

Report to the U.S. Congress on the National Oceanographic Partnership Program

Fiscal Year 2007

National Ocean Research Leadership Council Agencies

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NOOPP

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I. Executive Summary

The National Oceanographic Partnership Program (NOPP) marked its 10th anniversary in 2007. NOPP has forged interagency and intersector cooperation through a multitude of cross-cutting research and education projects supported by the federal government over the past decade. NOPP promotes the objectives of assuring national security, advancing economic development, protecting quality of life, and strengthening science education and communication through improved knowledge of the ocean. The National Ocean Research Leadership Council (NORLC), comprising leaders of fifteen federal agencies, guides NOPP in identifying and carrying out partnerships among federal agencies, industry, and other members of the ocean sciences community in support of those national objectives. In response to the report by the U.S. Commission on Ocean Policy, the Administration is placing greater emphasis on understanding the benefit of ocean science to society as a whole. Among the considerable benefits that a greater understanding of the oceans, coasts, and the Great Lakes can provide the Nation is an improved scientific basis for resource management. In an effort to build upon the desire of the Congress in establishing NOPP to see greater federal coordination in the execution of ocean research, NORLC is now conducting business as the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI). This Under/Assistant Secretary-level body was established in the U.S. Ocean Action Plan (OAP), the Administration's response to the U.S. Commission on Ocean Policy report, and has representatives from 28 federal agencies. The unprecedented breadth of federal agency involvement in NOPP, through NORLC and ICOSRMI, can be expected to further increase NOPP's scope and relevance in the coming years.

The NOPP Ten-Year Strategic Plan identifies four goals, to be completed by 2014, on which NOPP has already taken significant action:

1. Achieve and Sustain an Integrated Ocean Observing System (IOOS®)
2. Promote Lifelong Ocean Education
3. Modernize Ocean Infrastructure and Enhance Technology Development
4. Foster Interagency Partnerships to Increase and Apply Scientific Knowledge

NOPP investments to achieve these goals have been central to many community developments in modern oceanography and have led to downstream impacts on society.

The overall fiscal investment in NOPP generally consists of two types of efforts. NOPP-Funded Activities are those that are either solicited or managed by NOPP and involve support from two or more agencies. Overall investment in NOPP-Funded Activities, which totaled \$32.8 million in Fiscal Year (FY) 2007, has increased significantly since the program's inception, to more than \$296 million total. By issuing proposal solicitations from FY 1997 to FY 2007, NOPP has funded 121 projects, including 21 renewal projects. Eleven new projects were funded in FY 2007 focusing on: A) *Marine Mammals* and B) *Coastal Effects of a Diminished-ice Arctic Ocean*. In addition to NOPP-Funded Activities, agencies invest in NOPP-Related Activities which are funded primarily by a single agency based on plans produced by NOPP entities, such as the NOPP Strategic Plan. Examples include projects related to the development of IOOS.

The experience and breadth reflected in ten years of NOPP accomplishments are particularly worth noting, due to the strong desire of the community to implement *Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy*. As demonstrated by its first decade of achievements, NOPP is an excellent forum for development of new interagency initiatives and priorities that transcend single agency agendas. Using the guidance provided by *Charting the Course for Ocean Science*, the Joint Subcommittee on Ocean Science and Technology's (JSOST) Interagency Working Group on Ocean Partnerships (IWG-OP, formerly the NOPP Interagency Working Group) will continue to use NOPP as a standing forum for discussion of ideas and priorities within that report. Among its many roles, the IWG-OP serves an invaluable function to gather and organize information and people around relevant and timely issues regarding current and potential future research priorities. For example, the IWG-OP recently initiated an interagency dialogue on how biodiversity may serve as an integrating programmatic issue among agencies' exploration, research, and monitoring projects.

II. Introduction

Through the 1997 Defense Authorization Act (Public Law (P.L.) 104-201), the Secretary of the Navy was directed to establish the National Oceanographic Partnership Program (NOPP, www.nopp.org). Supplemental legislation for appointments to the NOPP oversight body, the National Ocean Research Leadership Council (NORLC), and to the Ocean Research Advisory Panel (ORAP), is contained in P.L. 105-85, the fiscal year (FY) 1998 Defense Authorization Act.

This FY 2007 Report to Congress reflects the central role NOPP is playing in the implementation of actions described in the Administration's U.S. Ocean Action Plan (OAP), such as implementing the priorities identified in the report released in 2007, *Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy*. *Charting the Course for Ocean Science*, prepared by the Joint Subcommittee on Ocean Science and Technology (JSOST) with significant input and review by the ocean community as a whole, is the first report to prioritize national ocean research by focusing on key interactions between society and the oceans. As illustrated in Figure 1, the strategic goals of NOPP and the societal themes outlined in *Charting the Course for Ocean Science* overlap, making NOPP a highly effective and appropriate tool for implementing the priorities identified. The outlook for the next decade is promising, as NOPP continues to further the national agenda for ocean research, education and interagency cooperation.

Since the release of the report by the U.S. Commission on Ocean Policy (USCOP) in September 2004, the Administration has placed greater emphasis on understanding the benefit of ocean science to society as a whole. For example, a greater understanding of the oceans, coasts, and the Great Lakes can provide the Nation an improved scientific basis for resource management. The Administration has worked actively with federal agencies to establish the new ocean governance structure set forth in the OAP and related Executive Order and link existing groups with new entities. This new structure, to which the NOPP committees and their functions completely transitioned during FY 2007, is described more fully in a notice posted in the Federal Register on 29 June, 2007 (Volume 72, Number 125, p. 35708-35709 and in Appendix 1 of this report). In an effort to build upon the desire of the Congress, through the establishment of NOPP,

NOPP Strategic Goals	Charting the Course for Ocean Science Societal Themes					
	Stewardship of natural and cultural ocean resources	Increasing resilience to natural hazards	Enabling marine operations	The ocean's role in climate	Improving ecosystem health	Enhancing human health
Achieve and sustain an Integrated Ocean Observing System (IOOS)	Design studies for the Ocean Observatories Initiative					
	Establishment of IOOS Regional Associations					
	Argo Float Array					
Promote lifelong ocean education	National Ocean Sciences Bowl (NOSB)					
	COAST Internship		<i>Ocean Science, Technology and Operations Workforce Study</i>			
Modernize ocean infrastructure and enhance technology development			<i>IWG-F Federal Oceanographic Fleet Status Report</i>	Sensor development and commercialization		
Foster interagency partnerships to increase and apply scientific knowledge	<i>LOPHELIA I and II: Deep water coral research</i>		Ocean modeling from the Global Ocean Data Assimilation Experiment (GODAE)	Four FY 2007 multi-institution projects on <i>Coastal Effects of a Diminished-ice Arctic Ocean</i>	<i>LOPHELIA I and II: Deep water coral research</i>	
	Multi-disciplinary partnerships between basic and applied researchers					

Figure 1. Examples of NOPP investments and projects in ocean science, technology and education that intersect with the *Charting the Course in Ocean Science* societal goals.

to see greater federal coordination in the execution of ocean research, the NORLC has fully integrated with the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI), the Under/ Assistant Secretary-level body established in the OAP, with representatives from 28 federal agencies. Similarly, the ORAP has expanded its scope, by inclusion of marine resources under its purview, to better reflect the connectivity between ocean research, decision-making and societal benefits as described in the OAP structure. The ORAP now functions as the Ocean Research and Resources Advisory Panel (ORRAP) in accordance with its new responsibilities and input to the OAP structure. In addition, the main activities of the NOPP committees have been integrated into working groups of the JSOST, a subcommittee under the National Science and Technology Council structure which also reports to the ICOSRMI. The merger of the NOPP structure and the OAP structure underscores the significant emphasis being placed on the role ocean science plays in resource management and policy development and the recognition of the importance of ocean science to society as a whole. This transition is intended to maintain the progress initiated under NOPP while reducing parallel ocean governance structures.

In recent years, the operating tempo of the various federal ocean-related committees and activities, including those of NOPP, has increased notably, as measured by an increased frequency of decisions made and reports delivered; expanded breadth and number of funding solicitations issued; and establishment of sub-panels and Interagency Working Groups on specialized topics. This model of interagency collaboration has proven to be an effective and efficient method of maximizing and enhancing federal investments in ocean science, technology and education. The OAP's mandate and governance structure will build on and expand the NOPP model to apply the benefit of partnership efforts to a greater number of agencies and ocean-related issues.

NOPP will develop and coordinate its activities with the structure established in the OAP in response to the report of the USCOP. The headings of the FY 2007 Report to Congress reflect the newly merged governance structure. Additional details on OAP activities and committee compositions can be found at the Council on Environmental Quality (CEQ) website at: <http://ocean.ceq.gov/>. For a description of the historical and new ocean governance structures, see Appendix 1. The remainder of this report summarizes the NOPP Investment Strategy, the NOPP committees' activities and investments for FY 2007, and ongoing NOPP plans and activities for FY 2008.

III. NOPP Ten-Year Strategic Plan

In August 2004, the NORLC approved a new Ten-Year Strategic Plan for NOPP (www.nopp.org) outlining the NOPP Value Proposition and four NOPP Strategic Goals. The NOPP Value Proposition states: “NOPP adds significant integrative value to the individual oceanographic, ocean science, resource management and ocean education missions of the federal agencies and their partners, in common pursuit of the wise use of the oceans and maintenance of their health.” The Goals, listed below, are based on the original NOPP investment areas as revised to reflect ten years of experience in an evolving political and scientific climate. Agency and ocean science community inputs, Congressional direction, scientific advice of the ORAP, an increased understanding of NOPP’s role beyond the missions of the individual agencies, and input from the USCOP are incorporated into these Goals. The Plan was also used to shape the development of the OAP.

Each of the four Goals has one accompanying “Critical Action” as a specific target for which action-partnerships can be formed and performance metrics can be developed and applied. The Critical Actions are the minimum acceptable progress for this Strategic Plan. The challenge for NOPP is the construction of interagency and inter-sector partnerships and support mechanisms to ensure that the Critical Actions for the Goals are completed within ten years.

The intention of the Strategic Plan is to provide a structure valid for ten years, during which time the NOPP partners can pursue, at a minimum, the Critical Actions. More actions will be added, implementation plans will be prepared, and metrics will be developed and tracked for each agreed action. This Strategic Plan will be updated periodically as needed, but it is intended to be generally valid for a decade. With consensus agreement, additional goals or investment areas may be added. Plans to address the Critical Actions and their associated metrics will be documented separately from this Strategic Plan and are intended for annual assessment and update.

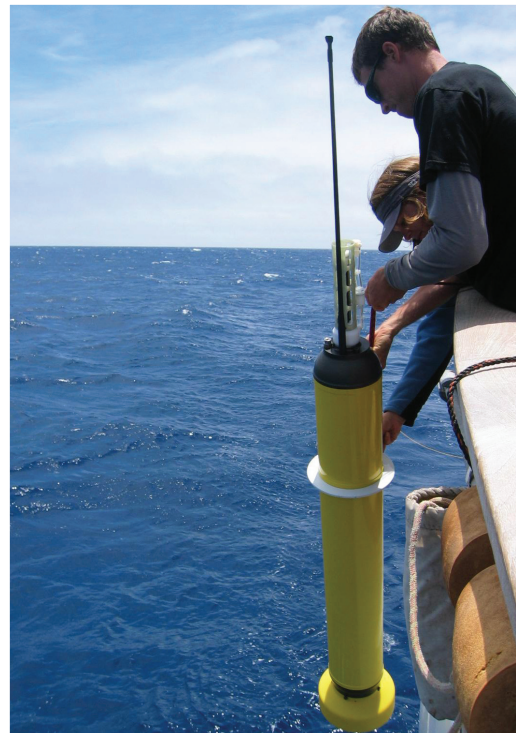
The following is an excerpt from the NOPP Ten-Year Strategic Plan with accompanying notes on the accomplishments towards each goal that NOPP has made to date:

NOPP GOALS...TO BE ACHIEVED WITHIN TEN YEARS

Goal 1. Achieve and sustain an Integrated Ocean Observing System (IOOS®).

Purpose: Provide coastal and global ocean data and products for decision-makers, researchers, and other operational/practical purposes, in support of the four NOPP Strategic Objectives and the seven IOOS Objectives, namely:

- 1) Improve predictions of climate change and variability (weather) and their effects on coastal communities and the nation;
- 2) Improve the safety and efficiency of marine operations;
- 3) More effectively mitigate the effects of natural hazards;
- 4) Improve national and homeland security;
- 5) Reduce public health risks;
- 6) More effectively protect and restore healthy coastal marine ecosystems;
- and 7) Enable the sustained use of marine resources.



Launch of an Argo float as part of a Sea Education Association cruise aboard the SSV *Robert C. Seamans*. The multi-agency, multi-institution U.S. Argo Program contributes data to several ocean observing systems and experiments. Photo credit: K. Lavender

Critical Action: Through the interagency Ocean.US office, stabilize and integrate existing ocean observation programs to provide timely and sustained ocean data and data products with minimal gaps, affordable costs, and maximal utility.

Accomplishments:

- Initiated Ocean.US and the U.S. IOOS, which has now developed its own appropriations and interagency guidance mechanisms;
- Initiated the Ocean Observatories Initiative with design studies that have produced major capital investments and research initiatives led by the National Science Foundation (NSF);
- Served as the mechanism for the implementation and successful development of the Argo float system throughout the global ocean;
- Completed economic impact study of ocean observing systems.

NOPP funded the feasibility study for a U.S. Regional Cabled Observatory component of the NSF Ocean Observatories Initiative. This launched the development of a novel approach for studying the ocean in 4-D through technologies and infrastructure allowing continuous, interactive, real-time access to the ocean. NOPP also provided support for the development, demonstration, and evaluation of an easily deployed, cost effective observation and prediction system for the coastal ocean, focusing on the Gulf of Maine. The result, the Gulf of Maine Ocean Observing System (GoMOOS), is a national pilot program that provides data from the region to a variety of end users. GoMOOS exemplifies a regional observing system, currently serving regional states and provinces and likely serving the nation in the near future.

Goal 2. Promote lifelong ocean education.

Purpose: Instill in the general public and governmental decision-makers the importance of wise stewardship of the ocean and the coastal zone, through the support of science education and communication.

Critical Action: Facilitate and support the use of ocean examples in the teaching of the National Research Council's National Science Education Standards.

Accomplishments:

- Sustained and expanded the successful National Ocean Sciences Bowl (NOSB) to entrain high school students in ocean science studies;
- Created the National Ocean Scholar Program and the Coastal and Ocean Science Training (COAST) internship to enhance ocean education;
- Initiated studies to better understand and predict changes in the ocean workforce.

In addition to the NOPP ocean education efforts listed above, the program has also invested almost \$7M in ocean education-based research projects. These included initiatives to provide oceanographic activities and resources to classroom teachers, use satellite-televized interactive technologies to enhance K-12 science education, and introduce students to ocean exploration through the Jason IX expedition.



COAST interns work on a variety of marine and coastal scientific research projects in Cape Cod National Seashore, Olympic National Park, and Redwood National Park. Photo credit: NOSB

Goal 3. Modernize ocean infrastructure and enhance technology development.

Purpose: Provide access to state-of-the-art tools, training, and facilities for effective and efficient utilization by national ocean programs, in support of the four NOPP Strategic Objectives.

Critical Action: Implement the Federal Oceanographic Facilities Committee (FOFC) fleet plan.

Accomplishments:

- Published and widely disseminated the Federal Oceanographic Fleet Status Report (originally called the FOFC fleet plan);
- Funded research to develop sensors for sustained, autonomous measurements of a wide range of parameters in the ocean;
- Catalyzed discovery of commercial applications for ocean instruments and sensors.

The development and enhancement of underwater vehicles called gliders, outfitted with small, unobtrusive, low-power sensors, has allowed a detailed, 4-D view of the ocean. These instruments can dive to 1000 m several hundred times per mission and report data in real time, providing information not only on physical parameters but on chemical and biological indicators as well. In addition, advanced chemical sensing in the ocean environment is being met through the NOPP-funded development of a new mass spectrometer for long-term unattended deployment. An instrument slated for commercialization, TETHYS (TETHered Yearlong Spectrometer) is being designed for production in significant quantities through the use of low-cost components that can be rapidly produced.

Goal 4. Foster interagency partnerships to increase and apply scientific knowledge.

Purpose: Enable and ensure multi-agency efforts in support of the four NOPP Strategic Objectives where such collaboration enhances efficiency or effectiveness, and/or reduces costs.

Critical Action: Narrow the gap between biological/chemical measurements and physical measurements in support of the science underlying ecosystem-based management.

Accomplishments:

- Advanced the field of ocean data assimilation through the Global Ocean Data Assimilation Experiment (GODAE) which has provided ocean models to the U.S. Navy and the National Oceanic and Atmospheric Administration (NOAA);
- Supported U.S. involvement in a new generation of sea surface temperature (SST) data products available through the GODAE High Resolution SST Pilot Project; and
- Created instrumental partnerships between the more traditional – or basic – ocean research communities and those of a more applied – or resource-focused – nature.

NOPP is funding cutting-edge technology development that takes advantage of advances in biotechnology and applies them to the marine environment. Remote, gene-based detection for species-specific identification of marine life will allow for monitoring of coastal water quality and better understanding of the marine ecosystem, including algal blooms and coral reef health. NOPP is also funding the enhancement of novel instrumentation that will turn existing technology – molecular probes that identify waterborne microorganisms and the substances they produce – into internet-accessible, real-time detectors of harmful algae and their toxins.

IV. Fiscal Year 2007 Activities

Overall fiscal investment in NOPP has increased since its inception in 1997 and can best be described in terms of NOPP-Funded Activities and NOPP-Related Activities. NOPP-Funded Activities are those that are either solicited (NOPP-Solicited Projects) or managed by NOPP (NOPP-Managed Activities) and involve support *from two or more agencies*. NOPP-Related Activities are those that are funded primarily *by a single agency* in response to plans produced by NOPP entities. Both types of activities have grown since NOPP’s inception.

NOPP-FUNDED ACTIVITIES

NOPP-Solicited Projects

NOPP agencies invested approximately \$15.8M in new NOPP-Solicited projects in FY 2007 in response to one solicitation, issued in August 2006 through the Office of Naval Research (ONR) on behalf of NOPP and the ICOSRMI. A Broad Agency Announcement (BAA) called for proposals on the topics of: A) Coastal Effects of a Diminished-ice Arctic Ocean and B) Marine Mammals (see Table 1). In response to the solicitation, 74 proposals were received that included collaborations among approximately 178 institutions (academia, industry and government). The proposals underwent a peer-review process in April 2007 to determine which proposals would be funded;

overall, eleven projects were approved for funding by the JSOST Interagency Working Group on Ocean Partnerships (IWG-OP) on behalf of the NORLC. The URL link to the full text of this solicitation is included in Appendix 3, and summaries of the funded projects are provided in Appendix 4.



Funded FY 2007 research will investigate the influence of oceanographic and biological processes on the distribution of cetaceans on the West Florida Shelf, such as these Atlantic spotted dolphins. Photo credit: P. Simard

BAA Topic (Issuing NOPP Agency; Release Date)	Associated NOPP Goal	Funding Available	Number of Awards Issued
<i>Coastal Effects of a Diminished-Ice Arctic Ocean</i> (ONR; August 2006)	GOAL 4. Collaborate to strengthen U.S. interagency initiatives in research and their connections to operations	\$6.8M over three years	Four
<i>Marine Mammals</i> (ONR; August 2006)	GOAL 4. Collaborate to strengthen U.S. interagency initiatives in research and their connections to operations	\$9.0M over three years	Seven

Table 1. Summary of NOPP BAA issuance and results for FY 2007.

NOPP-Managed Activities

The NOSB is an academic competition that engages students and high schools in the ocean sciences. Now in its tenth year, the NOSB has grown to encompass 25 regional sites, over 300 high schools, and approximately 2,000 students and their teacher/coaches. The NOSB celebrated its tenth year of excellence

through several events, including hosting a symposium with an alumni speaker now working in the field of geosciences. The NOSB has continued broad outreach initiatives to expand the program beyond the aspects of an academic competition. Two additional programs created to complement the NOSB – the National Ocean Scholar Program and the COAST internship – extend the NOSB experience while creating opportunities for students to further their interest in ocean and coastal sciences. The NOSB continues to manage a diversity initiative; started in 2005 to encourage ocean science interest in historically underrepresented populations, the program provides professional development opportunities for coaches and regional coordinators.

The NOSB was highlighted via a combined NOSB/Centers for Ocean Sciences Education Excellence exhibit at the American Geophysical Union (AGU) meeting in San Francisco, CA in December 2006 and presented at the National Marine Educators Association (NMEA) conference in Portland, ME, in July 2007. NOSB was also highlighted at a program booth at the Capitol Hill Ocean Week in Washington, DC, in June 2007.

The transition of NOSB proposal management from the ONR to the NOAA occurred during FY 2007. In February 2007, a five-year proposal for NOSB was submitted in response to a funding announcement issued by NOAA, the lead agency handling NOSB funding. This proposal was reviewed in spring 2007 and awarded funding at more than \$8 million.

For additional information on the NOSB and other education projects, visit the NOSB website at www.nosb.org.

NOPP-RELATED ACTIVITIES

In addition to the NOPP-Funded Activities described above, individual agencies invested in NOPP-Related Activities during FY 2007. Significant examples of such investments included several projects related to the development of IOOS. One example is the Coastal Observation Technology System (COTS) project grants, currently funded by NOAA, which are designed to further the development of integrated coastal ocean observing systems on a regional basis. The overarching goal of COTS projects is to develop regional capacity for coastal/ocean observations by creating infrastructure (e.g., sensors, data management systems) and methodologies to collect, share, and integrate environmental data and create useful information products. These projects, all congressionally directed, are creating an initial observing system capacity that will form the nucleus of the regional coastal ocean observing system. These projects address a range of topics and approaches related to IOOS, including sensor technologies, coastal inundation, coastal ecosystem dynamics, harmful algal blooms, maritime navigation, sediment resources, fisheries, and the use of IOOS information in education. In addition, these projects have assumed a key role in developing standards and protocols for IOOS data management and sharing.

As part of an initial demonstration of data sharing and access capabilities of IOOS, COTS partners and recipients of congressionally-directed ocean observing grants continued collaborating on the development of a web-accessible data portal (available at www.openioos.org) that provides access to real-time and near real-time sea surface temperature, winds, and other data from satellites and buoys located in coastal waters of the continental U.S.

In 2007, NOAA held its first competitive award process to fund COTS projects; previous COTS project funding resulted from congressional earmarks. NOAA will work with the COTS partners and other federal agencies to ensure that projects conform to the vision and implementation requirements of an integrated ocean observing system.

Summaries of past COTS projects can be found at: <http://www.nopp.org/Dev2Go.web?id=205279>.

INTERAGENCY COMMITTEE ON OCEAN SCIENCE AND RESOURCE MANAGEMENT INTEGRATION

At its 27 April 2007 meeting, the NORLC completed its transition to the OAP governance structure, under which it now conducts business as the ICOSRMI, by merging its mandate and membership with those of the ICOSRMI. Also at that meeting, the NORLC Executive Committee of ICOSRMI, whose membership is composed of the Secretary of the Navy, the Administrator of NOAA, and the Director of the NSF, was established to coordinate the mandated responsibilities of the NORLC undertaken by the ICOSRMI. Those responsibilities include submission of the NOPP Annual Report to Congress, approval of NOPP partnership projects, and assignment of responsibilities to the ORRAP.

The minutes of all past NORLC meetings are posted on the NOPP website at www.nopp.org.

OCEAN RESEARCH AND RESOURCES ADVISORY PANEL

The ORRAP, formerly the ORAP, continued its trend of meeting three times annually, in light of its additional responsibilities of addressing resource management issues and providing advice and guidance to the ICOSRMI as called for in the OAP. The FY 2007 ORRAP meetings took place on 30-31 October 2006 in Washington, DC; 21-22 February 2007 in Costa Mesa, CA; and 27-28 June 2007 in Washington, DC.

The October 2006 meeting featured a special session on translating research to applications, including the tasking of a Research to Applications Task Force (RATF), and dialogue with various federal agencies on their roles in the research to applications process, which included challenges faced, possible solutions, measuring success, lessons learned, and communicating results to the Congress. The ORRAP was updated on the status and activities of the Ocean Observatories Initiative (OOI) and various committees within the OAP, and the results of the June 2006 Conference on Ocean Literacy.

During the February 2007 meeting, the ORRAP was briefed on state and federal partnerships and collaboration by representatives from the California Ocean Protection Council and the California Ocean Science Trust. The need for ocean education curriculum development and successful outreach initiatives, such as the *Thank You Ocean* campaign, were highlighted. Additionally, a third ORRAP Sub-panel – on Ocean Observing – was convened to provide a forum for expert input to the ORRAP on issues relating to interagency federal ocean observing initiatives.

At the June 2007 meeting, the RATF report, *Best Practices for Increasing the Impact of Research Investments*, was presented and endorsed. The ORRAP was briefed on and considered the potential need for development of technical qualifications for ecosystem managers and a certification program for oceanographic professionals. The June agenda also included status updates on the Extended Continental Shelf Task Force activities, the Ocean Studies Board, the Offshore Alternative Energy Workshop, and the OAP committees, including the Interagency Task Force on Anthropogenic Sound and the Marine Environment.

ORRAP officers gave presentations on ORRAP activities and provided recommendations at the December 2006 and August 2007 ICOSRMI meetings. Recommendations included: developing a plan for the transfer of research results from OOI to IOOS and incorporating it into the IOOS planning process; reviewing the National Water Quality Monitoring Network by an independent body such as the National Research Council; and considering ways to establish a credible level of support for Oceans and Human Health research.

The ORRAP Industry Sub-panel held its inaugural meeting to create a forum for facilitating industrial sector input on achieving the NOPP Strategic Goals. The ORRAP Education Sub-panel provided its review of the Interagency Working Group on Ocean Education Implementation Plan.

The ORRAP RATF report, which focused on increasing the impacts of research investments, was well received by the ICOSRMI. The report can be accessed at www.nopp.org.

INTERAGENCY WORKING GROUP ON OCEAN PARTNERSHIPS

The NOPP IWG, now operating as the JSOST IWG-OP, met 11 times in FY 2007 in support of partnership efforts across the ocean community. Work continued on a revised IWG-OP Strategic Plan which reached its final stages of revision at the end of the fiscal year; the IWG-OP Strategic Plan is designed to complement the NOPP Strategic Plan. The IWG-OP Task Force on Improved Partnership Flexibility continued to focus its efforts on simplifying interagency interactions, and at the end of the fiscal year was working with the Department of Commerce General Counsel toward an umbrella agreement for transferring funds between agencies. The group developed a solicitation on two topics, Marine Mammals and the Effects of an Ice-Diminished Arctic, and funded eleven proposals. The IWG-OP presented its annual "Excellence in Partnering Award" to "The Deep Wrecks Project: The Artificial Reef Effect in Deep Water," a celebration which included a formal presentation from the project team at the U.S. Navy Memorial Museum. A workshop was held to determine agency interest in pursuing a national implementation plan on Autonomous and Lagrangian Platforms and Sensors. A report from this workshop was produced and is available from the NOPP Office upon request.

INTERAGENCY WORKING GROUP ON FACILITIES

During FY 2007, the FOFC fully transitioned to the JSOST Interagency Working Group on Facilities (IWG-F). As this new body, the IWG-F produced the *Federal Oceanographic Fleet Status Report*. It is the first update of the report entitled *Charting the Future for the National Academic Research Fleet: A Long-Range Plan for Renewal*, which was released in December 2001. The updated report incorporates all federal oceanographic research and survey ships and summarizes the status of the fleet. Consultation with the University-National Oceanographic Laboratory System regarding the academic fleet occurred during the development of the report.

The IWG-F met four times during FY 2007. Major activities included making final revisions to the *Federal Oceanographic Fleet Status Report* based on comments submitted by NOPP agencies, discussion on potential collaboration with the National Undersea Research Program, and possible future initiatives, including contributing to a federal facilities implementation strategy to complement *Charting the Course for Ocean Science*.

INTERAGENCY WORKING GROUP ON OCEAN OBSERVATIONS, OCEAN.US AND THE INTEGRATED OCEAN OBSERVING SYSTEM

During FY 2007, Ocean.US continued to make significant progress toward its goals. A particular accomplishment was the development of formalized Roles and Responsibilities for Ocean.US, developed through a cooperative effort with the JSOST Interagency Working Group on Ocean Observations (IWGOO). As reported last year, oversight of Ocean.US transitioned to the IWGOO in FY 2006. The IWGOO is now the interagency implementation entity for IOOS.

The following summary highlights FY 2007 progress:

1. IOOS Development Plans

The Addendum to the *First IOOS Development Plan*, prepared in the summer of 2006 and available at http://www.ocean.us/oceanus_publications/, was approved. The Addendum included information from the Second Annual IOOS Implementation Conference on coastal inundation, as well as new information on regional governance and performance metrics.

As part of a continuing series of IOOS implementation workshops, Ocean.US co-hosted a summit in September 2007 with the National Office for Global Maritime Situational Awareness (NOGMSA). The summit, *Embracing the Full Spectrum of Environmental Information from Ocean Observations to Achieve*

Maritime Domain Awareness, examined the relevance of environmental information from IOOS for Homeland Security areas of safe operations at sea, port security, and search and rescue. The summit set the stage for more in-depth examinations of the relevance of IOOS environmental information for the Departments of Defense and Homeland Security, as well as other federal agency mission focus areas. A number of partnership opportunities were discovered during the summit and an implementation strategy is now in development. These partnerships will highlight the capabilities of IOOS to deliver needed ocean information to decision-makers as well as bring visibility to IOOS and its role in helping to ensure the security, safety, economy, and environmental health of the U.S. Full summit proceedings are in production and are expected to be published in 2008.

2. Data Management and Communications (DMAC) Plan and Actions

The Data Management and Communications Plan has been coordinated with the activities of the NSF OOI Cyberinfrastructure effort. Ocean.US and NSF continue to ensure that the two programs are well coordinated and complimentary.

The DMAC Steering Team initiated a process to identify standards that could apply to IOOS, to review those standards, and approve the use of those appropriate to IOOS. This will be an ongoing process, although the initial standards will be announced in 2008.

3. Modeling and Analysis

An Ocean.US Task Team, chaired by Dr. Thomas Malone, was charged by the Director of Ocean.US to draft a Prospectus of IOOS Community Modeling and to form a Modeling and Analysis Steering Team (MAST). The MAST drafted an agenda for and conducted an IOOS Community Modeling workshop.

4. Engaging the Private Sector

One of the responsibilities of Ocean.US is to engage all sectors supporting or depending on ocean observations. Dr. Ralph Rayner joined Ocean.US as the Industry Liaison to ensure that the needs of the private sector are addressed and their assets are integrated into IOOS.

5. Ocean.US Education Initiative

Two education working groups have continued their efforts. The Education Data and Technology Protocols working group is working to develop standards and protocols in support of education within the context of IOOS and the broader ocean observing education effort. The group also functions as the DMAC Education Caucus and is the primary interface between the education community and the DMAC committees engaged in establishing guidelines and standards for IOOS data and access to that data. The Key Messages and Themes working group has been meeting to develop the IOOS themes to be used when educating people about IOOS, especially those outside the IOOS community.

6. IOOS Development

At the request of the Intergovernmental Oceanographic Commission (IOC), Ocean.US completed an inventory of the U.S. ocean observing system assets as a contribution to the Global Ocean Observing System (GOOS). The Ocean.US report includes an appendix listing observing platform information and location for each agency or institution, along with the variables measured. The full report to the IOC is on the Ocean.US website (http://www.ocean.us/oceanus_publications). This report will be updated on an annual basis.

The report of the public health workshop, titled *Public Health Risks: Coastal Observations for Decision-Making*, was published as Ocean.US Report #15. The purpose of the workshop was to bring the oceanographic and public health communities together to specify observing system requirements that must be met to minimize the risk of marine toxins and pollutants from point and non-point inputs to coastal waters. The report is available in hard copy and on the Ocean.US website.

Federal Response to Recommendations from the 2nd IOOS Implementation Conference

Representatives of federal agencies that are signatories to the MOA creating the Ocean.US Office (NOAA, Navy, NASA, NSF, EPA, USACE, USGS, MMS, USCG) gathered during the Second Annual IOOS Implementation Conference, 3-5 May 2005, and considered recommendations for implementing a multi-hazard forecasting system for improved mitigation of the impacts of tropical storms, tsunamis and extra-tropical storms in general and for IOOS DMAC and Education in particular. As a body, the declaration below was agreed to.

"We appreciate the work of the participants in the Second Annual IOOS Implementation Conference to formulate a clear set of consensus priorities for FY 05-08 IOOS implementation. We view the priorities in the context of both maintaining current IOOS activities (including observing systems, data systems, and product generating-delivery systems) and improving IOOS capabilities consistent with the Annual IOOS Development Plan, the Strategic Action Plan for the U.S. Integrated Earth Observing System (IEOS), and the U.S. Ocean Action Plan.

1. *We acknowledge the U.S. IOOS as the ocean and coasts contribution to the Global Ocean Observing System (GOOS), the U.S. IEOS and the Global Earth Observing System of Systems (GEOSS).*
2. *To facilitate implementation of the priorities given below, we recommend that agencies initiate discussions to establish an IOOS interagency programming mechanism as an important step toward facilitating implementation of the IOOS Development Plan.*
3. *We reaffirm our 2004 support for the following priorities articulated in the First Annual IOOS Development Plan:*
 - *Develop Regional Associations (RAs) and the National Federation of Regional Associations;*
 - *Implement the DMAC plan nationally and regionally; and*
 - *Implement regional pilot projects.*
4. *We are committed to using the following consensus recommendations from the Second Annual IOOS Implementation Conference to guide the FY05 - FY08, federal contribution (in terms of both supporting and operating) to IOOS Development, especially as related to coastal inundation resulting from storms, and tsunamis:*
 - *Implement the DMAC standards process as the first step toward facilitating data exchange and access within and among RAs and participating federal agencies;*
 - *Support the completion of the ongoing Systems Engineering analysis as critical for the successful implementation of the IOOS; and*
 - *Implement the recommendations for establishing an IOOS Education Network as prioritized by conferees at the Second Annual IOOS Implementation Conference through close coordination with the Joint JSOST-Subcommittee on Integrated Management of Ocean Resources (SIMOR) Education Task Force, once it is established.*

Although participating federal agencies may focus on selected priorities and actions given above, the interagency consensus is to accept the priorities as a whole."

V. Fiscal Year 2008 Activities and Plans

The first efforts toward implementation of *Charting the Course for Ocean Science* by NOPP included incorporating three of the four Near-Term Priorities from that report into the annual NOPP BAA for FY 2008. JSOST has further articulated the science and technology priorities for FY 2009 and FY 2010 via an interagency priorities memo; NOPP agencies can implement corresponding cooperative research activities through the NOPP BAA process in response to this guidance memo.

NOPP-FUNDED ACTIVITIES

FY 2008 anticipated agency contributions for NOPP-Funded Activities are indicated in Table 2.

	NOPP–Solicited Projects	NOPP–Managed Activities	FY 2008 Anticipated Expenditure (\$M)
NOAA	X	X	12.0
NAVY	X	X	10.2
NSF	X	X	2.8
NASA	X	X	3.3
MMS	X	X	1.5
EPA	X	X	*
USACE	X	X	0.2
USGS	X	X	0.1
DOE			0
DOS			0
USCG			0
OSTP			0
OMB			0
DARPA			0
DHS			0
*anticipated expenditures of less than \$100K			Total: ~30.1

Table 2. Anticipated FY 2008 Agency Contributions to NOPP-Funded Activities by Investment Area. This includes Solicited Projects (projects solicited through NOPP RFPs and BAAs) and Managed Activities.

NOPP-Solicited Projects

A BAA was issued in August 2007 for funding in FY 2008. Up to \$24.7M is expected to be available over three years for projects addressing three topics: *Forecasting the Response of Coastal Ecosystems to Persistent Forcing and Extreme Events*; *Sensors for Measurement of Biological, Bio-Optical or Chemical Properties of the Ocean*; and *the Atlantic Meridional Overturning Circulation*. The proposal review was conducted in April and May 2008. In addition, a Request for Proposals (RFP) was issued in March 2008 for funding in FY 2008 for *Exploration and Research of Northern Gulf of Mexico Deepwater Natural and Artificial Hard Bottom Habitats with Emphasis on Coral Communities: Reefs, Rigs and Wrecks*. Up to \$3.3M is expected to be available over four years in support of this RFP. The URL links to both solicitations are included in Appendix 3.

NOPP-Managed Activities

The NOSB was highlighted at the AGU meeting in San Francisco, CA in December 2007 and was represented at the Ocean Sciences meeting in Orlando, FL, in March 2008. The NOSB hosted an exhibit booth at the National Science Teachers Association national convention in Boston, MA, in March 2008 and is scheduled to exhibit at the NMEA conference in Savannah, GA in July 2008.

Calendar year 2008 is the eleventh year of the program. The finals of the 2008 NOSB competition were held in Seward, AK, on 25-27 April 2008. The University of Alaska Fairbanks provided substantial supplementary financial support for student travel and activities during the NOSB competition in order for the competition to be held in this remote location.

NOPP-RELATED ACTIVITIES

Individual agencies will continue to invest in NOPP-Related Activities in FY 2008. For example, the agencies of the IWGOO will continue to support implementation of IOOS. In one specific effort, NOAA will continue to help build regional observing capacity by supporting the IOOS Regional Associations and regional ocean observing systems. The IWGOO agencies will work to foster greater collaboration and communication in the development of an organizational and data management infrastructure to support IOOS.

INTERAGENCY COMMITTEE ON OCEAN SCIENCE AND RESOURCE MANAGEMENT INTEGRATION

In FY 2008, the ICOSRMI will continue to meet and build on the progress made through NOPP while functioning in harmony with the OAP governance structure.

OCEAN RESEARCH AND RESOURCES ADVISORY PANEL

The ORRAP met on 6-7 December 2007, 15-16 April 2008, and plans to meet on 4-5 August 2008. An inventory and assessment of federal ocean education programs was the central theme at the December meeting, with discussion on ways in which the ORRAP can collaborate with federal agencies to take advantage of events and opportunities to enhance ocean education programs in the U.S. Further discussion at the meeting focused on issues and priorities advocated by both the States and NOAA as part of their efforts to reauthorize the Coastal Zone Management Act. Additional topics included endorsing a uniform code of conduct for scientific collections and finding the niche for the ORRAP to have maximum impact within the federal advisory structure.

The ORRAP will continue to focus on improving interagency collaboration, paying particular attention to government performance in implementing *Charting the Course for Ocean Science*, obstacles to interagency funds transfers, and advancing themes in common with both NOPP and the OAP. Other topics of importance to the ORRAP include assessing the state of the ocean energy industry, the Interagency Working Group on Ocean Education's role in leading the development of a comprehensive, coherent, multi-agency integrated plan for ocean education, and future tasking of the three ORRAP Sub-panels. In early 2008, the NOPP Office printed the report generated by the ORRAP's Research to Applications Task Force and distributed it broadly to interested stakeholder groups, such as the Coastal Zone Managers.

In April 2008, seven ORRAP nominees were confirmed as full members, increasing ORRAP membership to 17.

INTERAGENCY WORKING GROUP ON OCEAN PARTNERSHIPS

The IWG-OP will continue to meet monthly in FY 2008 in support of NOPP and OAP. Efforts will continue along its strategic planning and implementation process, specifically in support of *Charting the Course for Ocean Science*. For example, the IWG-OP Strategic Plan will be presented to the JSOST during FY 2008. The IWG-OP will also work toward improving interagency partnership flexibility, specifically in the area of transferring funds. In celebration of the 10-year anniversary of NOPP, NOPP sponsored a special session at Capitol Hill Ocean Week in June 2008, entitled A Decade of Successful Ocean Partnerships: The National Oceanographic Partnership Program, and a special NOPP-related issue of *Oceanography* magazine has been planned. Other FY 2008 activities will focus on ocean education efforts such as the NOSB, processing of proposals from solicitations, compiling annual research reports, developing the Annual Report to Congress for review by the NORLC/ICOSRMI, and generating topics for FY 2009 solicitations. Additional FY 2008 solicitations are being planned, including one focusing on deep-sea ecosystems in support of the OAP goals pertaining to deep-sea corals, as well as those of the JSOST Interim Interagency Board on Deep-Sea Coral and other Vulnerable Marine Ecosystems.

INTERAGENCY WORKING GROUP ON FACILITIES

The IWG-F has met twice in FY 2008. The IWG-F will continue to consider a long-term vision for the federal oceanographic research and operational facilities in the U.S. and direct its focus on future interagency ocean facility, technology, and infrastructure priorities. Continuing from FY 2007 activities, the IWG-F is currently developing an inventory of current and planned federal facility retirements, closures, or gaps and incoming federal infrastructure available to accomplish the priorities of *Charting the Course for Ocean Science*. This inventory, to be completed in FY 2009, will assist in:

- Utilizing existing infrastructure to maximize science and effectively use agency support for operations and maintenance;
- Coordinating the use of assets to minimize duplication and ensure that agency assets are used wisely to accomplish interagency goals;
- Establishing a framework for annual updates on infrastructure priorities in support of ocean research, as called for in *Charting the Course for Ocean Science*; and
- Building a foundation from which to assess future infrastructure needs beyond the decadal timescale, given the long planning and budgeting process necessary for major infrastructure.

INTERAGENCY WORKING GROUP ON OCEAN OBSERVATIONS, OCEAN.US AND THE INTEGRATED OCEAN OBSERVING SYSTEM

As the IOOS implementation process begins, the focus turns to the development of an “end-to-end” enterprise architecture for IOOS. Such a system requires many players from different sectors, and IWGOO will continue to clarify the roles and responsibilities of the research/academic community, government agencies and the private sector.

Work plans have been developed to accomplish the most critical objectives in FY 2008. Anticipated FY 2008 highlights include:

- Initiation of the DMAC standards process and approval of the first round of standards;
- Continued negotiations with members of the private sector in an effort to further develop the applications areas of IOOS;
- Continued participation in the international GOOS arena;
- Publication of the report of the Maritime Domain Awareness (MDA) Summit, *Embracing the Full Spectrum of Environmental Information from Ocean Observations to Achieve MDA*; and
- Development of IOOS key messages and themes for the spectrum of IOOS stakeholders.

VI. Fiscal Year 2009 Plans

Agency-specific budget requests for the FY 2009 Administration’s Budget have recently been announced; therefore, precise funding levels and associated programmatic issues are not yet firmly established. The NOPP agencies anticipate contributions to NOPP to be comparable to those of FY 2008 and anticipate supporting NOPP’s four Strategic Goals.

It is anticipated that the four Goals will continue to be addressed through the JSOST IWGs on Ocean Observations, Ocean Education (jointly with SIMOR), Facilities, and Ocean Partnerships. As previously mentioned, NOPP has already begun contributing to implementation of *Charting the Course for Ocean Science* in the FY 2008 BAA by broadly showcasing the Near-Term Priorities. Continuing this trend, topics for FY 2009 and FY 2010 BAAs are expected to complement and support the priorities of *Charting the Course for Ocean Science*, ensuring continued success for NOPP and advancement of *Charting the Course for Ocean Science* principles.

VII. Interagency Coordination Activities

The central tenet of NOPP is interagency partnership. The most recent activities are described in previous sections of this report. The solicitations funded in FY 2007 focused on marine mammals and an ice-diminished Arctic Ocean. The FY 2008 topics focus on three of the four Near-Term Priorities in *Charting the Course for Ocean Science*: forecasting responses of coastal ecosystems to persistent forcing and extreme events; developing biological, bio-optical and chemical ocean sensors; and studying the Atlantic Meridional Overturning Circulation. In the near term, the primary thrust of NOPP will be to continue in these directions: encourage, support and assist with the development and implementation of IOOS; cultivate an increasing emphasis on partnership solicitations that facilitate the integration of science and technology with resource management; and promote ocean education. It is anticipated that *Charting the Course for Ocean Science* will be a catalyst for partnership activities over the next decade.

VIII. NOPP Investment Profile

NOPP-FUNDED ACTIVITIES

Figure 2 shows the growth of NOPP-Funded Activities from FY 1997-2007, as well as the breakdown by subcategories for Solicited Projects and Managed Activities. In FY 2007, total funding reached \$32.8M.

NOPP-Solicited Projects

NOPP-Solicited Projects are those funded as a direct result of a formal NOPP BAA or RFP. The funding level for solicited projects has grown from \$10.8M in FY 1997 to \$29.7M in FY 2007 (Figure 2). The cumulative investment from FY 1997-2007 is \$237.0M. Through FY 2007, there have been 121 funded projects, including 21 renewal projects. On average, 11 new projects are initiated each year, with a typical duration of three years.

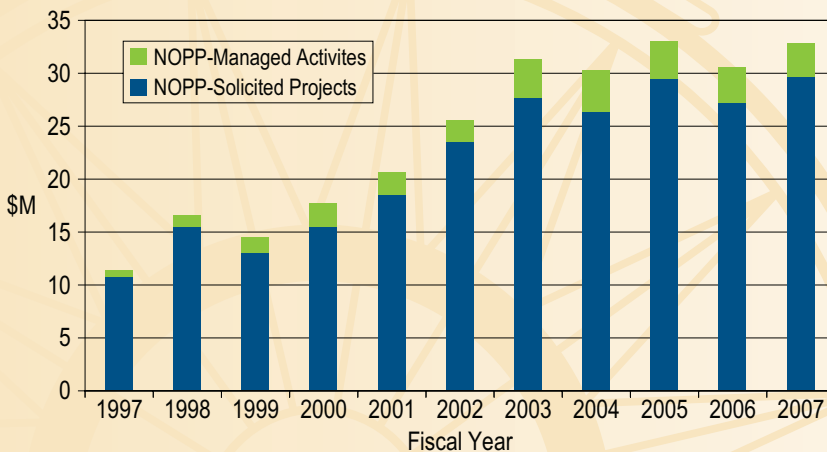
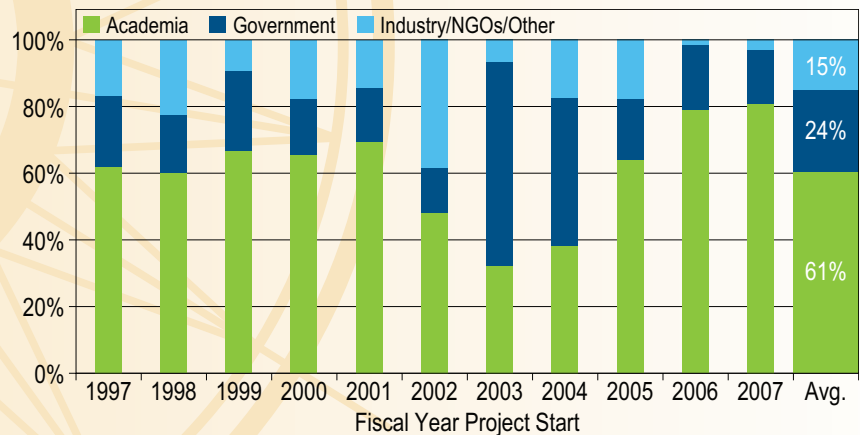


Figure 2. FY 1997-2007 investment in NOPP-Funded Activities, including both NOPP-Solicited Projects and NOPP-Managed Activities. Note that the dollar amounts shown are those spent each year; out-year commitments are not shown.

Figure 3. The distribution of annual NOPP funding for new solicited project awards by sector from FY 1997-2007 for academia, government, and industry (includes Non-Governmental Organizations (NGOs)/others). The bar on the far right indicates the ten-year sector averages.



One of the primary functions of NOPP is to promote partnerships within the federal government and between the federal government and other members of the ocean sciences community, including academia, industry and non-governmental organizations. Figure 3 shows the annual distribution of funding for new awards across sectors within the ocean science community. When averaged over NOPP's 10 year history, approximately 61 percent, 24 percent and 15 percent of the funds have been awarded to academic, government and industry (including non-governmental and other organizations) partners, respectively.

NOPP-Managed Activities

Current NOPP-Managed Activities include expenditures for the NOPP Office, the Ocean.US office, and the NOSB (www.nosb.org). Past projects include the Ocean Information Technology Infrastructure initiative (<http://www.geo-prose.com/oiti/>), the Virtual Ocean Data System, and the Year of the Ocean Drifters (<http://www.nopp.org/Dev2Go.web?id=221198&rnd=467>). Funding for managed activities has grown from \$0.6M in FY 1997 to \$3.2M in FY 2007 (Figure 2). The cumulative expenditure for these activities is \$27.2M.

NOPP-RELATED ACTIVITIES

NOPP-Related Activities include new investments in activities overseen by NOPP entities. These investments fulfill the broad cross-cutting oceanographic goals and partnerships embraced by NOPP, but they are primarily single-agency expenditures.

Appendix 1. Ocean Governance Structures

As mentioned earlier, the report by the U.S. Commission on Ocean Policy and the subsequent OAP have placed a greater emphasis on societal benefits of ocean science. Greater understanding of our coastal and ocean resources can provide improved scientific basis for resource management. In an effort to increase the coordination of federal ocean research efforts, the NORLC expanded its membership and merged with the ICOSRMI during FY 2007. It now functions under the ICOSRMI name, to be consistent with the OAP. The following appendix contains historical information on the original governance structure of NOPP and the current ocean governance framework.

THE NOPP OCEAN GOVERNANCE STRUCTURE

The FY 1997 Defense Authorization Act (P.L. 104-201) directed the Secretary of the Navy to establish the National Oceanographic Partnership Program (NOPP, www.nopp.org). Supplemental legislation for appointments to the NOPP oversight body, the National Ocean Research Leadership Council, and to the Ocean Research Advisory Panel is contained in Public Law 105-85, the FY 1998 Defense Authorization Act.

The Secretary of the Navy is charged in Subtitle E of Title II, Division A, P.L. 104-201 to establish a National Oceanographic Partnership Program to:

1. promote the national goals of assuring national security, advancing economic development, protecting quality of life, and strengthening science education and communication through improved knowledge of the ocean; and
2. coordinate and strengthen oceanographic efforts in support of those goals by:
 - a. identifying and carrying out partnerships among federal agencies, academia, industry, and other members of the oceanographic scientific community in the areas of data, resources, education, and communication; and
 - b. reporting annually to Congress on the Program.

The following is an excerpt from P.L. 104-201 as it relates to reporting to Congress:

“ANNUAL REPORT– The Council shall submit to Congress a report on the National Oceanographic Partnership Program. The report shall contain the following:

1. A description of activities of the program carried out during the fiscal year before the fiscal year in which the report is prepared, together with a list of the members of the Ocean Research Advisory Panel and any working groups in existence during the fiscal year covered;
2. A general outline of the activities planned for the program during the fiscal year in which the report is prepared;
3. A summary of projects continued from the fiscal year before the fiscal year in which the report is prepared and projects expected to be started during the fiscal year in which the report is prepared and during the following fiscal year;
4. A description of the involvement of the program with federal interagency coordinating entities; and
5. The amounts requested, in the budget submitted to Congress pursuant to section 1105(a) of title 31, United States Code, for the fiscal year following the fiscal year in which the report is prepared, for the programs, projects, and activities of the program and the estimated expenditures under such programs, projects, and activities during such following fiscal year.”

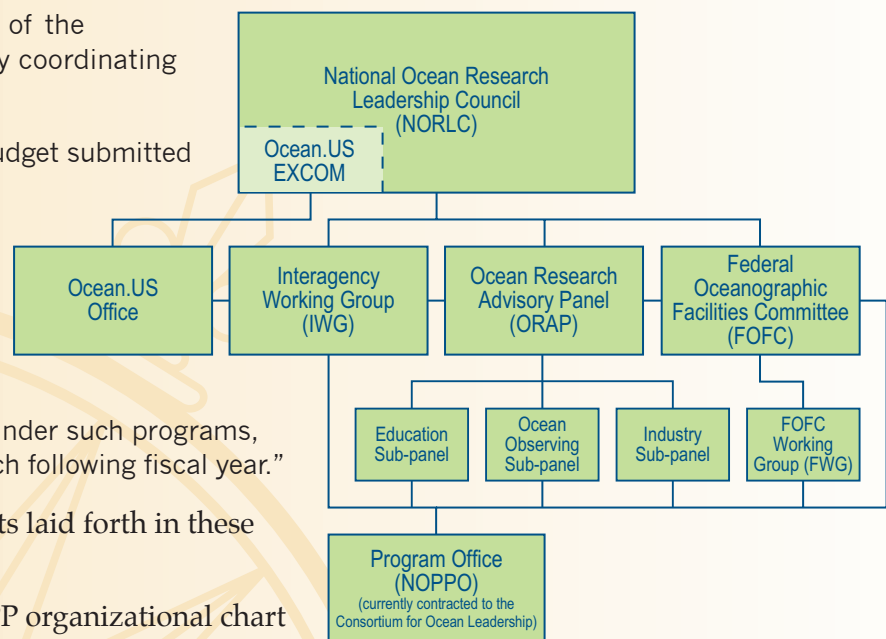


Figure 4. NOPP Organizational Chart.

This report aims to address the elements laid forth in these reporting requirements.

NOPP Organization: The original NOPP organizational chart is shown in Figure 4.

BODIES ESTABLISHED WITHIN NOPP

The **National Ocean Research Leadership Council** (now operating as the ICOSRMI) is the decision-making body of NOPP. The Council confirms NOPP activities and funding opportunities and is composed of the heads of fifteen federal agencies that are involved in conducting or funding ocean research and/or developing ocean research policy. As the ICOSRMI, the committee meets quarterly.

The **Ocean Research Advisory Panel** (now operating as the Ocean Research and Resources Advisory Panel, ORRAP) provides advice and scientific guidance to NOPP and the ICOSRMI. It is composed of individuals from the National Academies, ocean industries, state governments, academia, and other organizations/communities as appropriate. The committee meets three times per year.

The NOPP **Interagency Working Group** (now operating as the IWG-OP) is the operational federal body charged with organizing, directing or conducting most NOPP activities. It performs staffing functions assigned by, and on behalf of, the NORLC/ICOSRMI. Membership reflects that of the NORLC/ICOSRMI. As the IWG-OP, the committee meets monthly and additionally as needed.

The **Federal Oceanographic Facilities Committee** (now operating as the IWG-F) advises the JSOST on policies, procedures, and plans relating to oceanographic facility use, upgrades, and investments. Membership is composed of federal oceanographic facilities managers. As the IWG-F, the committee nominally meets three times per year or as needed.

The **FOFC Working Group** performs staffing functions assigned by, and on behalf of, the FOFC. Membership reflects that of the FOFC. The committee currently no longer meets.

Ocean.US, the interagency office for integrated and sustained ocean observations, was created by the NORLC to plan and coordinate development of an Integrated Ocean Observing System (IOOS) for the U.S. The IOOS is the marine-estuarine-Great Lakes component of the U.S. Integrated Earth Observing System (IEOS) and the U.S. contribution to the GOOS. The IEOS is the U.S. contribution to the GEOSS.

The **Ocean.US Executive Committee** (EXCOM) (now operating through the IWGOO) was established to serve as the oversight body for the Ocean.US office. Membership was composed of NOPP agencies that were both party to the Ocean.US MOA, (<http://www.nopp.org/Dev2Go.web?id=205283>) and provided personnel or other resources to the Ocean.US office. The IWGOO has taken over the role of the Ocean.US EXCOM and meets monthly.

The **NOPP Office** (NOPPO) was established by NOPP legislation to assist in the management of NOPP and provide daily administrative support. Using competitive procedures, a 5-year contract for the operation of NOPPO was awarded by the ONR to the Consortium for Oceanographic Research and Education (CORE) on 14 July 1997. The NOPPO contract was re-competed in 2002 and was awarded by ONR to CORE on 5 February 2003. The most recent competition for the NOPPO contract was awarded by ONR, through competitive procedures, to the Consortium for Ocean Leadership (formerly CORE) on 28 April 2008.

THE OCEAN ACTION PLAN OCEAN GOVERNANCE STRUCTURE

In September 2004, the U.S. Commission on Ocean Policy (USCOP) completed its report, *“An Ocean Blueprint for the 21st Century.”* In December 2004, the President submitted to Congress his formal response, the U.S. Ocean Action Plan (OAP), which outlines a new ocean governance structure (Figure 5) to:

1. Coordinate the activities of executive departments and agencies regarding ocean-related matters in an integrated and effective manner to advance the environmental, economic, and security interests of present and future generations of Americans; and
2. Facilitate, as appropriate, coordination and consultation regarding ocean-related matters among federal, state, tribal, and local governments, the private sector, foreign governments, and international organizations.

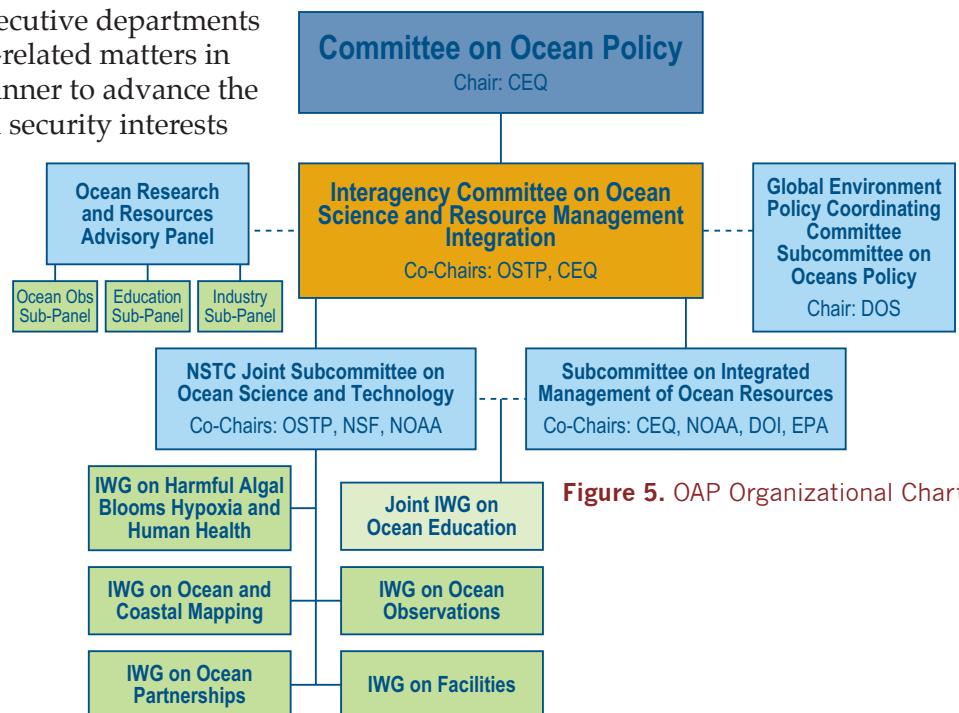


Figure 5. OAP Organizational Chart.

Note: Committee membership information can be found in Appendix 2.

Appendix 2. Committee Membership

NATIONAL OCEAN RESEARCH LEADERSHIP COUNCIL (NORLC)¹

Office of Science and Technology Policy (Co-Chair)	Director
Department of Commerce / NOAA	Under Secretary of Commerce for Oceans and Atmosphere
Department of Defense / United States Navy	Secretary of the Navy
National Science Foundation	Director
National Aeronautics and Space Administration	Administrator
Department of Energy	Under Secretary for Science
Environmental Protection Agency	Administrator
Office of Management and Budget	Director
Department of the Interior / United States Geological Survey	Director, USGS
Department of the Interior / Minerals Management Service	Director, MMS
United States Army Corps of Engineers	Deputy Assistant Secretary of the Army (Civil Works) for Policy
Department of State	Assistant Secretary of State for Oceans and International Environmental and Scientific Affairs
Defense Advanced Research Projects Agency	Director
Department of Homeland Security / United States Coast Guard	Commandant, USCG
Department of Homeland Security	Undersecretary for Science and Technology

¹For more detailed information about the NORLC, visit: <http://www.nopp.org/Dev2Go.web?id=207765>.

EXPANDED MEMBERSHIP²

Council on Environmental Quality (Co-Chair)	Associate Director for Ocean and Coastal Policy
Department of Agriculture	Under Secretary of Agriculture for Natural Resources and Environment
Joint Chiefs of Staff	Chairman
Department of Health and Human Services	Director, National Institutes of Environmental Health Sciences
Department of the Interior	Assistant Deputy Secretary
Department of Justice	Principal Deputy Attorney General, Environment and Natural Resources Division
Department of Labor	Deputy Assistant Secretary for Policy
Department of Transportation	Assistant Secretary of Transportation Policy

Office of the Vice President	Deputy Assistant Secretary to the Vice President for Domestic Policy
Domestic Policy Council	Deputy Assistant to the President for Domestic Policy
National Economic Council	Deputy Assistant to the President for Economic Policy and Deputy Director
National Security Council	Special Assistant to the President and Senior Director for International Trade, Energy and the Environment
Homeland Security Council	Deputy Assistant to the President for Homeland Security and Executive Secretary
Joint Subcommittee on Ocean Science and Technology	Co-Chairs
Subcommittee on Integrated Management of Ocean Resources	Co-Chairs
Subcommittee on Oceans Policy of the National Security Council's Global Environment Policy Coordinating	Chair

²At its 27 April 2007 meeting, the NORLC expanded its membership and merged with the ICOSRMI. It now functions under the ICOSRMI name, to be consistent with the OAP. Co-Chairs are OSTP and CEQ. Further OAP details and membership lists can be found at the following CEQ website: <http://ocean.ceq.gov>.

OCEAN RESEARCH AND RESOURCES ADVISORY PANEL (ORRAP)³

Note: This group was renamed from the Ocean Research Advisory Panel.

Aquarium of the Pacific	Dr. Jerry Schubel (Chair)
Hernandez and Company	Ms. Debra Hernandez (Vice-Chair)
St. Petersburg Downtown Partnership	Dr. Peter Betzer
Louisiana State University	Dr. James Coleman
University of Miami	Dr. Robert Cowen
Alaska Ocean Observing System	Ms. Molly McCammon
Chair, Ocean Studies Board, NAS	Dr. Shirley Pomponi
Ohio State University	Dr. Jeffrey Reutter
University of Hawaii	Dr. Celia Smith
Environmental Protection Agency	Mr. Robert Wayland (ret.)

³For more detailed information, visit: <http://www.nopp.org/Dev2Go.web?id=207773>. In April 2008, seven newly appointed members began their terms.

INTERAGENCY WORKING GROUP ON OCEAN PARTNERSHIPS (IWG-OP)⁴

National Aeronautics and Space Administration (Vice-Chair)

Minerals Management Service (Vice-Chair)

National Oceanic and Atmospheric Administration

Office of Naval Research

National Science Foundation

Department of Energy

Environmental Protection Agency

United States Coast Guard

United States Geological Survey

United States Army Corps of Engineers

Office of Management and Budget

Department of State

Marine Mammal Commission

Office of Science and Technology Policy

Defense Advanced Research Projects Agency

Department of Interior

United States Arctic Research Commission

Department of Homeland Security

United States Fish and Wildlife Service

Ex Officio Members:

Chair, IWG-F

Director, Ocean.US

⁴For more detailed information, visit: <http://www.nopp.org/Dev2Go.web?id=207767>.

INTERAGENCY WORKING GROUP ON FACILITIES (IWG-F)⁵

Oceanographer of the Navy (Co- Chair)

National Oceanic and Atmospheric Administration (Co- Chair)

National Science Foundation

Office of Naval Research

United States Coast Guard

Environmental Protection Agency

Minerals Management Service

United States Arctic Research Commission

Department of Agriculture

Department of Energy

United States Geological Survey

National Aeronautics and Space Administration

Office of Science and Technology Policy

Defense Advanced Research Projects Agency

UNOLS Chair, Invited Guest

⁵For more detailed information, visit: <http://www.nopp.org/Dev2Go.web?id=207766>.

INTERAGENCY WORKING GROUP ON OCEAN OBSERVATIONS (IWGOO)⁶

National Aeronautics and Space Administration (Chair)

United States Coast Guard

United States Army Corps of Engineers

United States Geological Survey

Minerals Management Service

Environmental Protection Agency

National Oceanic and Atmospheric Administration

Oceanographer of the Navy

National Science Foundation

Department of Energy

⁶For more detailed information, visit: <http://www.nopp.org/Dev2Go.web?id=260662>.

Appendix 3. NOPP Solicitations

FY 2007 ONR BROAD AGENCY ANNOUNCEMENT #06-029

Topics:

- Coastal Effects of a Diminished-Ice Arctic Ocean
- Marine Mammals

Full BAA text can be found at: http://www.onr.navy.mil/02/baa/docs/baa_06_029.pdf.

FY 2008 ONR BROAD AGENCY ANNOUNCEMENT #07-040

Topics:

- Forecasting the Response of Coastal Ecosystems to Persistent Forcing and Extreme Events
- Sensors for Measurement of Biological, Bio-Optical or Chemical Properties of the Ocean
- Atlantic Meridional Overturning Circulation

Full BAA text can be found at: http://www.onr.navy.mil/02/baa/docs/07-040_ONR%20NOPP%20BAA%20FY08.pdf.

FY 2008 MMS REQUEST FOR PROPOSALS #M08PS00032

Topics:

- Exploration and Research of Northern Gulf of Mexico Deepwater Natural and Artificial Hard Bottom Habitats with Emphasis on Coral Communities: Reefs, Rigs and Wrecks

RFP text can be found at: https://www.fbo.gov/?s=opportunity&mode=form&id=d6ec83b9e3fc494e063df23066cd6b8e&tab=core&_cview=1.

Appendix 4. NOPP-Funded Projects Initiated in Fiscal Year 2007

COASTAL EFFECTS OF A DIMINISHED-ICE ARCTIC OCEAN

“Episodic Upwelling of Zooplankton within a Bowhead Whale Feeding Area near Barrow, AK”

Lead Principle Investigator (PI): Dr. Carin Ashjian, Woods Hole Oceanographic Institute

Funding Requested: \$732,683

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314961#ASHJIAN>.

“A Comprehensive Modeling Approach Towards Understanding and Prediction of the Alaskan Coastal System Response to Changes in an Ice Diminished Arctic”

Lead PI: Dr. Wieslaw Maslowski, Naval Postgraduate School

Funding Requested: \$1,200,367

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314961#MASLOWSKI>.

“Circulation, Cross-Shelf Exchange, Sea Ice, and Marine Mammal Habitats on the Alaskan Beaufort Sea Shelf”

Lead PI: Dr. Thomas Weingartner, University of Alaska, Fairbanks

Funding Requested: \$2,948,000

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314961#WEINGARTNER>.

“Toward a Predictive Model of Arctic Coastal Retreat in a Warming Climate, Beaufort Sea, Alaska”

Lead PI: Dr. Cameron Wobus, University of Colorado, Boulder

Funding Requested: \$577,586

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314961#WOBUS>.

MARINE MAMMALS

“Developing the Next Generation Marine Mammal Information Center for Integrated Ocean Observing: OBIS-SEAMAP 2.0”

Lead PI: Dr. Patrick Halpin, Duke University

Funding Requested: \$1,476,898

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#HALPIN>.

“Mid-Frequency Sonar Interactions with Beaked Whales”

Lead PI: Dr. Kenneth G. Foote, Woods Hole Oceanographic Institution

Funding Requested: \$1,454,085

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#FOOTE>.

“The Influence of Oceanographic and Biological Processes on the Distribution of Cetaceans on the West Florida Shelf: A Synoptic Study Based on Underwater and Space-Based Remote Sensing”

Lead PI: Dr. David Mann, University of South Florida

Funding Requested: \$1,633,761

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#MANN>.

“An Ocean Observing System for Large-Scale Monitoring and Mapping of Noise Throughout the Stellwagen Bank National Marine Sanctuary”

Lead PI: Dr. Christopher Clark, Cornell University

Funding Requested: \$1,498,404

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#CLARK>.

“DECAF – Density Estimation for Cetaceans from passive Acoustic Fixed sensors”

Lead PI: Dr. Len Thomas, University of St. Andrews, Scotland

Funding Requested: \$1,525,859

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#THOMAS>.

“Acoustic Detection, Behavior, and Habitat Use of Deep-Diving Odontocetes”

Lead PI: Dr. Mark Johnson, Woods Hole Oceanographic Institution

Funding Requested: \$1,319,811

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#JOHNSON>.

“Climate Change and Baleen Whale Trophic Cascades in West Greenland”

Lead PI: Dr. Kristin Laidre, University of Washington


Funding Requested: \$966,652

A project summary can be found at: <http://www.nopp.org/Dev2Go.web?id=314987#LAIDRE>.

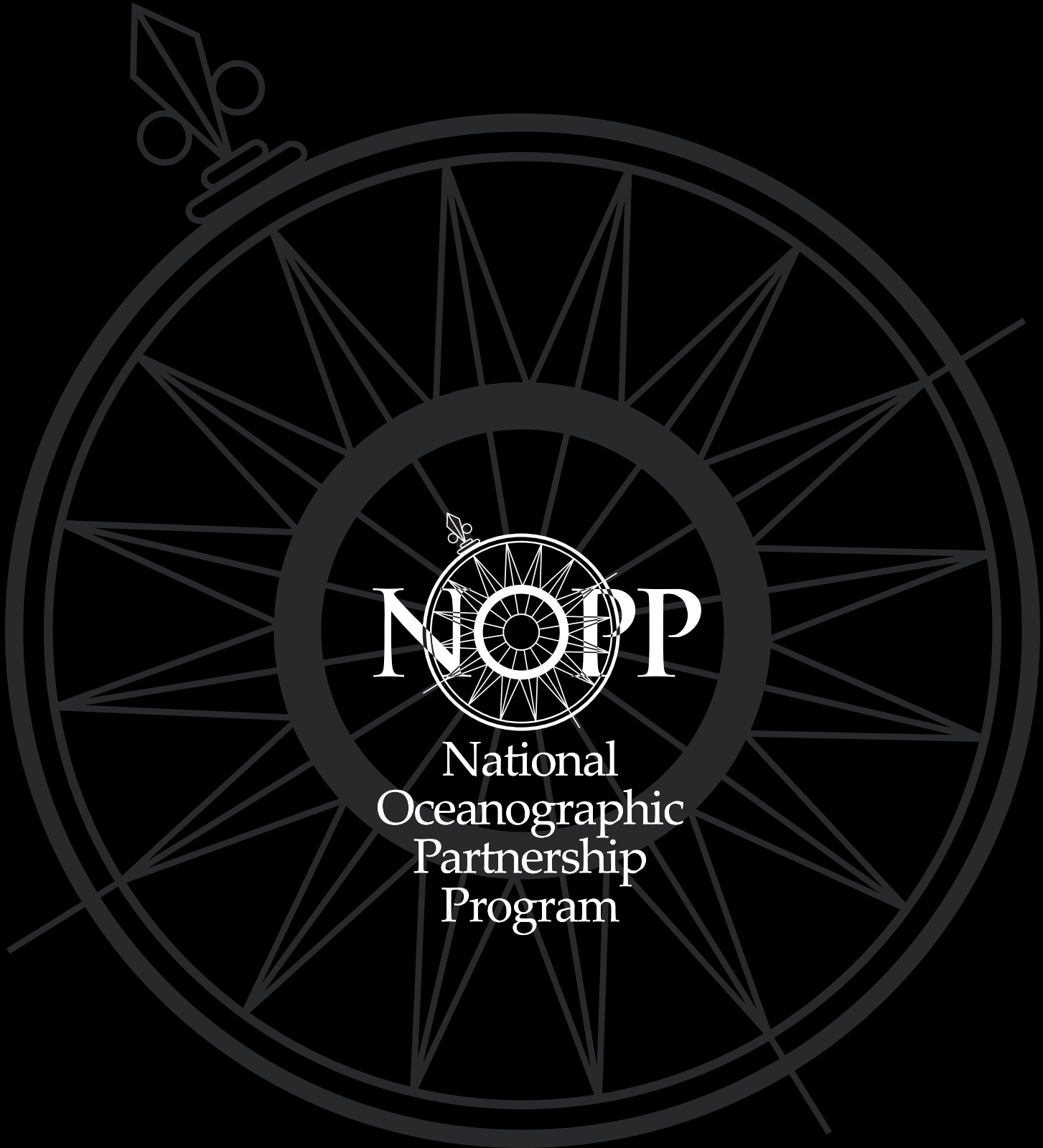
Acronyms and Abbreviations

AGU	American Geophysical Union
BAA	Broad Agency Announcement
CEQ	Council on Environmental Quality
COAST . . .	Coastal and Ocean Science Training
CORE. . . .	Consortium for Oceanographic Research and Education
COTS. . . .	Coastal Observation Technology System
DARPA . . .	Defense Advanced Research Projects Agency
DEQ	Department of Environmental Quality
DHS	Department of Homeland Security
DMAC	Data Management and Communications
DoA	Department of Agriculture
DoC	Department of Commerce
DoD	Department of Defense
DoE	Department of Energy
DoI	Department of Interior
DoJ. . . .	Department of Justice
DoL. . . .	Department of Labor
DoS	Department of State
DoT	Department of Transportation
DPC	Domestic Policy Council
EPA. . . .	Environmental Protection Agency
EOP	Executive Office of the President
EXCOM . . .	Ocean.US Executive Committee
FOFC	Federal Oceanographic Facilities Committee
FY	Fiscal Year
GEOSS . . .	Global Earth Observation System of Systems
GoMOOS . .	Gulf of Maine Ocean Observing System
GOOS	Global Ocean Observing System
HHS	Department of Health and Human Services

HSC Homeland Security Council
ICOSRMI . . Interagency Committee on Ocean Science and Resource Management Integration
IEOS Integrated Earth Observing System
IOC. Intergovernmental Oceanographic Commission
IOOS Integrated Ocean Observing System
IWG Interagency Working Group
IWG-F. . . . Interagency Working Group on Facilities
IWGOO . . . Interagency Working Group on Ocean Observations
IWG-OP. . . Interagency Working Group on Ocean Partnerships
JCS. Joint Chiefs of Staff
JSOST Joint Subcommittee on Ocean Science and Technology
MAST. . . . Modeling and Analysis Steering Team
MDA Maritime Domain Awareness
MMS Minerals Management Service
MOA Memorandum of Agreement
NASA. . . . National Aeronautics and Space Administration
NEC National Economic Council
NGO Non-Governmental Organization
NMEA National Marine Educators Association
NOAA. . . . National Oceanic and Atmospheric Administration
NOPP National Oceanographic Partnership Program
NOPPO. . . . National Oceanographic Partnership Program Office
NORLC National Ocean Research Leadership Council
NOSB National Ocean Sciences Bowl
NSC National Security Council
NSF National Science Foundation
OAP Ocean Action Plan



OBIS Ocean Biogeographic Information System
OMB Office of Management and Budget
ONR Office of Naval Research
OOI. Ocean Observatories Initiative
OOS Ocean Observing System
ORAP. Ocean Research Advisory Panel
ORRAP Ocean Research and Resources Advisory Panel
OSTP. Office of Science and Technology Policy
OVP Office of the Vice President
PI Principal Investigator
PL Public Law
RA Regional Association
RATF Research to Applications Task Force
RFP Request for Proposals
SIMOR Subcommittee on Integrated Management of Ocean Resources
SST Sea Surface Temperature
USACE United States Army Corps of Engineers
USCG. United States Coast Guard
USCOP United States Commission on Ocean Policy
USDA. United States Department of Agriculture
USGS. United States Geological Survey
USN United States Navy



NOPP

National
Oceanographic
Partnership
Program