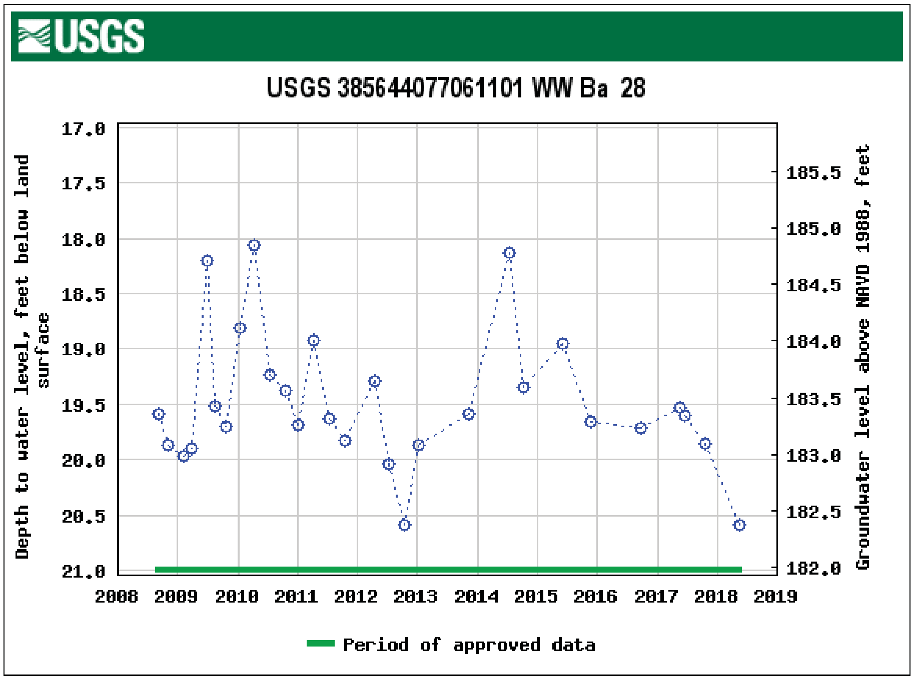
Graph of manual water-level measurements for well DCMW004-05 (WE Cb 12).



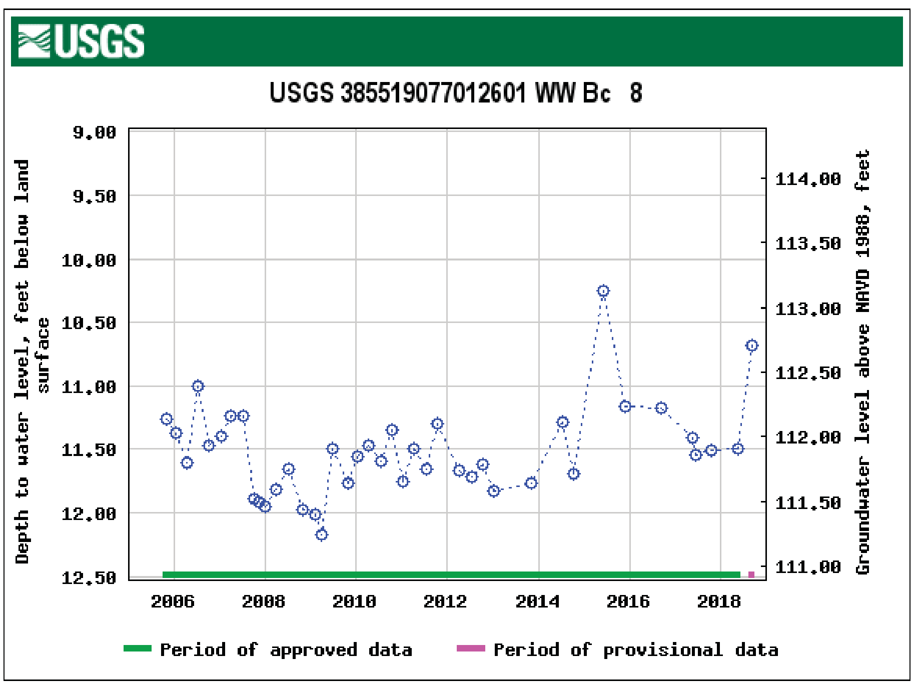
Graph of manual water-level measurements for well DCMW008-05 (WE Cc 3).



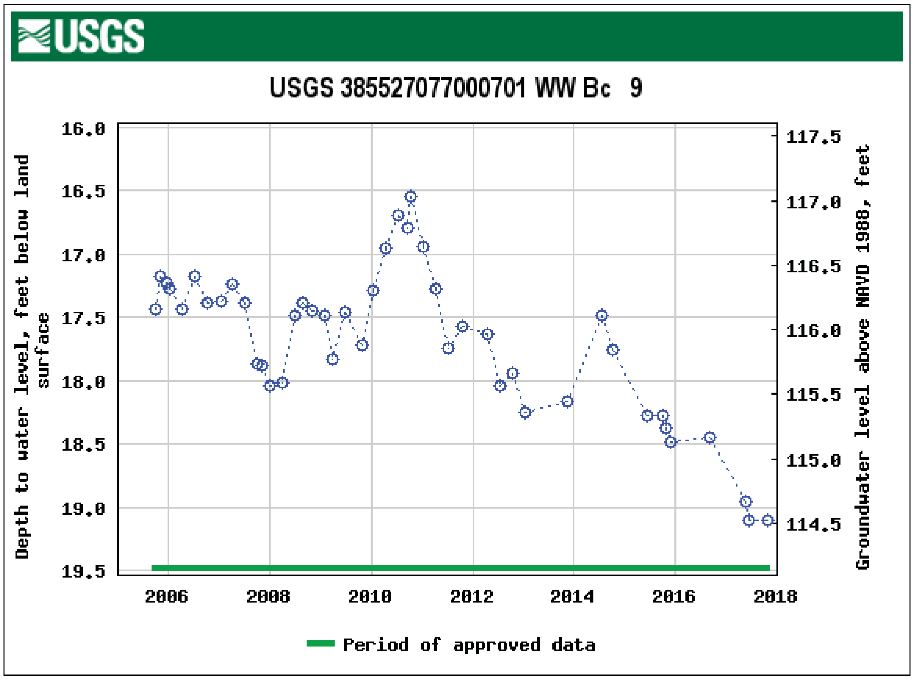
Graph of manual water-level measurements for well DCMW004-08 (WW Ac 8).



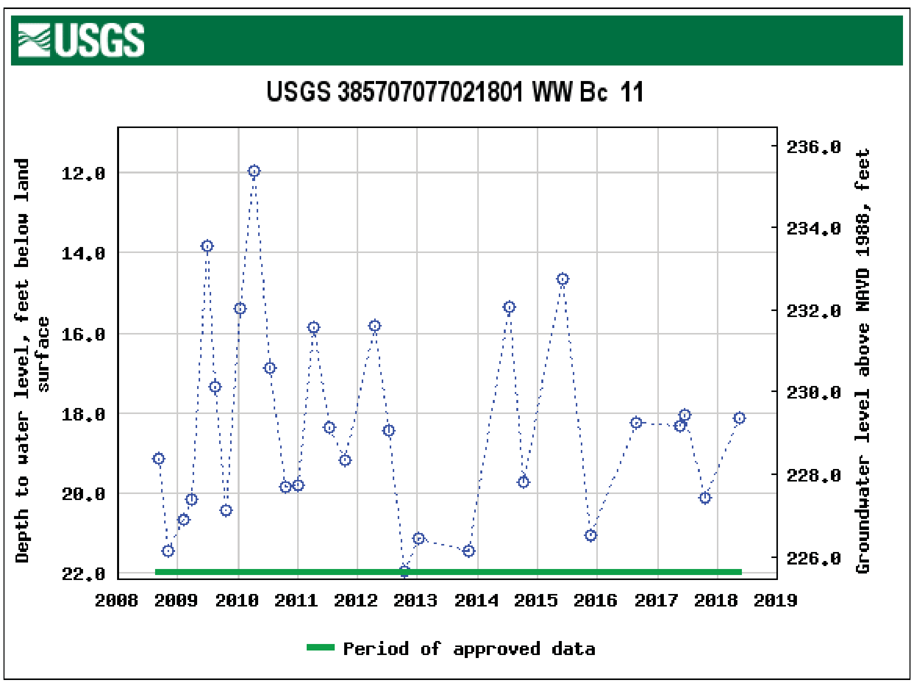
Graph of manual water-level measurements for well DCMW007-08 (WW Ba 28).



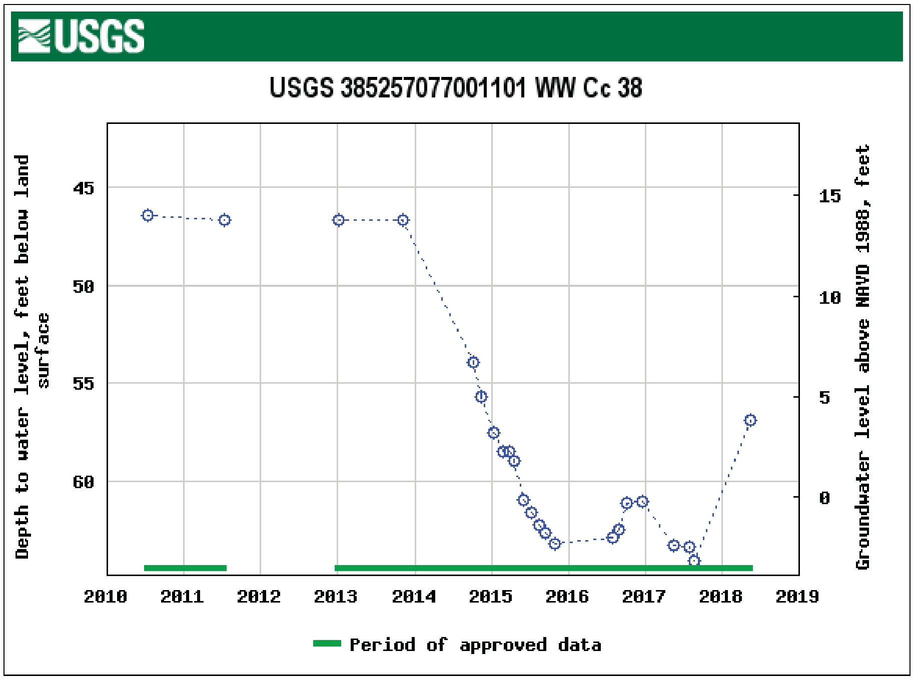
Graph of manual water-level measurements for well DCMW009-05 (WW Bc 8).



Graph of manual water-level measurements for well DCMW0011-05 (WW Bc 9).



Graph of manual water-level measurements for well DCMW006-08 (WW Bc 11).



Graph of manual water-level measurements for well DCMW001-13 (WW Cc 38

Appendix 5.5 Major Sources of Groundwater Contamination

Sources	10 Highest-Priority Sources (✓)	Relative Priority	Factors[a]
Animal Feedlots	NA	—	—
Containers		Low	A, B, D, E
CERCLIS Sites	✓	High	A, B, D, E, F, G, H
De-icing Applications		Medium	A, D, F, G, H
Federal Superfund (NPL)	✓	High	A, B, D, E, F, G, H
Fill	✓	High	A, D, E, F, G, H
Graveyards		Medium	—
Landfills (permitted)	✓	Medium	A, B, D, E, F, G, H
Landfills (unpermitted)	✓	U	A, B, D, E, F, G, H
Material Transfer Operations		Medium	A, B, D, E, F, H
Material Stockpiles		Low	A, B
Mining and Mine Drainage	NA	—	—
Pesticide Applications	✓	Medium	A, B, C, F, G, H
Pipeline and Sewer Lines	✓	Medium	F, H
Radioactive Disposal Sites	NA	—	—
RCRA Sites	✓	Medium	A, B, D, E, F, G, H
Septic Tanks		—	—
Shallow Injection Wells		Medium	A, F, G
Storage Tanks (above ground)		Medium	A, B, D, F, G, H
Storage Tanks (underground)	✓	High	A, B, D, E, F, G, H
Storm Water Drainage Wells		Medium	E, F, I
Surface Impoundments		Low	A, B
Transportation of Materials	✓	Medium	A, B, C, D, E, G, H
Urban Runoff		Medium	F, H
Waste Tailings	NA	—	—
Waste Piles		Medium	A, D, E

A = Human health and/or environmental risk (toxicity)
B = Size of the population at risk
C = Location of the sources relative to drinking water sources

D = Number and/or size of contaminant sources
E = Hydrogeologic sensitivity
F = State findings, other findings
G = Documented from mandatory reporting
H = Geographic distribution/occurrence
I = Assigned for pipelines and sewer lines and is a combination of the age and construction material of the lines (in D.C., there still are brick lines at least 100 years old).
NA = Not Applicable
— = Not a Priority

[a] Unknown. The locations and nature of the materials disposed in unpermitted landfills are not yet known.

Appendix 5.6 Groundwater Protection Programs

Programs or Activities	Check	Implementation Status	Responsible State Agency
Ambient groundwater monitoring system	✓	Partly established	DOEE
Aquifer vulnerability assessment (1)	✓	Fully established	DOEE
Aquifer mapping (2)	✓	Under development	DOEE
Aquifer characterization	✓	Partly developed	DOEE
Comprehensive data management system (3)	✓	Partly developed	DOEE
Emergency Response	✓	Fully established	HSEMA
EPA-endorsed Core Comprehensive State Ground Water Protection Program (CSGWPP)	✓	Under development	DOEE
Ground water discharge permits	✓	Under development	DOEE
Groundwater Best Management Practices	✓	Under development	DOEE
Ground water legislation	✓	Fully established	DOEE
Ground water classification	✓	Fully established	DOEE
Ground water quality standards	✓	Fully established	DOEE
Interagency coordination for ground water protection initiatives	✓	Under development	DOEE
Land Remediation and Development (Brownfields Revitalization Program)	✓	Fully established	DOEE
Nonpoint Source Controls	✓	Partly developed	DOEE
Pesticide State Management Plan	✓	Fully established	DOEE
Pollution Prevention Program	✓	Under development	DOEE
State RCRA Program incorporating more stringent requirements than RCRA Primacy (except for corrective action)	✓	Fully established	DOEE
State septic system regulations			
Underground storage tank installation requirements	✓	Fully established	DOEE
Underground Storage Tank Remediation Fund	✓	Fully established	DOEE
Underground Storage Tank Permit Program	✓	Fully established	DOEE
Underground Injection Control Program		Joint oversight	DOEE & EPA
Vulnerability assessment for drinking water/wellhead protection	✓	Fully established	DOEE
Well abandonment regulations	✓	Fully established	DOEE
Wellhead Protection Program (U.S. EPA-approved)	✓		
Well installation regulations	✓	Fully established	DOEE

HSEMA – Homeland Security Emergency Management Agency
DOEE –Department of Energy and Environment Definitions

AASHTO - American Association of State Highway & Transportation Officials

Anti-seep collar - An impermeable diaphragm usually of sheet metal or concrete constructed at intervals within the zone of saturation along the conduit of a principal spillway to increase the seepage length along the conduit and thereby prevent piping or seepage along the conduit.

Anti-vortex device - A device designed and placed on the top of a riser or at the entrance of a pipe to prevent the formation of a vortex in the water at the entrance.

Apron - A floor or lining to protect a surface from erosion, for example, the pavement below chutes, spillways, or at the toes of dams.

Base flow - The stream discharge from groundwater accretion.

Best management practice (BMP) - Structural or non-structural practice that minimizes the impact of stormwater runoff on receiving waterbodies and other environmental resources, especially by reducing runoff volume and the pollutant loads carried in that runoff.

Building permit - Authorization for construction activity issued by the District of Columbia Department of Consumer and Regulatory Affairs.

Clearing - The removal of trees and brush from the land excluding the ordinary mowing of grass, pruning of trees, or other forms of long-term landscape maintenance.

Common plan of development - Multiple, separate, and distinct land-disturbing, substantial improvement, or other construction activities taking place under, or to further, a single, larger plan, although they may be taking place at different times on different schedules.

Construction - Activity conducted for the:

(a) Building, renovating, modifying, or razing of a structure; or

(b) Movement or shaping of earth, sediment, or a natural or built feature

a. **Construction general permit (CGP)** - An NPDES general permit that regulates stormwater discharges from construction activities that disturb one or more acres, or smaller sites that are part of larger common plan of development or sale that disturb one or more acres.

b. **Cut** - An act by which soil or rock is dug into, quarried, uncovered, removed, displaced, or relocated and the conditions resulting from those actions.

Demolition - The removal of part or all of a building, structure, or built land cover.

Department - The District of Columbia Department of Energy and Environment or its agent.

Dewatering - Removing water from an area or the environment using an approved technology or method, such as pumping.

DCMR - The District of Columbia Municipal Regulations.

DDOT - The District Department of Transportation.

Director - The Director of the Department of Energy and Environment.

District - The District of Columbia.

Disturbed area - An area in which the natural vegetative soil cover has been removed or altered and is susceptible to erosion.

DOEE - The Department of Energy and Environment.

EPA - The United States Environmental Protection Agency.

Erosion - The process by which the ground surface, including soil and deposited material, is worn away by the action of wind, water, ice, or gravity.

Erosion and sediment control (ESC) - Devices and conservation measures used to reduce or eliminate soil particles from leaving a land area.

Excavation - An act by which soil or rock is cut into, dug, quarried, uncovered, removed, displaced, or relocated and the conditions resulting from those actions.

Exposed area - Land that has been disturbed or land over which unstabilized soil or other erodible material is placed.

Grading - Causing disturbance of the earth, including excavating, filling, stockpiling of earth materials, grubbing, root mat or topsoil disturbance, or any combination of them.

Limits of disturbance (LOD) - The boundary within which all land grading, construction, landscaping, and related activities occurs.

National Pollutant Discharge Elimination System (NPDES) - The NPDES permit program addresses water pollution by regulating point sources that discharge pollutants to the waters of the United States.

Notice of intent (NOI) - A form required for authorization of coverage under the Construction General Permit.

Peak discharge - The maximum rate of flow of water at a given point and time resulting from a storm event.

Public right-of-way (PROW) - The surface, the air space above the surface (including air space immediately adjacent to a private structure located on public space or in a public right-of-way), and the area below the surface of any public street, bridge, tunnel, highway, lane, path, alley, sidewalk, or boulevard.

Raze - The complete removal of a building or other structure down to the ground.

Responsible person - Construction personnel knowledgeable in the principles and practices of soil erosion and sediment control and certified by a Department-approved soil erosion and sedimentation control training program to assess conditions at the construction site that would impact the effectiveness of a soil-erosion or sediment-control measure on the site.

Runoff - That portion of precipitation (including snow-melt) which travels over the land surface, and also from rooftops, either as sheetflow or as channel flow, in small trickles and streams, into the main water courses.

Safety and Data Sheet (SDS) - A document providing guidance on handling a hazardous substance, along with its composition and physical and chemical properties.

Sediment - Soil, including soil transported or deposited by human activity or the action of wind, water, ice, or gravity.

Sedimentation - The deposition or transportation of soil or other surface materials from one place to another as a result of an erosion process.

Soil - All earth material of whatever origin that overlies bedrock and may include the decomposed zone of bedrock which can be readily excavated by mechanical equipment.

Soil erosion and sediment control plan - A set of drawings, calculations, specifications, details, and supporting documents related to minimizing or eliminating erosion and off-site sedimentation caused by stormwater on a construction site. It includes information on construction, installation, operation, and maintenance.

Soils report - A geotechnical report addressing all soil erosion and sediment control-related soil attributes, including but not limited to site soil drainage and stability.

Stormwater management plan - A set of drawings, calculations, specifications, details, and supporting documents related to the management of stormwater for a site, which includes information on construction, installation, operation, and maintenance.

Stormwater pollution prevention plan (SWPPP) - A document that identifies potential sources of stormwater pollution at a construction site, describes practices to reduce pollutants in stormwater discharge from the site, and may identify procedures to achieve compliance.

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Response to Comments on the District of Columbia's draft 2022 Integrated Report

The Department of Energy and Environment Water Quality Division (WQD) solicited comments on the first draft 2022 Integrated Report (IR) (Sections 303(d) and 305(b)) from June 17, through July 17, 2022, and again from December 15, through January 16, 2024. Following is a listing of the author(s) of the comments received. Copies of the comments received are attached.

Author(s)	Affiliation	Date of Submission
Christopher E. Williams	Anacostia Watershed Society	July 15, 2022
Suraj K. Sazawal	Anacostia Parks & Community Collaborative (APACC)	January 3, 2024

#	Comment Details			Response
	Commenter (including affiliation and comment date)	**Subject**	**Comment Summary**	
1	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022	Monitoring and Assessment	"Several activities are coordinated for the groundwater protection program in the TSD, including underground storage tank installation and remediation, and groundwater quality standards implementation [emphasis added]." Does this sentence mean to suggest that underground storage tank installation can improve the groundwater quality? Is so, please explain your thinking, as we generally believe that underground storage tanks and the potential for leaks tend to elevate the risk of groundwater contamination.	DOEE regulates underground storage tank (UST) installations to prevent the release of contaminants into the environment. Regulations cover a wide range of installation issues including requirements that only licensed and certified tank installers be allowed to do the work; the tank construction must prevent leaks by being double-walled or constructed with non-corrosive materials or have cathodic protection; and the tank's materials must be compatible with its intended contents. Leak detection and preventive measures must be put in place and maintained during the operational life of the tank. The tank also must be inspected and registered before it can be brought online. DOEE believes these measures provide critical protection for groundwater in the District. For clarity, the sentence is being revised as follows: The groundwater protection program conducts monitoring studies, and reviews applications for uses that can significantly impact the resource. The program also implements the groundwater regulations and coordinates with other divisions, such as the TSD on enforcement and remedial activities.
2	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022	Monitoring and Assessment	"Continued improvements in bacteria concentrations are expected as more phases of the project are completed" Our data analysis shows that we have not seen significant improvement regarding E. coli. -- especially in the lower portion of the Anacostia River in DC. We have seen a declining trend in recent years since 2012. Please provide your analysis for determining that the bacteria concentration shows "continued improvements." One of our analyses is shown	DOEE reviewed its *E. coli* data for the Anacostia River's upper and lower segments. As this report is concerned with more recent water quality, the data reviewed covered the periods of 2015- 2019 and 2017-2021. The percent violations that were calculated for *E.coli* for those two periods showed lower percent violations in the lower segment of the Anacostia River, 25.53% for the 2015-19 period and 21.81% for the 2017-21 period. For the upper segment of the Anacostia River, there was an increase in percent violations of 34.15% (2017-21) compared to 33.09% (2015-19). If the DOEE threshold of 126

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	Commenter (including affiliation and comment date)	Subject	Comment Summary	
			below. %Score in the graph is the percent of samples in a sampling season (June through October) that a sample was below the EPA threshold (235 MPN or CFU/100ml). AWS and DOEE data were used for this calculation. We use the EPA threshold since MDE uses the threshold, and it is more stringent than the DC standard.	MPN/100mL and the Maryland 235 MPN/100mL threshold used by the AWS is applied to those data periods, there is improvement in some sites, especially sites in the upper part of the Anacostia River. Some sites like ANA01 had geometric mean values that are above the DOEE and Maryland thresholds. AWS analysis concentrated on the Anacostia River. It should be noted that water quality restoration activities such as the Clean Rivers project continue to bring other phases in other areas of the city online, improvements in water quality other than bacteria concentrations are expected. The statement that was highlighted by AWS will be revised. "Continued improvements in water quality are expected as more phases of the various projects are completed."
3	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022	Permitting	We note that the NPDES permit for CMDT Naval District Washington, DC - Washington Navy Yard expired in 2015. Is that installation covered by another, general permit? In any case, this permit should be renewed as soon as possible. We also note that the Vessel General Permit for Discharges Incidental to Normal Operation of Vessels has expired as well. We suspect that discharges from vessels may be partially responsible for higher fecal bacteria levels in the lower Anacostia. Though the expired General Permit was not meant to apply to sewage, we recommend that it be renewed as part of an overall effort to step up enforcement of pollution controls for non-recreational and recreational vessels.	EPA is the permitting authority for both individual and general NPDES permits in the District. When EPA re-issues either type of permit, WQD certifies the permit. If a General Permit, of any type, is expired, it would be EPA who renews, not DOEE. DOEE would certify. Even if the General permit is expired, according to EPA regulations, the permit is still in force until it is replaced with a new permit.

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	Commenter (including affiliation and comment date)	**Subject**	**Comment Summary**	
4	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		We fail to understand why “stormwater that encounters or mixes with contaminated soil” is included in a list of approved discharges of “uncontaminated groundwater” into the District’s MS4 system. We believe that contaminated stormwater must not be allowed to enter the system. Please explain.	While this was not made clear in the Integrated Report, any instances of “stormwater that encounters of mixes with contaminated soil” are required to include treatment systems that reduce any levels of contamination to within District surface water quality standards. In addition, periodic discharge monitoring from those treatment systems is required to ensure contaminant levels are below standards. In accordance with the District’s MS4 permit (Section 1.3), contaminated stormwater and contaminated groundwater are not authorized types of discharge to the MS4.
5	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		”Routine [Bag Law] inspections were suspended in March 2020 in response to COVID-19 safety measures enacted by the Mayor.” The routine Bag Law inspections were suspended in March 2020, but the number of inspections is reported from July 2019 to June 2021. Was the suspension lifted? If not, what is DOEE’s plan for resuming inspections?	Routine bag law inspections were suspended in March 2020 and resumed regularly in the summer of 2021. During that time of suspension, DOEE did conduct a compliance assistance and conducted some non-routine inspections based on personal shopping trips of DOEE staff.
6	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		“MS4 Monitoring” This section reports only the monitoring frequency. DOEE should report the rate of violations. AWS has seen severe sediment pollution from tributaries in DC in both dry and wet weather.	The District’s MS4 permit (section 4.2) requires DOEE to conduct wet weather discharge monitoring for a minimum of three wet weather events at 9 designated outfalls each year. The data is used for informational purposes only (i.e. characterizing the physical and chemical elements of discharge from the MS4) and is not to be mistaken for the District’s Illicit Discharge Detection and Elimination Program (IDDEP); see Section 2.4 of this document for a summary of the IDDEP.
7	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		“2.10 Stream Restoration Updates” Many great restoration projects are mentioned here. We recommend DOEE make this encouraging information more accessible to the public. For example, AWS would be happy to host an online presentation as part of our monthly Watershed Wednesday series.	A reorganization of stream restoration project information is planned for the DOEE website in an effort to provide more accessible information. Additionally, DOEE would be pleased to participate in the event mentioned above.

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	Commenter (including affiliation and comment date)	Subject	Comment Summary	
8	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"Stream Mapping Project" AWS is a strong supporter of stream daylighting. We appreciate DOEE's initiative to take action on this issue. It is often difficult to pinpoint sources of pollution in DC as many streams have been piped.	One of DOEE's recent efforts to better understand the location and scope of historic streams in the District is a StoryMap that may be viewed here: https://doee.dc.gov/external-link/underground-piped-stream-mapping-project
9	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"Bacteria Source Tracking Studies" Bacteria Source Tracking has been conducted by the Metropolitan Washington Council of Governments, AWS, and the Washington Suburban Sanitary Commission (WSSC), and we know the breakdown of the sources. WSSC recently published a Water Quality Monitoring Plan1 , in which they say that BST testing is not accurate. It may be a waste of time and resources to conduct this study since it has already been done, and it is not very accurate. Moreover, the EPA standard for E. coli does not differentiate human E. coli from animal E. coli. We suggest that DOEE tackle the issue with known and treatable sources first: pet waste and possible sewage discharge from non-recreation / recreation vessels. Further, we think that all sources of E. coli should be reduced whether it is from humans or animals	DOEE performed an MST study in Anacostia as part of our commitment to EPA through DOEE's MS4 NPDES permit. Further MST studies are being done in Rock Creek and the Potomac River. MST is a powerful tool for finding presence/absence of various sources of microbial contamination, and an effective tool for tracking the intensity of each source over time and under various conditions. The intention is not to break down E. coli concentrations to 4-5 groups and allocate a certain portion to each group, but to understand the dynamics of each source. By verifying the existence and studying the patterns of the pollution sources, DOEE can effectively tackle the sources. DOEE has partnered with prominent scientists at EPA and Virginia Tech to study the sources using state of the art science. The next step will be to analyze the results to potentially eliminate the source.. The science has changed significantly since 2002. Library-dependent MST methods are not being used. DOEE is aware of the related shortcomings of such methods. Our report and data will be out later this year, please consult our report..
10	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"[We] will measure real-time bacteria concentrations…at Bladensburg Waterfront" It takes about 24 hours to obtain test results for E. coli bacteria. Normally, real-time monitoring is not possible for E. coli. How does DOEE intend to do real-time E. coli monitoring?	The predictive modeling work by USGS includes the study of the statistical relationship between bacteria and other parameters. The study will attempt to determine if the statistical relationships allow the use of other parameters that can be measured in real-time to serve as an input to the predictive model.

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	Commenter (including affiliation and comment date)	**Subject**	**Comment Summary**	
11	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"…testing new tools, which use fluorometry…" Fluorescence could tell if there was sewage overflow/leakage of human-derived E. coli. Since about 70% of E. coli is from wildlife, this method is likely not effective (human E. coli is only about 10%). The use of fluorescence to detect about 10% of E. coli would not protect human health.	The fluorometry readings will be one of the inputs to the proposed predictive model. The model will compile inputs of various water quality parameters to determine if the recreational water quality criteria are met. Fluorescence is not likely to be the only parameter used in the decision.
12	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"Bacteria levels were generally lower downstream than upstream except at Yards Marina, which recorded 75-100 percent of the samples in violation of the E. coli geometric mean threshold (126 Most Probable Number (MPN)/100 milliliters)." Was the violation percentage calculated for a single sampling test result vs. the geometric mean threshold? A single sampling test result should be compared to the single sampling threshold. Using the geometric mean threshold requires a geometric mean value generated from multiple single sampling test results.	The violation percentage was calculated based on geometric mean values generated from multiple samples collected once a week, over a 30-day period. Each geometric mean value was compared to the geometric mean threshold. The number of samples that exceeded the threshold was obtained and subsequently used to calculate the violation percentage.
13	Christopher E. Williams, Anacostia Watershed Society, July 15, 2022		"The Consolidated TMDL Implementation Plan" This approach is very promising, deploying multiple strategies and technologies, including natural solutions that can deal with multiple parameters at the same time. For example, a properly maintained rain garden could reduce levels of E. coli, nutrients, volume and velocity of stormwater runoff, even trash, etc. By taking this approach, more rain garden/bioretention could be effectively installed.	DOEE will continue to pursue a variety of stormwater management strategies and technologies, including natural solutions, to reduce the volume of stormwater and associated pollutants from reaching District waterways.

#	Comment Details			Response
	Commenter (including affiliation and comment date)	**Subject**	**Comment Summary**	
14	Suraj K. Sazawal	Anacostia River Restoration	Though the Anacostia River is still unable to meet the needs of the communities who live and play near its banks, a path to a more accessible and safer river system has been created. APACC is pleased with the cooperation/collaboration amongst DOEE, various state and federal government agencies, and community partners who are committed to making the water safer to use should be prioritized.	DOEE will continue to cooperate/collaborate with other state and federal agencies, and community partners to continue its work to improve the waters of the District of Columbia.