

# Listing Methodology for Determining Water Quality Impairments from Residues

## GUIDANCE

Final

December 2003

(Ver. 1.0)



Alaska Department of Environmental Conservation  
Division of Water

[Please note: This document “Interpretation of Residue Criterion in Alaska Water Quality Standards for Use in Attainment and Impairment Determinations” was originally published in the 2002/2003 Integrated Report, Appendix L. In March 2016 the document became a standalone document, headings and a table of contents were added.]

## Contents

1.0 Residue Criteria.....	3
2.0 Zones of Deposit.....	4
18 AAC 70.210 Zones of Deposit.....	4
3.0 History of the One-Acre Threshold.....	5
4.0 Background on General Permits for Log Transfer Facilities.....	7
5.0 Application of Zones of Deposits for Residues to Seafood Processing Facilities .....	8
6.0 Reporting of Dive Survey Acreages.....	9
7.0 Criteria for Waterbody Categories .....	9
8.0 Removal of Waterbodies from the Category 5/Section 303(d) List Determined to be Impaired from Residues .....	15

## 1.0 Residue Criteria

Alaska’s water quality standard for residues is described in 18 AAC 70.020(b).

Protected Water Use Classes and Subclasses; Water Quality Criteria; Water Quality Table	
<b>(2) MARINE WATER USE</b>	<b>RESIDUES Floating Solids, Debris, Sludge, Deposits, Foam, Scum, or Other Residues</b>
(A) Water Supply (i) aquaculture	May not, alone or in combination with other substances or wastes, make the water unfit or unsafe for the use. May not cause detrimental effects on established water supply treatment levels.
(A) Water Supply (ii) seafood processing	May not, alone or in combination with other substances or wastes, make the water unfit or unsafe for the use; cause a film, sheen, or discoloration on the surface of the water or adjoining shoreline; cause leaching of toxic or deleterious substances; or cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.
(A) Water Supply (iii) industrial	May not, alone or in combination with other substances or wastes, make the water unfit or unsafe for the use.
(B) Water Recreation (i) contact recreation	Same as (2)(A)(ii).
(B) Water Recreation (ii) secondary recreation	Same as (2)(A)(ii).
(C) Growth and Propagation of Fish, Shellfish Other Aquatic Life, and Wildlife	May not, alone or in combination with other substances or wastes, make the water unfit or unsafe, for the use, or cause acute or chronic problem levels as determined by bioassay or other appropriate methods. May not, alone or in combination with other substances, cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines; cause leaching of toxic or deleterious substances; or cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.
(D) Harvesting for Consumption of Raw Mollusks or Other Raw Aquatic Life	May not make the water unfit or unsafe for the use; cause a film, sheen, or discoloration on the surface of the water or adjoining shoreline; cause leaching of toxic or deleterious substances; or cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines.

The application of the water quality standard for residues for permitted facilities is established through the implementation of the narrative criteria (above) in concert with the ZOD provisions (below), also within the WQS.

The water quality criteria for residues are narrative criteria with several provisions that are subject to interpretation. As such, it is overly simplistic to characterize the residues standard as “zero discharge.” The first sentence of the criteria for most uses provides that residues “[m]ay not, alone or in combination with other substances or wastes, make the water unfit or unsafe, **for the use...**” [emphasis added]. This is a “use-based” criterion—meaning, a use impairment determination must be made to trigger a water quality violation or a significant non-compliance situation.

The second sentence within the narrative criteria for some uses states that residues “may not cause a sludge, solid, or emulsion to be deposited” on the surface, bottom, or shoreline. This prohibition against deposits is the most restrictive provision of the residue criteria. But the prohibition is not treated as a zero discharge standard in all instances. For example, DEC permits ZODs under 18 AAC 70.210, mixing zones under 18 AAC 70.240–270, and variances under 18 AAC 70.200.

In addition, DEC recognizes an implied *de minimus* exception to the “no deposit” criterion, so that a person skipping a stone or cleaning a fish is not considered to be in violation of state law. To date, DEC has not written any guidance about the scope of that *de minimus* category, but rather implements it on an *ad hoc* basis. EPA and the courts have long recognized the inherent authority of agencies to exempt *de minimus* activities from the coverage of the law. For example, see *Ober v. Whitman*, 243 F.3d 1190, 1194-95 (9th Cir. 2001). DEC asserts and exercises such authority in its interpretation and implementation of the residues standard. A use impairment determination based on a narrative water quality criterion is subject to an analysis and a determination by the DEC.

The residue standard applies to any residue discharge (whether permitted or unpermitted); however, one of the most prevalent applications of the residues standard is to permitted discharges of residues in marine waters from seafood processing facilities and LTFs and the authorization of ZODs for these permits.

Alaska has an explicit provision within its WQS that allows for the authorization of ZODs for residues in 18 AAC 70. 210.

Seafood processing facilities and LTFs in Alaska are typically issued ZODs in the facility’s permit for the residues discharges. Seafood processing facilities are generally issued a 1-acre ZOD and LTFs are issued a “project area” ZOD. Additionally, it is important to recognize that exceedance of a ZOD is not equivalent to impairment; rather, exceedance of 1.5 acres of continuous residues coverage is the impairment standard.

## 2.0 Zones of Deposit

### 18 AAC 70.210 Zones of Deposit

- (a) The department will, in its discretion, issue or certify a permit that allows deposit of substances on the bottom of marine waters within limits set by the department. The water quality criteria of 18 AAC 70.020(b) and the antidegradation requirement of 18 AAC 70.015 may be exceeded in a zone of deposit. However, the standards must be met at every point outside the zone of deposit. In no case may the water quality standards be violated in the water column outside the zone of deposit by any action, including leaching from, or suspension of, deposited materials. Limits of deposit will be defined in a short-term variance issued under 18 AAC 70.200 or a permit issued or certified under 18 AAC 15.
- (b) In deciding whether to allow a zone of deposit, the department will consider, to the extent the department determines to be appropriate:  
alternatives that would eliminate, or reduce, any adverse effects of the deposit;

- the potential direct and indirect impacts on human health;
- the potential impacts on aquatic life and other wildlife, including the potential for bioaccumulation and persistence;
- the potential impacts on other uses of the waterbody;
- the expected duration of the deposit and any adverse effects; and
- the potential transport of pollutants by biological, physical, and chemical processes.

© The department will, in its discretion, require an applicant to provide information that the department considers necessary to adequately assess (b)(1)-(6) of this section. In all cases, the burden of proof for providing the required information is on the person seeking to establish a zone of deposit. (Eff. 11/1/97, Register 143).

The Zones of Deposit section states, in part, “(t)he department will, in its discretion, issue or certify a permit that allows the deposition of substances on the bottom of marine waters within limits set by the department.” The Zones of Deposit section allows the water quality criteria of 18.70.020 and the antidegradation policy of 18 AAC 70.015 to be exceeded in a ZOD.

The federal WQS regulation in Title 40, Section 131.13, of the Code of Federal Regulations authorizes states to have policies, including variances and ZODs, in their WQS that generally affect the application and implementation of state WQS. The rationale for allowing ZODs or variances from WQS is for a state to maintain standards that are ultimately attainable. By maintaining the standard rather than changing it, the state would ensure further progress is made in improving water quality. With the variance provision or ZOD provision, federal NPDES and state permits may be written so that reasonable progress is made toward attaining the standards without violating Section 402(a)(1) of the CWA.

An authorized ZOD is fairly equivalent to a mixing zone (which is also authorized in some cases for discharge permits) in that it is an area permitted to temporarily exceed the residue standard in a limited area that does not significantly degrade the quality of the waterbody as a whole or the designated uses. Permitted ZODs should be able to recover after discharges cease through biodegradation and/or recolonization of any lingering residues on the marine bottom. It is not necessarily the solids themselves that are the problem; the problem is the smothering of the benthic community. DEC would not permit a residue discharge that resulted in a permanently sterile bottom substrate resulting from toxic contaminants.

It should be noted that the residues water quality standard was revised in 2006 and has not yet been approved by EPA. EPA and DEC continue to work toward developing guidance that would enable EPA to approve Alaska’s standard.

### 3.0 History of the One-Acre Threshold

In 1985, Governor Sheffield convened the Alaska Timber Task Force to develop a common set of LTF siting criteria. The Task Force created a technical subcommittee that was comprised of stakeholders including EPA, USFS, USF&WS, National Marine Fisheries Service, USACE,

Governor's Office, DEC, DNR Division of Forestry, ADF&G Habitat Division, United Fisherman of Alaska, representatives of the timber industry, a member of the public-at-large, and Sealaska Native Corporation. This group produced the document known as the 1985 Log Transfer Facility Siting, Construction, Operation and Monitoring/Reporting Guidelines, more commonly known as the "LTF Guidelines."

This document establishes the interim intertidal and submarine bark accumulation threshold of 1.0 acre. The document states (C6. Bark Accumulation: Discussion: paragraph 2):

"An interim guideline for threshold bark accumulation levels and cleanup when exceeding those levels is being used due to a lack of information. Technical data are needed to evaluate practicable threshold accumulation levels and to evaluate technical feasibility of various options for managing accumulation, such as removal or other control procedures.

Specifically, Guideline C6 states:

"The regulatory agency(ies) will impose an interim intertidal and submarine threshold bark accumulation level. When accumulations exceed the threshold level, cleanup – if any – will occur at the discretion of the permitting agency(ies). The interim threshold bark accumulation level is described as 100% coverage exceeding both 1 acre in size and a thickness greater than 10 cm (3.9 inches) at any point."

The LTF Guidelines include recommended criteria for selecting the location for future LTFs. The siting criteria were designed, in part, to reduce bark accumulation of LTFs. The LTF Guidelines Committee identified the 1.0 acre figure as an "interim threshold bark accumulation level" until additional research could be completed. The discussion section in the guidelines states:

"Through siting, transfer system selection and solid waste management, the amount of bark lost and accumulating in intertidal and submarine areas is prevented or significantly diminished. Bark accumulation is still expected to occur in some areas promoting the need for this guideline."

The Technical Subcommittee was tasked with developing LTF guidelines that "would be beneficial for all parties involved in the permitting, construction, and operation of LTFs to have a common set of criteria (guidelines) from which to work when designing (emphasis added) facilities and reviewing permit applications for these facilities" (Introduction, page 1, paragraph 3). The section titled The Use of Guidelines (page 2, paragraph 2) states, "The guidelines are comprehensive and may apply to any site being evaluated for LTF permits." It was never the intent of the Technical Subcommittee for agencies to retroactively apply this threshold to existing facilities because they were located and constructed prior to adoption of the guidelines and there was no anticipated permit workload associated with existing facilities. Some of these facilities had been in operation for 20 years prior to the development of siting guidelines without any permit limits on marine accumulation. Although additional research was not completed as planned, the use of the interim 1.0 acre threshold level has continued to be applied routinely in most log transfer and seafood discharge permits.

## 4.0 Background on General Permits for Log Transfer Facilities

In March 2000, EPA issued two GPs for LTFs. DEC certified the EPA permits, and adopted them as state GPs; DEC implements the state GPs separately from the EPA GPs. The state issues a written authorization to the LTF owner to operate under the applicable GP after finding that the authorization is consistent with the Antidegradation Policy (18 AAC 70.015) of the Alaska WQS. The state also approves a project area-wide ZOD (18 AAC 70.210) following an assessment of the information provided by the applicant.

One of the GPs, referred to as “pre-1985” GP (AK-G70-0000), applies to shore-based LTFs that received a Section 404 permit from USACE before October 22, 1985, and never received an individual NPDES permit. The original Section 404 permits never established any limits on the discharge of bark and wood waste into the marine environment. The pre-1985 GP modified the terms of the Section 404 permits and for the first time established a permit threshold of 1.0 acre for accumulation of continuous cover bark for these facilities. The original 404 permits now comply with all relevant sections of the CWA. A 1.0 acre threshold instead of a 1.0 acre permit limit, for continuous cover bark was incorporated into the permit because it was known that some pre-1985 facilities had continuous cover bark deposits greater than 1.0 acre. The GP requires these facilities to complete remediation planning and plan implementation.

The other GP, called the “post-1985” GP (AK-G70-1000), applies to the following classes of LTFs:

- New LTFs that have not received individual NPDES permits.

- LTFs that have current individual NPDES permits and choose to seek coverage under the GP.

- LTFs that have individual NPDES permits that have expired or have been administratively extended by EPA, and that wish to continue or resume operation.

- Offshore LTFs and offshore LSAs that existed either before or after 1985, and that wish to continue or resume operation.

Individual NPDES wastewater discharge permits issued before adoption of the two GPs contained a fixed 1.0 acre (not to exceed 10 cm in thickness at any point) ZOD authorized by DEC.

Bark monitoring is required annually for all permittees whose operations transfer a total of 15 million board feet or more during the life of the LTF general permit, and that are located in water depths less than 60 feet at mean lower low water. The majority of LTFs operating under an individual or general NPDES permit are required to submit to DEC and EPA an annual dive survey report documenting the nature and extent of continuous and discontinuous bark residue accumulations at their sites. LTFs transferring less than 15 million board feet of timber volume are not required to conduct annual dive surveys; however, a great majority of the LTFs are required to conduct annual dive surveys.

The two April 2004 EPA GPs for LTFs are substantially different from previous individual permits in terms of the ZODs authorized under the permits. The GPs adopted a “project area” ZOD, which recognizes and authorizes the deposition of bark residues in the project area. The project area is

defined as the entire marine operating area of an LTF, either shore-based or offshore, including the following components: shore-based log transfer devices; shore-based log transfer, rafting, and storage areas; helicopter drop areas; vessel and barge loading and unloading areas; off-shore LSAs not adjacent to a shore-based LTF; bulkheads, ramps, floating walkways, docks, pilings, dolphins, anchors, buoys, and other marine appurtenances; and the marine water and ocean bottom underlying and connecting these features. The LTF operator identifies the size of the project area in the Notice of Intent or Notification. This project area usually coincides with the DNR tidelands lease area.

The State GPs also establish a 1.0 acre “threshold” limit for continuous, or 100%, bark cover within the project area. If that threshold is exceeded, the operator is required to submit a remediation plan to DEC, which is intended to reduce continuous bark cover to less than 1.0 acre. DEC must approve the remediation plan, which becomes part of the operator’s state GP authorization. The purpose for establishing the project area ZOD in the GPs is to recognize that log rafting and log storage may occupy considerable area, and are expected to cause the accumulation of discontinuous bark (less than 100% cover) and trace bark (less than 10% cover). Discontinuous and trace bark are considered to have a minimal impact on marine organisms and habitat, and can occur without limit in the project area.

As a result of the 2002 final decision in the adjudication of the DEC Section 401 certification of the two EPA GPs, DEC cannot authorize facilities located on Section 303(d) impaired waterbodies to discharge under either GP. An LTF on an impaired waterbody must obtain an individual state wastewater permit. As part of LTF permitting, DEC conducts an anti-degradation review and finding, and makes all findings required under the ZOD regulations for each facility applying for residue discharge authorization.

## 5.0 Application of Zones of Deposits for Residues to Seafood Processing Facilities

As described above, the 1-acre ZOD in permits had its initial application through the LTF Guidelines for new facilities in the 1980s. EPA consequently adopted the 1.0 acre threshold as a compliance limit in NPDES permits for LTFs and the EPA NPDES GP for seafood processors (AK-G52-0000) in the mid-1990s.

In 2001, DEC again certified a ZOD of 1.0 acre when this EPA GP for nearshore and shore-based seafood processing facilities was renewed. Currently this GP authorizes approximately 235 processors. Historically, this seafood GP specified that nearshore and shore-based facilities implement a seafloor monitoring program to ensure compliance with the WQS for settleable residues in marine waters.

It should be noted that individual NPDES seafood permits have authorized residues deposits greater than the 1.0 acre threshold found in the AK G52-0000 seafood GP. For example, in the mid-1990s DEC issued a Section 401 certification for a 2.0 acre ZOD for an outfall associated with a seafood processing facility, based on the bathymetry of the bay. For seafood facilities with individual



NPDES permits, a case-by-case determination of an acceptable ZOD size for residues has been the approach used since 1987.

The agencies have historically made a distinction between newly permitted sites and existing permitted sites in arriving at an allowable ZOD size determination.

## 6.0 Reporting of Dive Survey Acreages

Previous reports of the actual acreage of bark coverage observed in dive surveys and listed in Alaska's 1998 Section 303(d) report could lead the public to believe that all reported continuous cover was a violation of permit conditions or of the Alaska WQS. For example, an LTF with 3.1 acres of continuous bark coverage is actually 2.1 acres over the 1.0 acre ZOD threshold for continuous bark coverage. Hence, the 1998 303(d) listing narrative might have stated that "dive survey information from November 1997 demonstrates a significant exceedance of the interim threshold bark accumulation level at 3.1 acres of bottom coverage."

In Alaska's Integrated Reports, DEC reports dive survey acreages as "exceedances over the one acre ZOD threshold." For example, "the dive survey information from November 2001 demonstrates an exceedance of 2.1 acres above the permitted bark accumulation level of continuous bark coverage of 1.0 acre." This reporting approach more accurately portrays actual exceedances of the permitted threshold. The level of timber harvest is significantly lower than in the past. Reduced loading associated with reduced volume transferred is likely to act to reduce continuous cover accumulation over time. Limited research to determine the effect of transfer method and volume transferred on bark accumulation has established a weak statistical correlation between volumes transferred and bark accumulation. A similar correlation has not been established for the transfer method. As described above, the 1.0 acre ZOD in permits had its initial application through the LTF Guidelines for new facilities in the 1980s. EPA consequently adopted the 1-acre threshold as a compliance limit in NPDES permits for LTFs and the EPA NPDES GP for seafood processors (AK-G52-0000) in the mid-1990s.

## 7.0 Criteria for Waterbody Categories

For descriptions for the various waterbody categories please see Alaska's Integrated Report.

DEC is not proposing to re-categorize waterbodies previously determined to be impaired for residues associated with LTFs simply because the GPs incorporate a project area ZOD. The basis for placing waters impaired by bark residues on the 303(d) list in 1998 was the 1.0 acre ZOD established in individual NPDES permits. For LTFs in Alaska authorized under the new GPs, the threshold limit for continuous-cover bark in the GPs remains 1.0 acre. The project area ZOD effectively applies to continuous, discontinuous and trace bark. The project area ZOD could be a basis for Section 303(d) listing only if significant deposits of bark and wood debris were documented outside of the project area.

For waterbodies associated with LTFs or seafood processing, dive survey protocols and reporting should be in accordance with the requirements contained in the appropriate permits.

In making attainment determinations on waters associated with a LTF, and where DEC has received a Notification or Notice of Intent to Operate under a General Permit, DEC makes its categorization decision after evaluating the sufficiency and credibility of the dive survey data on file and required under the GPs and the information provided in the Notice of Intent.

### ***Category 1 Waterbody***

Category 1 waterbodies are waters attaining water quality standards. Waterbodies are placed in this category if data support a determination that the WQS and all of the uses are attained.

Waterbodies are placed in this category when water quality data and information show that all uses are being attained.

### ***Category 2 Waterbody***

Category 2 waterbodies are those waters that are attaining some designated uses and for which insufficient or no data and information are available to determine whether remaining uses are attained:

A waterbody is placed in Category 2 if a determination is made that the waterbody is attaining some uses or standards. Waterbodies with recent dive survey reports and for which attainment with a 1.0 acre threshold for continuous coverage of residues has been demonstrated are placed in Category 2. For a waterbody associated with residue discharge, if a facility is reporting 1.0 acre or less of continuous residue coverage the waterbody is placed in Category 2.

A waterbody that was determined to be impaired from residues and for which continuous coverage of residues less than 1.0 acre has been documented is placed in Category 2.

### ***Category 3 Waterbody***

Category 3 waterbodies are waters with insufficient or no data and information to determine if any designated use is attained. Waterbodies are placed in this category if the data or information to support an attainment determination for any use is not available. Alaska has generally reliable information and data on facilities that discharge residues because of dive survey reporting requirements associated with residue discharge permits.

Supplementary data and information should be developed or monitoring should be scheduled to assess the attainment status of these waters, as needed.

### **Criteria for Placing Waters in this Category**

Alaska's water resources include more than 3 million lakes greater than 5 acres in size, 365,000 miles of rivers and streams, more than 174,000,000 acres of fresh water wetlands, and 36,000 miles of coastal shoreline. Therefore, Alaska has a large number of waterbodies for which insufficient, inadequate, or little to no data or information exists to support attainment or impairment determinations. DEC expects that the majority of these waters would be in Category 1 (i.e., waters attaining standards for all uses), if sufficient resources existed to assess them. Category 3 includes

waters formerly known as “open files” and waters nominated for assessment through ACWA. Actions that trigger opening a file can include nomination from the public, a public complaint, a newspaper report, or more rigorous information, such as water quality reports or assessments. These waters are placed in Category 3. DEC maintains files on some of these waterbodies, which are identified in Appendix C.

### **Category 4b Waterbody**

Category 4b waterbodies are impaired waters but do not need TMDLs because other pollution controls in place and the waters are expected to attain WQS within a reasonable time period.

A waterbody is placed in Category 4b if LTF dive survey reports document greater than 1.5 acres of continuous residues coverage; a determination is made that the water is impaired; and there is an approved remediation plan under the LTF GPs or an individual state wastewater discharge permit. Waterbodies that are under EPA compliance orders for seafood residue violations may also be considered for placement in Category 4b. Moving a Category 5 waterbody to Category 4b requires EPA approval.

The requirements for preparing and submitting remediation plans, taken from DEC Certificates of Reasonable Assurance for the two LTF GPs, are identified in the document *Guidance For Preparing Remediation Plans Under Alaska’s General Permits For Log Transfer Facilities*. Several key details of the requirements are summarized below:

If existing continuous bark and wood debris cover exceeds both 1.0 acre and a thickness of 10 cm at any point, an operator must submit a remediation plan to DEC within 120 days, unless DEC grants additional time.

A proposed remediation plan must evaluate historical and future log transfer processes and volumes; environmental impacts of existing deposits of bark and wood debris and the environmental impacts of methods to reduce continuous coverage; and methods to reduce continuous bark coverage, including alternative methods of log transfer and transport, operational practices, and technically feasible methods and costs of removing bark.

The remediation plan must identify a set of feasible, reasonable, and effective measures to reduce continuous bark cover to both less than 1.0 acre in area and 10 cm in thickness at any point.

If removal of bark is proposed, the remediation plan must specify areas, methods, volume, and timing of removal; the method of disposal for the removed material, including practices to ensure meeting WQS; and the cost of removal by the proposed methods and alternatives considered.

The plan must include a performance schedule and performance measures for its implementation.

The plan may describe measures that can be implemented in phases, with continued bark monitoring surveys and with future modification of the remediation plan based upon progress in reducing the continuous coverage.

DEC will approve, approve with modification, or deny a proposed remediation plan within 90 days of receipt.

An approved remediation plan constitutes an enforceable condition of the GP.

The LTF GPs do not require EPA approval of the remediation plan. EPA requires that the LTF operator update the Pollution Prevention Plan to outline additional controls that will be implemented to reduce or eliminate additional residues accumulation. The revised Pollution Prevention Plan will not include measures intended to reduce the current bark accumulation to less than 1.0 acre.

The objective of remediation planning is to implement the most appropriate site-specific treatment with the goal of reducing the extent of continuous residues coverage to less than 1.0 acre.

## **Category 5 Waterbody**

A waterbody is listed in Category 5 and on the Section 303(d) list when a determination is made that the water is impaired by residues. Category 5 waters require that a TMDL or other equivalent pollution controls are developed to attain WQS.

Section 303(d) of the CWA requires a list of waterbodies that are not expected to meet WQS without additional controls. Many Section 303(d) designated waters have not undergone comprehensive water quality assessments to determine either the extent of water quality impairment or whether existing controls are adequate to achieve the standards. DEC closely scrutinizes waterbodies to determine whether suspected water quality violations were thoroughly investigated and documented. This approach is designed to prevent the listing of waterbodies with only inconclusive or circumstantial data or observations.

For waterbodies with facilities that are permitted to discharge residues, such as a seafood processor or LTF, the impairment standard is 1.5 acres of continuous cover. If two or more consecutive dive survey reports adequately document the presence of 1.5 acres or more of continuous residue cover, the waterbody is placed on the Category 5/Section 303(d) list.

A waterbody with an LTF that has a current ZOD authorization is placed in Category 5 if two or more consecutive dive survey reports document more than 1.5 acres of continuous residues coverage and greater than 10 cm of depth at any one point, unless DEC has approved a remediation plan for that waterbody. A waterbody is placed in Category 5 when a submitter has failed to implement an approved remediation plan (LTF) according to its schedule. Exceptions may include waterbodies where ZODs were authorized at greater than 1.5 acres.

If DEC approves a remediation plan on a Category 5/Section 303(d) listed waterbody that is reporting more than 1.5 acres of continuous coverage of bark on the bottom prior to the next Section 303(d) list, the waterbody is placed in Category 4(b) in the next Section 303(d) list.

A waterbody associated with a facility operating under either of the LTF GPs that is reporting continuous coverage of residues of more than 1.5 acres is considered for Category 5/Section 303(d)

listing if one of the following conditions is met: (1) the permittee failed to submit a remediation plan, or (2) a remediation plan has been submitted, but the permittee is failing to implement or is not meeting milestones set forth in the approved remediation plan.

A waterbody associated with an LTF where there is no currently permitted or active discharge to the water, but where the last known dive survey reported more than 1.0 acre of continuous residues coverage on the marine seafloor, is placed on the Category 5/Section 303(d) list.

A waterbody associated with a seafood processor with a current ZOD authorization with two or more dive survey reports that documents continuous residues coverage of more than a 1.5 acre area of seafood waste is placed in Category 5. Exemptions include waterbodies where ZODs were authorized at greater than 1.5 acres. Waterbodies with legacy site seafood piles (no current dischargers) that are determined to be more than 1 acre of continuous residue coverage may be considered for Category 5/Section 303(d) listing.

For all Category 5/Section 303(d) waterbodies listed for residues after 1998 based on two dive surveys, the operator must document through two consecutive dive surveys that the areal extent of continuous cover residues has been reduced to less than 1.5 acres to have the waterbody removed from the Category 5/Section 303(d) list. For all Category 5/Section 303(d) waterbodies listed for residues in 1998 or earlier, based on 1.0 acre and on one dive survey, the operator must document through one dive survey that the areal extent of continuous cover residues has been reduced to less than 1.0 acre in order to be removed from the Category 5/Section 303(d) list. If the areal extent of continuous cover is not declining in size, DEC will initiate permit modification or TMDL development.

The use of a greater than 1.5 acres of continuous coverage impairment standard for log transfer and seafood processing facilities with ZODs is based on several factors:

**Permits Establish Limits, not Water Quality Standards.** The fixed 1.0 acre ZOD used for previous impairment determinations is a permit limit and not a water quality standard. Alaska's ZOD regulations (18 AAC 70.210) allow the deposition of substances on the bottom of marine waters within limits set by DEC. However, the standards must be met at every point outside the ZOD. Permits use the WQS as a basis for setting effluent "limits" or for allowing flexibility from the WQS.

DEC specifies the criteria that can be exceeded in a permit, short-term variance, or certification. If a discharger is granted a ZOD within a permit, the permittee can only exceed the criteria that have been identified in its permit, short-term variance, or certification.

**Confidence of Dive Survey Information.** Although EPA NPDES individual permits contained protocols for dive surveys at LTFs, it appears that dive methods were not implemented consistently. In addition, NPDES permits included no method for calculation of bark area, which often was overestimated. These inconsistencies compared to current protocols in the GPs raise the issue of the reliability of dive survey information that resulted in previous listing decisions, and make it difficult to track trends in actual bark accumulation patterns. For instance, a 1997 dive survey on bark residues that resulted in the 1998

impairment determination and Section 303(d) listing reported the presence of measurable bark or trace coverage. The reported 9.5-acre bark footprint was based on plots with measurable bark rather than continuous-cover bark.

The dive survey requirements contained in Seafood GPs are based on seafood waste residue dispersal patterns and seafloor monitoring. The lack of a perimeter dive survey requirement leads to uncertainty in the impairment determination.

#### **Uncertainty in Current Approved Method and Acreage Calculations of Dive Survey**

**Reports.** DEC has noted that the current required method of acreage calculation is not used correctly. As part of the dive survey review, DEC re-calculates continuous cover based on dive survey reports. For facilities that were Section 303(d) listed in 1998, DEC calculations indicate that five of the seven 2002 dive survey reports for these facilities overstated the extent of continuous cover. Of all the reports reviewed to date since the inception of the two LTF GPs, only one report understated the extent of continuous cover. Because of uncertainty about the extent of continuous cover, and by using an impairment standard of 1.5 acres of continuous coverage, DEC is confident that impairment decisions truly reflect actual impairment.

**Natural Reduction of Residues Deposits.** Dive survey reports for LTFs that transferred little or no timber volume over a number of years often showed considerable reduction in the areal extent of continuous coverage. The reduction was likely due to natural sedimentation and/or current disbursement. For example, the areal extent of continuous bark coverage on the bottom of Corner Bay declined from 1.2 acres in 1996 to 0.6 acre in 2001. No logs were transferred during this period, and no active remediation occurred.

The level of timber harvest is significantly lower than in the past. Reduced loading associated with reduced volume transferred is likely to act to reduce continuous cover accumulation over time. Limited research to determine the effect of transfer method and volume transferred on bark accumulation has established a weak statistical correlation between volumes transferred and bark accumulation. A similar correlation has not been established for the transfer method.

**A 1.0 Acre Accumulation Threshold and a 1.5 Acre Impairment Standard.** There is clear and pervasive language within the LTF Guidelines that establishes the 1.0 acre ZOD standard as a threshold standard for cleanup, and not for use as an impairment standard.

**Impacts to the Biological Community.** The use of ZODs has been historically recognized and generally accepted for dischargers of residues to the marine environment in Alaska. The hearing officer findings, for instance, from the LTF adjudication of the DEC proposed Section 401 certifications of the two federal GPs found that the discharge of bark and wood debris sited and operated in conformity with the permit has limited and localized impacts on the benthic community within the project area. The hearing officer also asserted that such discharges would have no discernible effect on the benthic environment as a whole in the geographic area covered by the GPs. Patchy and discontinuous bark residue deposition on

the bottom is authorized under the LTF GPs. Additionally, an antidegradation finding is made for each LTF facility permit.

It is recognized that excessive residue coverage of more than 1.5 acres that is continuous and in excessive depth accumulations can have adverse impacts. Facilities that are operating under permit conditions with ZODs are accepted as not adversely affecting the biological community or causing irreparable harm.

Under the LTF GPs, exceeding the 1.0 acre continuous-cover threshold triggers the requirement to develop a remediation plan.

## 8.0 Removal of Waterbodies from the Category 5/Section 303(d) List Determined to be Impaired from Residues

The following protocols are applied to all waterbodies associated with a permitted facility and Category 5/Section 303(d) listed for residues, regardless of an active discharge on site:

For waterbodies Section 303(d) listed after 1998 and determined to be impaired for residues based on **two** or more dive surveys:

DEC requires two consecutive dive surveys documenting that continuous residues coverage is no more than 1.5 acres before the waterbody is eligible for removal from the Category 5/Section 303(d) list and for placement in either Category 1 or 2.

For waterbodies Section 303(d) listed in 1998 or earlier (based on 1.0 acre) and determined to be impaired for residues based on **one** dive survey or best professional judgment:

DEC requires one dive survey documenting that continuous residues coverage is no more than 1.0 acre before the waterbody is eligible for removal from the Category 5/Section 303(d) list and placement in Category 1 or 2.

In addition to consideration of the continuous residues coverage standard of 1.5 acres, DEC may consider biological assessment information, such as sediment profile imaging, in a determination to remove a waterbody on the Section 303(d) list for residues.