U.S ACADEMIC RESEARCH FLEET (ARF)

Academic Research Fleet Funding

(Dollars in Millions)

FY 2023 Base Plan[1]	FY 2024 (TBD)	FY 2025 Request	Change over FY 2023 Base Plan	
			Amount	Percent
$136.09	-	$151.33	$15.24	11.2%

[1] FY 2023 Base Plan captures the transfer of ship-time costs (estimated at $8.98 million) from the Ocean Observatories Initiative (OOI) that occurred mid-FY 2023.

Brief Description

ARF 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, collaborating under the auspices of 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 applicable U.S. Coast Guard Code of Federal and International Maritime regulations. All ARF ships are U.S.-flagged vessels, with those over 300 tons operating under a Certificate of Inspection and tracked by the U.S. Department of Transportation Maritime Administration

Meeting Scientific Community Needs

ARF consists of technologically advanced ships, submersibles, and autonomous vehicles that enable scientists to conduct research in complex ocean, seafloor, and sub-seafloor environments, including 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. Scientific input into the operations of ARF vessels is provided to Federal agencies through engagement with various UNOLS committees, to better support research community requirements.

Status of the Facility

In FY 2023, ARF vessels completed 3,734 operating days, of which 70 percent was in support of NSF-funded research. In a typical year, NSF financial support for the fleet accounts for 70 percent of the total financial investment in ship operations and maintenance.

In FY 2023, ARF experienced 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. In response to these challenges, NSF and ONR are supporting a position in the UNOLS office

dedicated to addressing this issue. As part of this effort, several new recruiting activities are delivering the message to the maritime community about employment opportunities within the ARF. These efforts have resulted in significant alleviation of the workforce issues, but they remain a challenge, requiring sustained investment and attention.

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 late 2024 with a transition to full operations planned for late 2025. The *R/V Taani* is the first of the three regional class research vessels (RCRV) being constructed with funding from the Major Research Equipment and Facilities Construction account.

Governance Structure and Partnerships

NSF Governance Structure
NSF oversight of the ARF is provided by a Program Director in the Division of Ocean Sciences (OCE) who works cooperatively with staff from other Divisions; BFA's Research Infrastructure Office and Division of Acquisition and Cooperative Support; the Office of the General Counsel; and the Office of Legislative and Public Affairs. 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 the UNOLS Council and committees. The UNOLS Ship Scheduling Committee 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 cost.

Funding

Total Obligations for ARF
(Dollars in Millions)

	FY 2023 Base Plan[1]	FY 2024 (TBD)	FY 2025 Request	ESTIMATES[2,3]				
				FY 2026	FY 2027	FY 2028	FY 2029	FY 2030
Operations & Maintenance	$136.09	-	$151.33	$151.33	$151.33	$151.33	$151.33	$151.33

[1] FY 2023 Base Plan captures the transfer of ship-time costs (estimated at $8.98 million) from the Ocean Observatories Initiative (OOI) that occurred mid-FY 2023.

[2] Outyear estimates are for planning purposes only. The current cycle of cooperative agreements with ship-operating institutions ends in FY 2024.

[3] O&M costs for the new Regional Class Research Vessels will be included into the ARF budget as they are integrated into the fleet.

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 2025 relative to FY 2023 reflects the addition of the *R/V Taani* to the ARF, which is scheduled to transition to full operations in late 2025. Furthermore, the increase in FY 2025 supports funding of ship time for the Ocean Observatories Initiative (OOI), which was not fully covered under the ARF budget in FY 2023. Increased operations costs, higher maritime wages, higher shipyard and supply costs, and higher fuel costs will continue to have an impact in FY 2025.

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. A solicitation for ship-operations proposals was issued by NSF in FY 2023. Proposals will be received in FY 2024 and reviewed by an external panel, with awards made during FY 2024. NSF held one BSR in FY 2023, for the Louisiana Universities Marine Consortium (LUMCON), and will hold a second at the University of Hawaii in summer of 2024.

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 updated its solicitation to ensure compliance with recent legislation. NSF funded year six of the six-year awards for all the ships in FY 2023. For the ships not owned by NSF, the operating awards will be renewed in FY 2024.

After completing an internal NSF review process, per NSF standard operating guidance, 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 by the end of FY 2025 and replaced by the second RCRV, R/V *Narragansett Dawn,* in early 2026. The third RCRV, R/V *Gilbert R. Mason,* will replace R/V *Pelican* (owned by LUMCON) in late FY 2026 after retirement of R/V *Pelican* in FY 2024. Operators for RCRVs were chosen through a competitive process.