National Security

Submitting Organization: RECOS – The Ocean Coalition
Affected Government Agencies: Navy, NSF
Corresponding Appropriations: Defense, CJS

Background: U.S. leadership in ocean science, data, and technology is central to national security. The U.S. domain is from space to sub-seafloor. Basic and applied research investments, particularly through the Office of Naval Research, fuel innovation to maintain the U.S. maritime advantage in an era of intensifying global competition. U.S. investments advance technology and science that underpin persistent observing, situational awareness, and operational forecasts required for decision advantage across the maritime domain, and provide warfighters with tactical and strategic advantages. The global ocean is a principal operational battlespace. Maintaining U.S. superiority requires continuous observing above, on, and below the sea surface. This requires R&D on state-of-the-art sensors, autonomous platforms, networked systems, dynamical models, and data gathering. These capabilities, blended with tools from artificial intelligence and machine learning, deliver essential and long-lasting awareness, forecasting, planning, and risk reduction.

U.S. research institutions are essential engines of innovation for national defense, with outcomes that support civilian economic prosperity. At-sea research drives advances in autonomy, artificial intelligence, and data assimilation that support distributed operations in contested environments. These capabilities are increasingly critical in polar regions, where rapid change, expanding ice-free access, and strategic competition demand improved forecasting, navigation, and awareness. Investment in basic and applied research, and in space based and in situ vessels, vehicles, sensors, and observing infrastructure enable testing and validation of new technologies under conditions that cannot be modeled ashore.

The Academic Research Fleet plays a critical role in science diplomacy and maritime leadership. The fleet includes vessels owned by the U.S. Navy. Global-class vessels provide range, endurance, and capacity to conduct science in remote and high-sea-state environments, which accelerate technology maturation and new concepts of operation for the government, industry, and partners. A fleet of global vessels, ice breakers and drill ships provide testing and training grounds for wide-ranging autonomous vehicles, other robotic infrastructure, and operators. These vehicles cannot operate alone in distant regions without ship-based support and service. Ocean research also underpins emerging national priorities, including access to seabed resources, resilient supply chains, growth of the U.S. economic zone, and secure maritime infrastructure. Without immediate recapitalization of this fleet, the U.S. risks ceding capability, possibilities, and sea-going expertise at a time when peer competitors such as the People's Republic of China are accelerating investment and expanding research capacity and infrastructure.

Sustained and increased investment in basic and applied research, instrumentation, and infrastructure will ensure the U.S. maintains decisive advantage across the ocean battlespace. Dual use technologies emerging from innovations in national security research and development benefits all Americans and create jobs. Navy- and NSF-supported research programs develop the next generation of scientists, engineers, and technologists. These programs replenish and modernize a highly skilled workforce to address complex defense challenges for defense innovation.

Recommendation in Legislation: RECOS supports strong, sustained federal investment in Navy, NSF, NASA, and NOAA basic and applied ocean research and technology over the coming decade. Key to U.S. leadership is ensuring a strong maritime presence with ships and autonomous vehicles, including in polar regions, with highly trained personnel.