

# Ocean Infrastructure for U.S. Leadership

**Submitting Organization:** RECOS – The Ocean Coalition  
**Affected Government Agencies:** NOAA, NSF, NASA, Navy, DOE, BOEM  
**Corresponding Appropriations:** CJS, DoD, Energy & Water, Interior

**Background:** Knowledge of the oceans is essential for national security, weather forecasting, and securing marine resources for U.S. prosperity. This requires investment in ocean infrastructure. U.S. research ships, the backbone of global ocean research and monitoring, have declined in number and capability as needs for advanced ocean sciences expand. Autonomous systems complement ship-based observing, providing sustained, persistent presence in challenging environments, but are not fully exploited. Artificial intelligence could revolutionize use of autonomous systems, once algorithms are developed, applied, and whole systems are tested in the ocean environment. Existing observing systems are insufficient for supporting weather and ocean forecasts, extreme event prediction, domain awareness, and seafloor mapping and resource characterization. The Arctic, growing in strategic and economic importance, lacks an observing system and access. The U.S. needs sensors and platforms to expand ocean observations from the seafloor to space, observing locally and globally.

Despite the proven economic and national security benefits of a strong U.S. ocean science capacity, the U.S. lags behind other countries in collecting ocean data. In the last 50 years, the U.S. Academic Research Fleet, which includes vessels owned by the U.S. Navy, has decreased from 34 to 16 ships. Required retirements of old vessels is outpacing new construction. In comparison, The People's Republic of China (PRC) has built 64 research vessels, most in the last 10 years. The heightened importance of the Arctic, where new ice-free routes and national security interests are rapidly emerging, highlights the need for polar access for the U.S. An Arctic nation, the U.S. has only two research icebreakers while The PRC operates three, and Russia more than 40. The U.S. leads the world in development of autonomous platforms, but insufficient funding hinders exploitation of this advantage. The U.S. faces chronic funding challenges for continuing observing systems, such as NOAA's Argo program, critical to understanding the link between the ocean and weather.

Investments in new ocean infrastructure for sustained data gathering, enabled by a modern research fleet with global reach, are essential for delivering critical data and for maintaining U.S. presence in strategic oceanic regions, especially in the Arctic. Ocean research drives technological advancements in robotics, data analytics, and innovation that support the Blue Economy. In-water observations complement remote and satellite data to provide a comprehensive, continuous view of the ocean to monitor surface temperature, sea level changes, currents, toxic blooms, ice, marine debris and oil spills.

Innovation in industry, academia and with federal partners must be funded to enable U.S. leadership in the growing ocean economy and expanding needs for ocean domain awareness. Regional, global and ice-breaking ships remain essential for deploying technologies and making targeted observations complimented by networks of autonomous/uncrewed vehicles. Modernization of ocean research and cyber infrastructure will allow the U.S. to regain leadership and influence.

**Recommendation in Legislation:** RECOS supports a near-term comprehensive plan to build two Ocean/Intermediate Class research vessels, five Global class research vessels (with one having seismic capabilities), two research ice breakers and a deep ocean drill ship. RECOS supports expansion of autonomous observing capability, and sustained investment in technologies to observe the ocean at nano to global scales, from seafloor to space.