U.S ACADEMIC RESEARCH FLEET (ARF)

Academic Research Fleet Funding

(Dollars in Millions)

| | FY 2023 | | Change over | |
| FY 2022 | Estimate | FY 2024 | FY 2023 Estimate Base | |
Actual	Base	Request	Amount	Percent
$116.39	$127.11	$129.23	$2.12	1.7%

Brief Description

The U.S. Academic Research Fleet currently consists of 17 oceanographic vessels and various submersibles/autonomous vehicles owned by the National Science Foundation, the Office of Naval Research (ONR), and U.S. universities and laboratories. All ARF ships and vehicles are operated by research universities and laboratories. The ARF is a subset of the U.S. Federal Oceanographic Fleet, with collaboration under the Federal Interagency Working Group on Facilities and Infrastructure. Access to the ARF vessels and vehicles is accomplished through collaboration with the University-National Oceanographic Laboratory System (UNOLS) organization. Universities and laboratories that operate ARF vessels are designated as UNOLS operators, and as such, adhere to the UNOLS Research Vessel Safety Standards, as well as other applicable U.S. Coast Guard Code of Federal and International Maritime regulations. All ARF ships are U.S.-flagged vessels with vessels over 300 tons operating under a Certificate of Inspection and tracked by the U.S. Department of Transportation Maritime Administration.

Meeting Scientific Community Needs

The ARF consists of technologically advanced ships and submersibles/autonomous vehicles that enable scientists to conduct research in complex ocean, seafloor, and sub-seafloor environments, the Great Lakes, and remote polar regions. ARF vessels collect observational data on Earth systems that provide a foundation for understanding how these systems interact and for improved predictive modeling. Through at-sea sampling and observing, researchers have begun to understand, model, and predict responses of marine populations and systems to long-term and episodic changes in ocean conditions. Through engagement with various UNOLS committees, scientific input into the operations of ARF vessels is provided to Federal agencies to better support research community requirements.

Status of the Facility

In FY 2022, ARF vessels carried out 3,640 operating days, of which NSF-supported research accounted for a record high 78 percent. NSF and Oregon State University completed the disposition process for R/V *Oceanus* in FY 2022, making way for R/V *Taani* to be delivered in FY 2023. The *R/V Taani* is the first of the three regional class research vessels being constructed with funding from the Major Research Equipment and Facilities Construction account. Currently, ARF is experiencing a major challenge with crew retention and recruitment as global demand for ship crew is high and skilled crewmembers have competitive opportunities outside the academic fleet. NSF and ONR have funded a new position in the UNOLS office to focus on the development of initiatives to address this issue.

Governance Structure and Partnerships

NSF Governance Structure
NSF oversight of the ARF is provided by a Program Director in the Division of Ocean Sciences who works cooperatively with staff from other Divisions; the Office of Budget, Finance and Award Management (BFA); the Office of the General Counsel; and the Office of Legislative and Public Affairs. Within BFA, the Large Facilities Office provides advice to program staff and assists with agency oversight and assurance. The GEO Senior Advisor for Facilities and the Chief Officer for Research Facilities also provide high-level guidance, support, and oversight.

NSF is the cognizant federal agency that supports the ARF through awards to each ship-operating institution and that provides oversight through site visits, ship inspections, Business Systems Reviews (BSRs) and participation at UNOLS council and committee meetings.

External Governance Structure
ARF operations are coordinated with stakeholders through UNOLS council and committees. The UNOLS Ship Scheduling Committee is the group that develops the annual operating schedule and maximizes efficient support for funded science. Through the UNOLS Fleet Improvement Committee, stakeholders update documents identifying capabilities needed by each ship class to support science missions, which in turn inform funding needs. The material condition of ARF vessels is determined through the NSF Ship Inspection Program, which helps determine future Fleet modernization needs.

Partnerships and Other Funding Sources
The ARF is supported through interagency partnerships, principally with ONR and the National Oceanic and Atmospheric Administration. The Fleet's operating costs are divided proportionally among vessel users based on usage. NSF supports approximately 70 percent of the total usage.

Funding

Total Obligations for ARF

(Dollars in Millions)

	FY 2022 Actual	FY 2023 Estimate Base	FY 2024 Request	ESTIMATES[1]				
				FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Operations & Maintenance	$116.39	$127.11	$129.23	$142.23	$150.38	$156.40	$162.65	$169.16

[1] Outyear estimates are for planning purposes only. Includes funding for Regional Class Research Vessels as they become operational.

Funding for the ARF includes investments in ship operations; shipboard scientific support equipment; oceanographic instrumentation and technical services; and submersible support. Increased support in FY 2023 and into FY 2024 reflects lingering impacts on ship demand and scheduling of work deferred due to the COVID-19 pandemic, as well as increased operations, higher maritime wages, and higher fuel costs. Additionally, the impact of supply chain back-logs has impacted shipyard costs.

Reviews and Reports

Each NSF cooperative agreement award with a ship-operating institution is reviewed by an external panel every five years. The current cycle of cooperative agreements ends in FY 2024. NSF has scheduled two BSRs for FY 2023: Louisiana Universities Marine Consortium (LUMCON) and the

University of Hawaii.

Renewal/Recompetition/Disposition

NSF owns two vessels in the ARF but relies on all ships to support NSF-funded research. All operating institutions received new five-year awards in 2018, which were extended to six years as NSF updates the solicitation to ensure compliance with recent legislation. NSF funded year five of the six-year awards for all the ships in FY 2022. For the ships not owned by NSF, the operating awards will be renewed in FY 2024.

After completing an internal NSF review process, a decision was made to request a 5-year renewal proposal from the University of Alaska Fairbanks for continued operations of the NSF-owned ship, R/V *Sikuliaq*. The proposal will undergo external panel review for a possible award in FY 2024. The remaining NSF-owned ship, R/V *Endeavor* is anticipated to be divested in FY 2023 and replaced by R/V *Narragansett Dawn* in early FY 2025. The third new RCRV, R/V *Gilbert R. Mason,* will replace R/V *Pelican* (owned by LUMCON) in late FY 2025 after retirement of R/V *Pelican* in FY 2024. Operators for RCRVs were chosen through a competitive process.

As noted previously, NSF and Oregon State University completed the disposition process for R/V *Oceanus* in FY 2022, making way for R/V *Taani* to be delivered in FY 2023.