

Report to the U.S. Congress on the
National Oceanographic Partnership Program
Fiscal Year 2011



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I. Executive Summary

The National Oceanographic Partnership Program (NOPP) marked its 14th year in 2011. Since its inception, NOPP has forged interagency and intersector cooperation through a multitude of cross-cutting research and education projects. In accordance with its enabling legislation, 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. As demonstrated by its achievements, NOPP is an effective forum for developing new interagency activities and priorities that transcend single agency agendas.

NOPP has grown and transitioned in regards to the ocean governance structure within which it operates. During fiscal year (FY) 2010, the National Ocean Policy was issued through Executive Order and the National Ocean Council (NOC) was established. During FY 2011, the NOC incorporated the mandates of the National Ocean Research Leadership Council (NORLC), the NOPP governing body. The existing Subcommittee on Ocean Science and Technology (SOST), under the Committee on Environment, Natural Resources and Sustainability (CENRS), is also serving as the Ocean Sciences and Technology Interagency Policy Committee (OST-IPC) of the National Ocean Council. NOPP has transitioned into this new ocean governance structure, as the NOC is fulfilling the NORLC role with respect to NOPP. NOPP continues to

serve as a well-practiced mechanism for implementing ocean partnerships among federal agencies. The National Ocean Policy outlines nine priority objectives that are consistent with activities and objectives of NOPP and which NOPP expects to support the implementation of in the upcoming year, as appropriate. New interagency ocean activities can be effectively implemented through the NOPP model, which has 14 years of experience and lessons learned from which to draw.

For FY 2011, the SOST's Interagency Working Group on Ocean Partnerships (IWG-OP, formerly the NOPP Interagency Working Group) continued to serve as an oversight and guidance body to NOPP. Under the guidance of the IWG-OP, NOPP will continue to make progress on these four strategic goals:

1. Continue and expand ocean partnership dialogues;
2. Sponsor ocean partnership activities;
3. Identify and remove obstacles and disincentives to ocean partnerships; and
4. Facilitate opportunities for dialogue with the nation's leadership.

The National Ocean Sciences Bowl (NOSB) was created through NOPP in 1998. Today, NOPP partner agencies continue to support the program, which has grown to 25 regional competition sites, with over 300 schools and over 2,000 student competitors participating each year. The NOSB has shown, through a longitudinal study, that the majority of students who compete in the program enter a college program or career in a STEM field, which is of interest to all NOPP agencies.

Overall fiscal investment in NOPP solicited research has increased significantly since the program's inception to a total of approximately \$549M; the FY 2011 contribution totaled \$234.5M (including out year

spending). A significant increase in NOPP funding was available in FY 2011 due to a large investment by the National Oceanic and Atmospheric Administration's (NOAA) Integrated Ocean Observing System (IOOS). By issuing solicitations from FY 1997 to FY 2011, NOPP has funded 183 projects, including 21 renewal projects. Eighteen new projects were funded in FY 2011 focusing on:

- A. Marine Mammal Detection and Monitoring; and**
- B. Implementation of the U.S. Integrated Ocean Observing System (IOOS)**

In FY 2011, the Ocean Research Advisory Panel (ORAP) continued to serve as the primary ocean-focused federal advisory committee and provided additional guidance to NOPP. The ORAP also provided independent advice and guidance to the NOC, as indicated by the National Ocean Policy, particularly on the development of the Draft National Ocean Policy Implementation Plan. In May 2011, the ORAP Industry Sub-panel hosted a workshop on ways to accelerate the decision-making process with regards to offshore renewable energy in hopes of providing recommendations to the NOC at a future date.

A central tenet of NOPP is interagency partnerships, as seen in the many activities of the IWG-OP and its interaction with other interagency entities. NOPP will continue to complement and support national ocean research objectives and anticipates playing a role in collaborative efforts to implement ocean policy. The program will maintain its pursuit of exciting and novel areas of ocean research, with an emphasis on partnerships.

II. Introduction

Fiscal Year (FY) 2011 proved to be a year of great opportunity for the National Oceanographic Partnership Program (NOPP) and the oceanographic community. Much focus was given to the 'standing up' of the executive order signed in 2010 to create the National Ocean Policy. The National Ocean Policy includes a set of overarching guiding principles towards creating a healthy, resilient, safe, productive, and treasured ocean, coasts and Great Lakes. The National Ocean Policy created a National Ocean Council (NOC); the NOC has assumed the duties of the National Ocean Research Leadership Council (NORLC).

In order to implement the National Ocean Policy, development of a Draft National Ocean Policy Implementation Plan began during FY 2011 which addresses each of the nine priority objectives included in the policy. This plan required extensive interagency coordination, cooperation, and collaboration and many participants across the federal agencies contributed to its development. In addition to federal contributors, input from the Ocean Research Advisory Panel (ORAP) was requested by the NOC on the development of the Draft National Ocean Policy Implementation Plan. Comments and recommendations were submitted for consideration to the NOC Steering Committee by the ORAP in May 2011.

Within the Draft National Ocean Policy Implementation Plan, many of the actions will require interagency implementation, with which NOPP stands ready to assist. As illustrated in Figure 1, the past and current



NOPP researchers install a time-lapse camera to monitor coastal erosion in the Arctic. Photo credit: R. Anderson

activities of NOPP and the priority objectives outlined in the National Ocean Policy are complementary.

The largest amount of external funding in the history of NOPP was awarded during FY 2011. A newly formed partnership with the Integrated Ocean Observing System (IOOS) Program Office, hosted by the National Oceanic and Atmospheric Administration (NOAA), resulted in \$231M in funding for 13 projects over five years, focused on implementation of the U.S. Integrated Ocean Observing System (IOOS). An additional \$3.7M provided five funding awards to support research on Marine Mammal Detection and Monitoring, an effort led by the Office of Naval Research (ONR) and the National Science Foundation (NSF). The NOPP 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 outlook for the future is promising, as NOPP continues to further the national agenda for ocean research, education, and interagency cooperation.

NOPP has a long-standing history of interagency collaboration and will continue to serve as an existing mechanism for implementing ocean partnerships between and among federal agencies. The program began through the 1997 Defense Authorization Act (Public Law 104-201), which directed the Secretary of the Navy to establish the NOPP (www.nopp.org). Supplemental legislation for appointments to the NOPP oversight body, the NORLC, and to the ORAP, is contained in P.L. 105-85, the FY 1998 Defense Authorization Act.

This FY 2011 Report to Congress reflects the central role NOPP is playing in the implementation of the objectives of its enabling legislation and the ocean research priorities identified by participating agencies. The remainder of this report summarizes the NOPP Investment Strategy, the NOPP committees' activities and investments for FY 2011, and ongoing NOPP plans and activities for FY 2012.

Priority Objectives of the Draft National Ocean Policy Implementation Plan									
Historic and Current NOPP Activities	Ecosystem-Based Management	Regional Ecosystem Protection and Restoration	Water Quality and Sustainable Practices on Land	Inform Decisions and Improve Understanding	Coordinate and Support	Resiliency and Adaptation to Climate Change and Ocean Acidification	Coastal and Marine Spatial Planning	Changing Conditions in the Arctic	Ocean, Coastal, and Great Lakes Observations and Infrastructure
Achieve and sustain an Integrated Ocean Observing System (IOOS)				Design studies for the Ocean Observatories Initiative					
				Argo Float Array					
	Establishment of IOOS Regional Associations								
Promote lifelong ocean education	National Ocean Sciences Bowl (NOSB)								
		COAST Internship		Ocean Science, Technology and Operations Workforce Study					
Modernize ocean infrastructure and enhance technology development	Sensor development and commercialization			IWG-FI Federal Oceanographic Fleet Status Report				Joint Workshop on Interagency Ocean and Coastal Interests in the Arctic	
Foster interagency partnerships to increase and apply scientific knowledge	LOPHELIA I and II: Deep water coral research			Four FY 2008 multi-institution projects on Atlantic Meridional Overturning Circulation		Ocean modeling from the Global Ocean Data Assimilation Experiment (GODAE)		Four FY 2007 multi-institution projects on Coastal Effects of a Diminished-ice Arctic Ocean	
	IWG-OP Biodiversity Ad Hoc group activities			Six FY 2009 multi-institution projects on Improving Tropical Cyclone Intensity Forecasting			FY 2010 funding opportunity on Ocean Renewable Energy and Stewardship		
	Multi-disciplinary and multi-sector partnerships between basic and applied researchers								

Figure 1. Examples of NOPP investments and projects in ocean science, technology and education that intersect with the priority objectives described in the Draft National Ocean Policy Implementation Plan.

III. NOPP, the IWG-OP and The National Ocean Policy

NOPP continues to forge interagency and intersector cooperation through a multitude of cross-cutting research and education projects supported by the federal government. In accordance with its enabling legislation, 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. As

demonstrated by its achievements, NOPP is an effective forum for the development of new interagency activities and priorities that transcend single agency agendas. In support of the NOPP legislation (PL 104-201), an interagency working group was formed to identify partnerships and foster the NOPP program. This group has evolved through several administrations and ocean governance structures, but is now known as the Interagency Working Group on Ocean Partnerships (IWG-OP) through a charter from the Joint Subcommittee on Ocean Science and Technology (JSOST, now known as the SOST) in 2006. The objective of the IWG-OP is to achieve improved efficiency in the planning, programming, and execution of projects resulting from ocean agency partnerships that address topics of mutual and emerging interest. The IWG-OP assists in planning for future ocean science and technology, administratively and fiscally.

As actions are taken to implement each of the national priority objectives of the National Ocean Policy, it is critical that the interagency ocean community recognize that partnerships and collaboration are vital for the execution of the national priority objectives. Building relationships is essential to each priority objective, as each will require multiple-agency commitment in order to be successful; the IWG-OP is a valuable forum for building relationships and promoting partnerships.

The following examples of NOPP successes and potential roles are placed within the framework of the nine priority objectives from the National Ocean Policy. For brevity, the focus is limited to those objectives that NOPP and the IWG-OP have measurable successes. There likely will be additional roles for NOPP and the IWG-OP within the remaining objectives in the future.

ACHIEVEMENTS

Coordinate and Support: Better coordinate and support Federal, State, tribal, local, and regional management of the ocean, our coasts, and the Great Lakes. Improve coordination and integration across the Federal Government, and as appropriate, engage with the international community.

This priority objective is one in which NOPP and the IWG-OP have many demonstrated successes. By its nature, the IWG-OP serves as a forum to share pertinent information, which leads to increased coordination and collaboration. Many of these information sharing discussions lead to joint agency hosted workshops or co-sponsored extramural research. For example, a meeting between the IWG-OP and the Department of Energy in 2009 ultimately led to the joint funding of eight research projects and \$4.7M invested in studies to develop environmental protocols and monitoring to support ocean renewable energy and stewardship. The knowledge gained from this research will contribute to the coastal and marine spatial planning process. The IWG-OP and NOPP are continually seeking to build partnerships and increase coordination between the federal agencies.

Regional Ecosystem Protection and Restoration: Establish and implement an integrated ecosystem protection and restoration strategy that is science-based and aligns conservation and restoration goals at the Federal, State, tribal, local, and regional levels.

The Biodiversity Ad Hoc Group of the IWG-OP strives to identify common ground, plan future steps, and initiate partnership activities related to marine biodiversity. In May 2010, the agencies of the ad hoc group sponsored a workshop on Attaining Operational Marine Biodiversity Observations to determine the status of current marine biodiversity observational capabilities and to scope future solutions to operationally monitor the status and trends of biodiversity. The workshop report is available here: www.nopp.org/wp-content/uploads/2010/03/BON_SynthesisReport.pdf. In addition, much research and development of biological and optical sensors has been funded through NOPP over the history of the program. This work will contribute critical data to allow for science-based strategies for ecosystem protection and restoration.

Ocean, Coastal, and Great Lakes Observations, Mapping, and Infrastructure: Strengthen and integrate Federal and non-Federal ocean observing systems, sensors, data collection platforms, data management, and mapping capabilities into a national system, and integrate that system into international observation efforts.

Since 1997, NOPP and the IWG-OP have focused on and dedicated resources to contemporary oceanographic issues. Much effort was put towards ocean mapping, observations, and infrastructure. In 2004, NOPP produced a strategic plan to guide the future efforts; two of the four strategic goals are achieving and sustaining the IOOS, and modernizing ocean infrastructure and enhancing technology development. These goals reflected ongoing efforts and future commitments. As a result of NOPP's focus on these areas, three interagency working groups were created, two of which are responsive to legislation: the IWG on Ocean and Coastal Mapping, the IWG on Facilities and Infrastructure, and the IWG on Ocean Observations (now the Interagency Ocean Observation Committee, IOOC).

THE FUTURE

Coastal and Marine Spatial Planning: Implement comprehensive, integrated, ecosystem-based coastal and marine spatial planning and management in the United States.

One of the ad hoc groups of the IWG-OP is focused on ocean renewable energy. It is anticipated that these industries, and the agencies that regulate them, will play a large role in marine planning of the future. The NOPP and IWG-OP could serve as a platform for discussions among agencies about specific marine planning issues and provide a potential mechanism to fund some efforts under this priority objective.

Inform Decisions and Improve Understanding: Increase knowledge to continually inform and improve management and policy decisions and the capacity to respond to change and challenges. Better educate the public through formal and informal programs about the ocean, our coasts, and the Great Lakes.

Another one of the goals from the 2004 NOPP Strategic Plan was to promote lifelong ocean education. The research funded through NOPP contributes to the cutting edge of interdisciplinary and intersector science and technology, increasing the scientific knowledge available to the agencies for management and policy decisions. NOPP and the IWG-OP will continue to focus on ocean research and education objectives which are too large for single agencies to tackle but satisfy multiple agency missions and would benefit from partnerships between government, private industry, and academia.

Changing Conditions in the Arctic: Address environmental stewardship needs in the Arctic Ocean and adjacent coastal areas in the face of climate-induced and other environmental changes.

The NOPP and IWG-OP agencies have long held an interest in the Arctic. Research funded through NOPP has focused on the coastal effects of a diminished-ice Arctic Ocean and marine mammals in the Arctic. Within the past year, the IWG-OP and NOPP hosted a federal workshop to share information on various agencies' research and operational interests in the Arctic. This workshop led to several take away messages and actions for the future, which the IWG-OP and NOPP plan to pursue.

Within the three remaining priority objectives, there are many areas for which NOPP and the IWG-OP could serve as a resource.

Ecosystem-Based Management: Adopt ecosystem-based management as a foundational principle for the comprehensive management of the ocean, our coasts, and the Great Lakes.

Resiliency and Adaptation to Climate Change and Ocean Acidification: Strengthen resiliency of coastal communities and marine and Great Lakes environments and their abilities to adapt to climate change impacts and ocean acidification.

Water Quality and Sustainable Practices on Land: Enhance water quality in the ocean, along our coasts, and in the Great Lakes by promoting and implementing sustainable practices on land.

IV. Partnership Case Study

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Since the implementation of NOPP in 1997, there are many examples of the program facilitating and strengthening interagency partnerships. A recent partnership exemplifies the opportunities created by participation in NOPP. Ten years of emphasis and focus by NOPP, and its participating agencies, contributed to the establishment of the U.S. IOOS Program hosted by NOAA, in 2007. In collaboration with Federal and non-Federal partners, the U.S. IOOS Program works to integrate ocean, coastal, and Great Lakes observing capabilities, maximize access to data and products, inform decision-making, and promote the benefits around the globe. The IOOS Program works closely with eleven regional associations to meet national and regional requirements.

The U.S. IOOS Program has participated in the IWG-OP by coordinating and advising various efforts, including interagency contributions to funding announcements, community wide discussions on developing a Marine Biodiversity Observation Network (BON), and collecting input on directions for marine sensor technology developments. This successful partnership has proven worthwhile, not only through collaboration but also through an outstanding amount of research funded in FY 2011. In July 2010 the U.S. IOOS Program hosted by



An illustration of the components of the Global Ocean Observing System. The U.S. Integrated Ocean Observing System (IOOS) is modeled on a similar framework.

NOAA and NOPP published their first joint funding announcement, Implementation of the U.S. IOOS Program, which provided partnering agencies the opportunity to fund research that aimed to enhance the regional, coastal and ocean component of IOOS. Various topics within the funding solicitation addressed areas of mutual interest between the agencies, including technology evaluation for monitoring coastal and ocean environments; marine animal interactions with offshore renewable energy devices; and improved production, stewardship, and coastal application of sea surface temperature data. The peer review process and distribution of funds were carried out in FY 2011 as a multi-topic Federal Funding Opportunity (FFO) within the NOPP process, with the National Aeronautics and Space Administration (NASA) as a funding partner. A total of 18 projects were funded, spanning the three research topics. The total amount

of research supported through this partnership is \$231M, the largest funding opportunity in the history of the NOPP Program.

Ocean observing is a perfect example of a large-scale ocean issue- in both infrastructure and support needed- that requires multiple agencies and sectors to continue making progress. There is an ongoing interagency effort to connect broad federal ocean observing initiatives, such as the U.S. IOOS Program and the NSF Ocean Observatories Initiative, and the NOPP stands ready to support this coordination. Additionally, the Interagency Ocean Observing Committee also submits a Report to Congress at the end of each fiscal year, which can be read here: www.ioos.gov/about/governance/ioos_report_congress2011.pdf. The U.S. IOOS Program and NOPP will continue to encourage additional agency participation in the future, and also hope to build on the successful partnerships created in FY 2011.

V. NOPP Investment Profile

NOPP-Funded Activities are those that are either solicited or managed by NOPP 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 the inception of NOPP.

NOPP-FUNDED ACTIVITIES

The amount of dollars spent in each fiscal year for NOPP-Funded Activities from FY 1997-2011 is shown in Figure 2, and includes the subcategories of Solicited Projects and Managed Activities. Funding in FY 2011 totaled \$58.4M.

NOPP-Solicited Projects

NOPP-Solicited Projects are the direct result of a formal NOPP Broad Agency Announcement (BAA), a Request For Proposals (RFP), or a FFO. The process of developing these funding opportunities is fully described in Appendix 1. The per annum spending level for solicited projects has grown from \$10.8M in FY 1997 to \$69M in FY 2011 (does not account for inflation or out year spending, Figure 2). The cumulative investment from FY 1997-2011 is \$549M. Through FY 2011, there have been 183 funded projects, including 21 renewal projects. On average, 12 new projects are initiated each year, with a typical duration of between three and five years.

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 (NGOs). Figure 3 shows the annual distribution of funding for new awards across sectors within the ocean sciences community. When averaged over NOPP's fourteen-year history, approximately 60 percent, 22 percent, and 18 percent of the funds have been awarded to academic, government, and industry partners (including NGOs), respectively.

NOPP-Managed Activities

FY 2011 NOPP-Managed Activities include single agency expenditures for the NOPP Office and the National Ocean Sciences Bowl. Funding for

managed activities has grown from \$0.6M in FY 1997 to \$2.26M in FY 2011 (Figure 2). The cumulative expenditure for these activities is \$37M over the history of the program.

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.

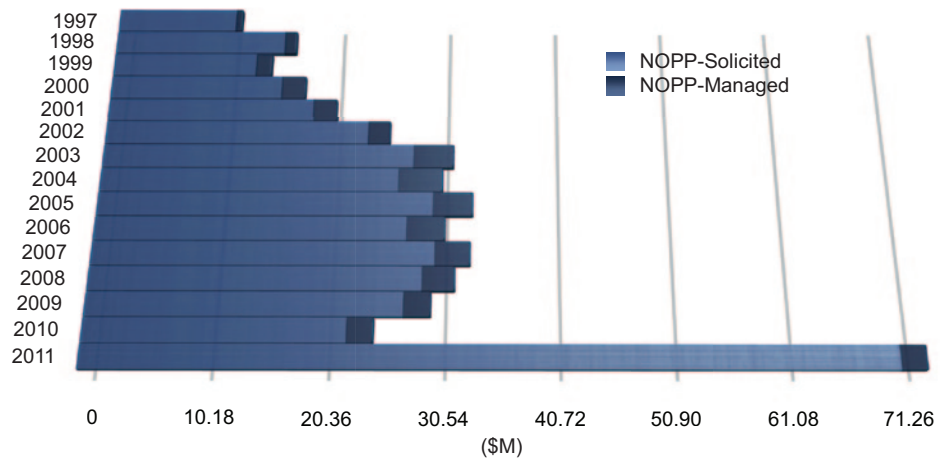


Figure 2. FY 1997-2011 investment in NOPP-Funded Activities, including both NOPP-Solicited Projects and NOPP-Managed Activities. Note that the dollar amounts shown are those budgeted annually; out-year commitments are not shown.

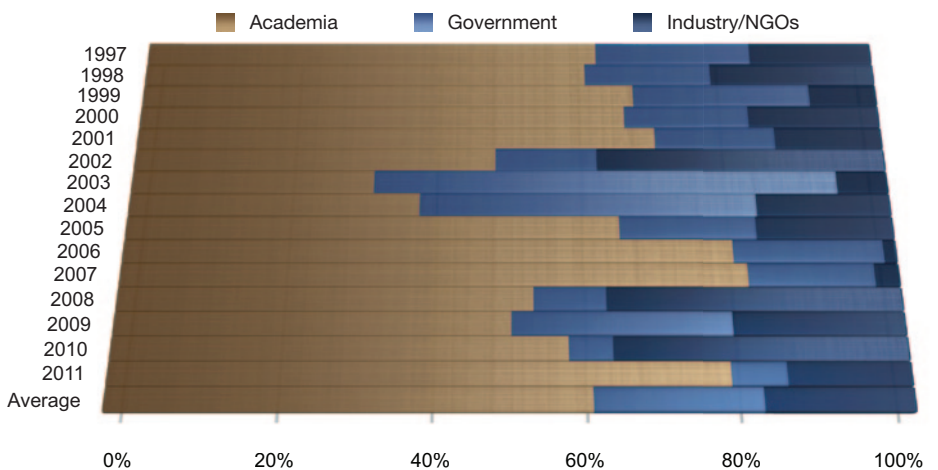


Figure 3. The distribution of annual NOPP funding for new solicited project awards by sector from FY 1997-2011 for academia, government, and industry (includes NGOs/others). The bar on the bottom indicates the fourteen-year sector averages.

VI. Fiscal Year 2011 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

NOPP-Solicited Projects

NOPP agencies invested approximately \$234.7M in new NOPP-Solicited projects in FY 2011 in response to two solicitations: a BAA issued in August 2010 led by the ONR and NSF and a FFO issued in July 2010 led by NOAA. Research topics included: 1) Marine Mammal Detection and Monitoring, and 2) Implementation of the U.S. Integrated Ocean Observing System. Both opportunities included four subtopics; however, not all subtopics had projects funded within them. In response to the two solicitations, 63 proposals were received that included collaborations across academia, industry, and government. The proposals underwent a peer review process in the fall of 2010; overall, 18 projects were approved for funding by the partnering agencies and the IWG-OP. Detailed information on these solicitations is included in Appendix 2 and summaries of the funded projects are provided in Appendix 3. Annual reports for the 2011 fiscal year from all NOPP-funded projects still receiving support, can be found here: www.nopp.org/wp-content/uploads/project-reports-cdrom/start.htm.

BAA Topic (Issuing NOPP Agency; Funding Partners; Release Date)	Approximate Funding Available	Number of Awards Issued
Marine Mammal Detection and Monitoring (ONR; NSF, BOEMRE ¹ , NOAA, ExxonMobil, National Fish and Wildlife Foundation; August 2010)	\$3.7M over three years	Five
Implementation of the U.S. Integrated Ocean Observing System (NOAA, NASA; June 2010)	\$231M over five years	Thirteen

Table 1. Summary of NOPP BAA issuance and results for FY 2011.

NOPP-Managed Activities

National Ocean Sciences Bowl (NOSB®)

The NOSB® was created in 1998 through funding from NOPP, in honor of the International Year of the Ocean. The NOPP agencies, committed to increasing ocean literacy, continue to sponsor the program. Since its inception, the program has grown to include 25 regional competition sites with over 300 schools and over 2,000 student competitors participating annually. The 2011 Finals competition was held from 29 April to 1 May at Texas A&M University Galveston. The theme of the 2011 competition was Human Responses to Ocean Events. Scientists from around the country contributed to the theme by being guest speakers, presenting in a virtual seminar, and writing questions for the competition. Students participated in a variety of field trips, including a service project in which they planted sea grass to reestablish a local ecosystem.

The NOSB also introduced a new component to the Finals competition. Each team participated in the buzzer competition and also prepared for a Policy Briefing, on the topic of aquaculture. Teams were required to submit a written report to the NOSB National Office in advance and during the competition, the teams presented their report orally to a panel of judges. Each team's report and presentation consisted of five individual stakeholder points of view and provided suggestions

to "Congress" (the policy briefing judges) on what should be done with current legislation that would take into consideration the issues and views of all of their team's stakeholders. Because the Policy Briefing was a pilot element this year, the team's score did not factor into their overall score for the competition. The top scoring policy briefing team (Juneau Douglas/Thunder Mountain High School from Alaska) was awarded a prize to visit various aquaculture facilities in Olympia and Seattle, Washington in recognition of their efforts. The NOSB National Office received positive responses from the students, coaches, and volunteers on this new addition and plan to implement it fully in 2012, with minor modifications.

2011 NOSB Finals Competition Winners

1st Place	Marshfield High School – Marshfield, WI
2nd Place	Lexington High School – Lexington, MA
3rd Place	Santa Monica High School – Santa Monica, CA
4th Place	Mount Sinai High School – Mt. Sinai, NY
5th Place	Contoocook Valley Regional High School – Peterborough, NH
6th Place	Mission San Jose High School – San Jose, CA
7th Place	State College High School – State College, PA
8th Place	North Carolina School of Science & Mathematics – Durham, NC

1. On October 3, 2011 the Bureau of Ocean Energy Management, Regulation, and Enforcement was reorganized into two entities: the Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE). In the FY 2011 Report to Congress, the agency is referred to as the Bureau of Ocean Energy Management, Regulation, and Enforcement (BOEMRE).

NOSB received nearly 40 submissions to its annual Living on the Ocean Planet video contest. Awards were provided to each of the regional winners by the National Marine Education Association (NMEA). The videos of the regional winners were then judged to come up with a national winner. The contest is designed to reach beyond established NOSB teams and allow students the opportunity to showcase their passion for the ocean in a more creative manner. The students are required to highlight the competition theme and relate it to one of the Ocean Literacy Principles. A team of students from Thomas Jefferson High School for Science and Technology in Virginia won the contest with their video entitled *Making Every Difference*. In addition to being posted on the Smithsonian's Ocean Today Kiosks and the NOSB website, the top three national videos are also being showcased at the Grey's Reef Ocean Film Festival.

NOSB continues to implement a longitudinal study in order to better track NOSB alumni that are now in college or have begun a career in the ocean sciences. In addition to tracking students' majors and how NOSB influenced their college or academic choices, the survey also includes questions that address current career paths, given many NOSB alumni have graduated and entered the workforce. A separate study was also conducted on the impact the NOSB program has on coaches and how the program reaches beyond the teams into the schools. Current and past study reports can be found on the NOSB website: www.nosb.org/alumni-2/alumni-study-archives/.

Finally, NOSB began producing a bi-annual newsletter, The Ocean Gyre: Keeping Current with the National Ocean Sciences Bowl which will allow the NOSB program to stay better connected with alumni and NOSB's national network of volunteers.



Students from Marshfield High School, winners from the 2011 NOSB, attend their 1st place award field trip to Puerto Rico. Photo credit: M. Mayo

In preparation for the 2012 NOSB competitions, the annual Regional Coordinators meeting was held in Washington, DC in September 2011. This location provided the NOSB program with an excellent opportunity to meet district Representatives on Capitol Hill, all of whom are invited to attend and participate in regional NOSB bowls.

NOPP Office

The NOPP Office, sponsored through a contract from ONR to the Consortium for Ocean Leadership, supported many interagency activities during FY 2011. All meetings and intercessional activities of the IWG-OP, the IWG-OP's Biodiversity Ad Hoc Group, the IWG-OP's Federal Renewable Ocean Energy Working Group, the Interagency Working Group on Facilities and Infrastructure (IWG-FI), the IWG-FI's Task Force on Unmanned Systems (TFUS), and the ORAP were supported by NOPP Office staff. In addition to supporting interagency coordination, the NOPP Office coordinated the peer review of 63 proposals, resulting in 18 funded research projects.

Outreach efforts undertaken in FY 2011 include hosting exhibit booths at the MTS/IEEE Oceans '11 and at the International Marine Conservation Congress. In July 2011, the NOPP Program Manager gave a presentation at the Atlantic Wind Energy Workshop, hosted by BOEMRE held in Dulles, VA, about the NOPP process, in efforts to engage a variety of sectors, as well as the energy industry. The Program Manager also gave a presentation about the NOPP process at a workshop titled *Partnerships Across the Pacific: Ocean Technology Collaborations with Government, Academia, and Industry* at the MTS/IEEE Oceans '11 Conference in Kona, HI. The goal of both presentations was to engage additional sectors.

The NOPP Office continued to maintain its website, www.nopp.org, with current news and information. The NOPP Office also participated in social media, though Twitter and Facebook, in efforts to reach a wider public audience. The NOPP Office staff members served as liaisons to other Interagency Working Groups and committees of the ocean governance structure.

NOPP INTERAGENCY INTERACTIONS

A central tenet of NOPP is interagency partnership. The most recent activities are described in the following two sections of this report. During FY 2011, agency participation in NOPP included: meeting participation, sponsoring research through partnership funding opportunities, hosting topical workshops, providing input to NOPP publications, and attending NOPP-related outreach events. Participation in these NOPP activities is open to all NOC member agencies and varies based on individual agency mandates, missions, and interests.

Interagency Working Group on Ocean Partnerships

The IWG-OP met ten times in FY 2011 in support of partnership efforts across the ocean community. The IWG-OP made progress on ocean science and resource management missions of the member agencies through interagency partnerships and collaborations.

The group developed funding solicitations on two topics: 1) Marine Mammal Detection and Monitoring and 2) Implementation of the U.S. Integrated Ocean Observing System (IOOS). Eighteen multi-year proposals were funded totaling \$234.7M in contributions from partner agencies.

The IWG-OP Biodiversity Ad Hoc Group met five times during FY 2011. In FY 2010, the IWG-OP's Biodiversity Ad Hoc group hosted a NOPP workshop on Attaining Operational Marine Biodiversity Observations with sponsorship from seven federal sponsors and 40 community participants. The Attaining an Operational Marine Biodiversity Observation Network (BON) Synthesis Report was released earlier this year and was disseminated at various conferences, such as: the

International Marine Conservation Congress, MTS/IEEE Oceans '11, and the National Conference for Science and Environment. The report was also displayed on a poster at the Census of Marine Life Decade of Discovery Events in London, England. At the National Conference for Science and Environment, in January 2011, the group hosted a roundtable discussion about the BON Synthesis Report and its recommendations. Various groups also received the report, including the Interagency Working Group on Ocean Partnerships, Census of Marine Life participants and members of the Biodiversity Ad Hoc Committee. The report contains recommendations that have been vetted within the scientific community and will be taken under consideration for implementation by the IWG-OP and other appropriate interagency bodies. The workshop report is available here: www.nopp.org/wp-content/uploads/2010/03/BON_SynthesisReport.pdf.

The Federal Renewable Ocean Energy Working Group (FROEWG) was established in 2009, and formally became an ad-hoc working group to the IWG-OP in 2010, to facilitate interagency collaboration, identify information needs, and jointly support research necessary to enhance the regulatory process for siting and deploying renewable ocean energy technologies. During FY 2011, the group met once every two months. During this period, working group meetings provided valuable opportunities to obtain feedback from participating agencies regarding specific research projects and provided a platform to discuss policy issues. Two sub-groups formed under the FROEWG during the past year to address specific issues. In an effort to increase awareness of current marine and hydrokinetic environmental research projects, a small sub-group formed to develop a webinar series on this topic. Based on the input from this group, the Department of Energy

(DOE) then hosted three webinars featuring current research efforts to assess potential environmental impacts of development. The Offshore Wind Resource Assessment and Design Conditions working group also formed as a subgroup of FROEWG participants. This interagency working group met on approximately six-weekly intervals to exchange information, to coordinate meetings, workshops, and other activities, and to review supported research and other relevant projects to assure that work was complementary across agencies. Under this working group, DOE, NSF, BOEMRE, and NOAA hosted the information exchange *Offshore Renewable Energy: Public Meeting on Information Needs for Resource Assessment and Design Conditions*. Also under this working group, DOE is leading the planning for a Reference Facility for Offshore Renewable Energy that will provide support to both research and industry needs in the development of offshore renewable energy. Finally, during FY 2011 BOEMRE led the active management of eight projects funded under the FY 2010 NOPP Broad Agency Announcements in partnership with DOE and NOAA.

Interagency Working Group on Facilities and Infrastructure

The IWG-FI met three times during FY 2011 and discussed topics such as tethered vehicles, remotely operated vehicles, and buoys.

The IWG-FI Task Force on Unmanned Systems (TFUS) met five times in FY 2011 and hosted an Unmanned Systems Common Lifecycle Infrastructure meeting in March 2011 at Stennis Space Center in Mississippi. Common Lifecycle Infrastructure refers to activities such as: acquisition, mobilization, scheduling, and operations. The group toured the Naval Oceanographic Office Glider Operations Center and Autonomous Underwater Vehicle

Center and the National Data Buoy Center, as well as heard various guest speakers on related topics. The meeting closed with an open forum to discuss ways ahead, future steps, and recommendations for identifying additional agency facilities or practices.

TFUS partnered with the Interagency Coordinating Committee for Airborne Geosciences Research and Applications (ICCAGRA) to host a joint meeting in September 2011. Because these two groups both address the interagency coordination of airborne scientific research within their charters, communication is critical to avoid duplication of efforts. Members from TFUS, IWG-FI, and ICCAGRA were all in attendance at this meeting, in order to effectively discuss common topics and ways to coordinate.

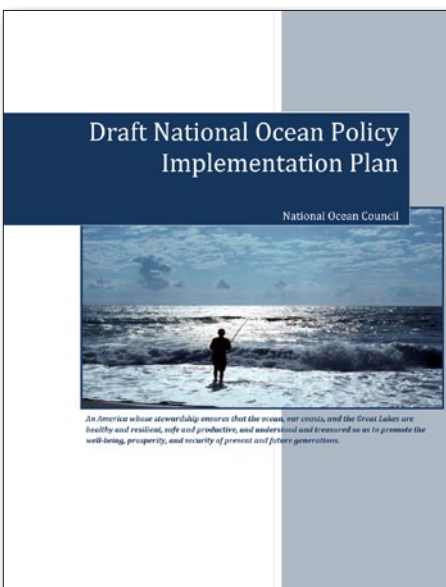
Ocean Research Advisory Panel

The ORAP, the nation's only Federal Advisory Committee Act (FACA) committee whose scope covers the full spectrum of ocean science, education, and resource management topics, continued to provide advice and guidance on NOPP and other matters to the NOC. The FY 2011 ORAP meetings took place on 8-9 December 2010 and 25-26 April 2011, both in Washington, DC. Three conference calls were held, on 15 March, 6 April, and 2 May, in order to provide input and recommendations to the NOC regarding the development of the Draft National Ocean Policy Implementation Plan. A late summer 2011 meeting was planned for, but was ultimately cancelled due to a delay in recertification of ORAP members. ORAP was unable to receive its annual briefing on NOPP activities, as required by the founding legislation, due to this cancellation.

The ORAP currently operates four sub-groups to address four priority

areas: 1) education, 2) industry, 3) ocean observing, and 4) ocean acidification (through a Task Force created in early 2010).

During FY 2011, the Education Sub-panel reviewed their membership, mission, and discussed future directions for ORAP's education efforts. Targeted comments on ocean-related education initiatives were included in the ORAP's input on the Draft National Ocean Policy Implementation Plan.



During FY 2011, the ORAP provided input into the development of the Draft National Ocean Policy Implementation Plan.

The Industry Sub-panel hosted a workshop on 23-24 May 2011 titled *Offshore Renewable Energy: Accelerating the Decision Making Process* in order to thoroughly discuss ways to accelerate the development of ocean renewable energy projects. The workshop was intended to identify common issues among participants, propose solutions that fit within legal and jurisdictional frameworks, and illustrate how those solutions would better attract investors and place projects in the water more quickly. The two-day workshop included 48 participants from the energy sector, industry, academia, federal agencies,

and Senate and House Offices. The workshop included seven panels, three keynote addresses, and an open discussion at the end of the workshop to finalize recommendations. A workshop report is being produced and will be presented to the full ORAP at their next meeting.

During FY 2011, the Ocean Observing Sub-panel met on 7 December 2010 to review the past work of the sub-panel, hear updates on the Ocean Observatories Initiative and the IOOS, and decide future directions for the sub-panel. The sub-panel also met with the ORAP Ocean Acidification Task Force (OATF) to discuss collaborations on development and deployment of ocean acidification sensors. The ORAP Ocean Observing Sub-panel also organized a panel of briefings on coordination of federal ocean observing activities, which will be heard by the full ORAP at their next meeting.

The OATF met on 6-7 December 2010 to continue their discussion with the Interagency Working Group on Ocean Acidification (IWG-OA), who invited the OATF to review their strategic plan. During the meeting, the OATF members heard briefings of ongoing activities related to ocean acidification, including research on ocean acidification's effect on aquaculture. Throughout FY 2011, the OATF revised the OATF Recommendations Report to include components of the National Research Council report on ocean acidification.

All ORAP recommendations, meeting materials, and information on ORAP sub-groups are accessible via the ORAP website: www.nopp.org/committees/orap/.

VII. Fiscal Year 2012 Activities and Plans

The Draft National Ocean Policy Implementation Plan was released during FY 2012; NOPP agencies may use the NOPP funding process to implement corresponding collaborative research activities in response to the Final National Ocean Policy Implementation Plan. NOPP, working through the IWG-OP, plans to investigate innovative research areas to help inform implementation of future ocean policy and research priority areas articulated by the National Ocean Council and the SOST.

NOPP-FUNDED ACTIVITIES

Agency contributions for NOPP activities, both solicited and managed, are anticipated for FY 2012. NOPP activities for FY 2012 are currently underway and are discussed further in the following section.

NOPP-Solicited Projects

Several new solicited projects have been discussed within the IWG-OP; dependent upon federal budgets, these projects may come to fruition in FY 2012 or a following year.

NOPP-Managed Activities

National Ocean Sciences Bowl

Entering into NOSB's 15th year, the NOSB Finals Competition was held in Baltimore, MD April 19-22, 2012. The theme for this year was *Sea of Change: Development and Evolution* - how Earth and its inhabitants (single celled organisms to humans) have changed and/or adapted to the changes, including the technology humans use and how humans understand their

role in these changes. As in the past, the theme played a significant role in the development of questions, prizes, field trip destinations, and keynote speakers.

NOSB implemented a slightly revised version of the Policy Briefing that was introduced in 2011 again at Finals in 2012. In the revised version, the Scientific Expert Briefing, students presented their team consensus recommendations to "Congress" but instead of simply representing the five primary stakeholder groups, they represented a specific scientist or professional at each of these stakeholder institutions.

NOSB is again working with NMEA to host the Living on the Ocean Planet video contest. NOSB will also be implementing a web-based professional development series for coaches and are currently working with Massachusetts Institute of Technology Sea Grant to create an online game version of NOSB. The Ocean Science Match (preliminary title for the online game) will be rolled out in three phases. Phase I will allow students to answer ocean science buzzer questions while competing against the clock. In Phase II, the students will be able to compete against another student using the same computer, and Phase III, with an anticipated release date of FY 2013, will allow the students to compete against other students across the Internet. NOSB is uploading 100 questions into the online game's database to begin and during each phase players will have the opportunity to contribute questions, helping to grow the database. Initially the questions will be vetted by volunteer reviewers, but in Phase III the players will be able to edit and rate the quality of questions submitted by other players.

Finally, in FY 2012 NOSB will be creating an ocean science opportunities booklet. The booklet will highlight the internship, education, and career opportunities that NOSB sponsor institutions and organizations

offer to high school, college, and graduate students.

For additional information on NOSB, please visit www.nosb.org.

NOPP Office

In FY 2012, the NOPP Office plans to continue their support of interagency committees, including the IWG-OP, the IWG-OP Biodiversity Ad Hoc Group and FROEWG, the IWG-FI, the TFUS, and the ORAP.

NOPP-RELATED ACTIVITIES

Individual agencies will continue to invest in NOPP-Related Activities in FY 2012. For example, various agencies of the IWG-OP continue to be interested in the Deepwater Horizon Gulf of Mexico oil spill incident and the ongoing research associated with that event. While the Gulf of Mexico Research Initiative funded a large suite of research, the federal agencies remain interested in filling potential gaps in order to complement ongoing efforts. Preliminary discussions have taken place on how best to fill these gaps via a NOPP funding solicitation or other supplementary activities and as partnership opportunities focused on the Gulf of Mexico incident arise, the IWG-OP and its participating agencies will support and coordinate as appropriate.

NOPP INTERAGENCY INTERACTIONS

In FY 2012, NOPP will continue to work with and through the appropriate ocean governance channels, including interaction with the National Ocean Council. Below are the specific plans for three bodies that are intimately involved with NOPP.

Interagency Working Group on Ocean Partnerships

The IWG-OP will continue to meet monthly in FY 2012. The IWG-OP is striving to increase its reach throughout federal agencies, as well as participation. For example, the November 2011 meeting was held

at NOAA's offices in Silver Spring, MD in an attempt to engage all of the line offices within NOAA. Efforts will continue along its strategic planning and implementation process, specifically in support of the nine priority objectives of the National Ocean Policy and the forthcoming National Ocean Policy Implementation Plan. The IWG-OP will also continue working toward improved interagency partnership flexibility, specifically in the area of transferring funds between agencies through the authority of the Economy Act. The IWG-OP is currently developing solicitations for FY 2012 and beyond, with potential research topics including: sensor operation and implementation, renewable energy technology development, biodiversity case studies, and research related to the Deepwater Horizon oil spill. The following forums allow the IWG-OP to explore innovative areas of ocean research and develop new partnership opportunities.

The IWG-OP Biodiversity Ad Hoc Group will continue to meet quarterly during FY 2012; a continuing focus of the group includes increasing the effectiveness of federal biodiversity data management to enable better tracking of biodiversity status and trends. Discussions and planning are also taking place to develop a Marine Biodiversity Operational Network

BAA to be released in FY 2013. The Biodiversity Ad Hoc Group also plans on providing input to the National Fish and Wildlife and Plant Climate Change Adaptation Strategy.

The FROEWG will continue to meet bimonthly in FY 2012 and will continue to host the webinar series featuring research on the potential environmental impacts of marine hydrokinetic development. The Offshore Wind Resource Assessment and Design Conditions sub-group will continue to meet approximately every six weeks in FY 2012 to continue and extend the productive coordination of interagency activities. The agencies involved in a FY 2010 BAA (BOEMRE, DOE, and NOAA) focused on ocean renewable energy will continue to actively manage the research projects funded through that collaborative effort.

Additionally, the IWG-OP plans to continue and expand its outreach efforts to potential industry partners, so that members of industry are more involved in the NOPP program and process.

Interagency Working Group on Facilities and Infrastructure

The IWG-FI will meet regularly during FY 2012 and would like to attain additional agency representation, specifically from NASA. The IWG-FI will focus on the implementation

of certain milestones of Actions 1 and 2 of the National Ocean Policy Implementation Plan chapter on Observations, Mapping, and Infrastructure. Action 1 focuses on the status of the oceanographic fleet and significant milestones include updating the Federal Oceanographic Fleet Status Report (2007) and creating a national planning tool for vessels in the federal fleet. Action 2 focuses on the status of unmanned and satellite remote sensing systems and significant milestones include completing an inventory of unmanned assets/utilization analysis/planning tool. The IWG-FI will consult with the TFUS on milestones from Action 2.

TFUS is also working on an Interagency Strategy for Unmanned Systems document which is anticipated to be completed by December 2011 in time for the TFUS renewal.

Ocean Research Advisory Panel

The ORAP stands ready to return to briefing the highest levels of the ocean governance structure, offering advice and recommendations as required by legislative mandate and as needed by the nation. The ORAP has not yet met in FY 2012, due to the continued delay of recertification of the membership. A late summer meeting is planned for FY 2012.

VIII. Fiscal Year 2013 Plans

Agency-specific budget requests for the FY 2013 Administration's Budget have recently been submitted; therefore, precise funding levels and associated programmatic issues are not yet firmly established. The IWG-OP agencies anticipate contributions to NOPP to be comparable to those of both FY 2011 and FY 2012 and anticipate supporting interagency collaborations and extramural research partnerships.

IX. Conclusion

In the past, NOPP has contributed to the implementation of national ocean research priorities, such as the Near-Term Priorities of *Charting the Course for Ocean Science in the United States for the Next Decade: An Ocean Research Priorities Plan and Implementation Strategy* and looks forward to taking a strong role in the implementation of the National Ocean Policy priority objectives. The IWG-OP member agencies, through NOPP, will continue to pursue novel areas of oceanographic research by cultivating an increased emphasis on funding solicitations through partnerships that facilitate the integration of relevant and important science and technology with resource management.

Appendix 1. Development & Process for NOPP-Funded Research

Two or more agencies typically collaborate on funding NOPP research. Funded NOPP projects require multi-sector partnerships between academia, industry (including non-government organizations), and government (including state and local).

Research topics funded through NOPP are initiated via interactions among agency program managers, often at IWG-OP meetings. The partner agencies then informally propose the research topic to the IWG-OP for approval to proceed. At this point, interagency partnerships are formed, tentative levels of support are pledged on an as-available basis, and draft solicitation (BAA or RFP) language is developed. The IWG-OP then approves the funding announcement language, which is then announced by a lead agency as a BAA or RFP on behalf of NOPP.

Once a funding opportunity is announced, all submitted proposals undergo a peer review process similar to that of NSF. Proposals are reviewed based on:

- Relevance of the proposed research to NOPP objectives;
- Overall scientific and technical merits of the proposal;
- Level of support of critical research objectives or operational goals;
- Quality of proposed partnerships;
- The offeror's capabilities, related experience, and facilities that are critical to the proposal objectives;
- The long-commitment of the partners to the proposed objectives;
- The qualifications and experience of the proposed PI and key personnel; and
- Reasonableness of cost.

The rankings of the peer review panel are made available to and reviewed by the agency program managers, who make a recommendation for funding to the IWG-OP. After receiving IWG-OP approval, the funded research projects are announced.

To learn more about the NOPP Process and what makes a successful funding solicitation, please see our NOPP Best Practices and Guidelines document: www.nopp.org/wp-content/uploads/2011/03/NOPP-Funding-Best-Practices_FINAL.pdf.

Appendix 2. NOPP Solicitations

FY 2011 ONR BROAD AGENCY ANNOUNCEMENT #ONR-BAA-10-024

Topics:

- Detection, Classification, and Localization Algorithms
- Active Acoustic Monitoring
- Database Services and Computational Capacity
- Novel Use of Existing Technologies

FY 2011 NOAA BROAD AGENCY ANNOUNCEMENT #NOAA-NOS-IOOS-2011-2002515

Topics:

- Continued Development of Regional Coastal Ocean Observing Systems
- National-Scale Efforts Toward Verification and Validation of Observing Technologies
- Improved and Routine Production, Stewardship, and Application of the Group of High Resolution Sea Surface Temperature (GHRSSST) Data
- Observational Data for Migratory Species on the Outer Continental Shelf to Inform Permitting and Licensing for Offshore Renewable Energy Facilities and to Contribute to Basic Knowledge of Marine Mammal Behavior and Ecology in this Habitat

Appendix 3. NOPP-Funded Projects Initiated in Fiscal Year 2011

INTEGRATED OCEAN OBSERVING SYSTEM

“Towards a Comprehensive Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS)”

Lead Principal Investigator (PI): Dr. Scott Glenn, Rutgers University

Funding Requested: \$20,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#glenn

“Developing the Pacific Islands Ocean Observing System (PacIOOS)”

Lead Principal Investigator (PI): Dr. Brian Taylor, University of Hawaii at Manoa

Funding Requested: \$20,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#taylor

“Continued Development of Regional Coastal Ocean Observing System: Alaska Ocean Observing System”

Lead Principal Investigator (PI): Ms. Molly McCammon, Alaska Ocean Observing System

Funding Requested: \$20,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#mccammon

“Continued Development of the Gulf of Mexico Coastal Ocean Observing System”

Lead Principal Investigator (PI): Dr. Ann Jochens, Texas A&M University

Funding Requested: \$19,999,960

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#jochens

“Sustaining NANOOS, the Pacific Northwest component of the US IOOS”

Lead Principal Investigator (PI): Dr. David Martin & Dr. Jan Newton, University of Washington

Funding Requested: \$20,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#martin

“Advancing the Caribbean Coastal Ocean Observing System”

Lead Principal Investigator (PI): Julio Morell, University of Puerto Rico

Funding Requested: \$12,833,612

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#morell

“The Continued Development of the Northeastern Regional Coastal Ocean Observing System”

Lead Principal Investigator (PI): Dr. J. Ruairidh Morrison, Northeastern Regional Association of Coastal Ocean Observing Systems (NERACOOS)

Funding Requested: \$19,999,755

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#morrison

“Southeast Coastal Ocean Observing Regional Association (SECOORA): Coordinated Monitoring, Prediction and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools”

Lead Principal Investigator (PI): Debra Hernandez, SECOORA

Funding Requested: \$20,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#hernandez

“Southern California Coastal Ocean Observing System”

Lead Principal Investigator (PI): Dr. Eric Terrill, University of California San Diego

Funding Requested: \$19,625,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#terrill

“CeNCOOS: Integrating Marine Observations for Decision Makers and the General Public”

Lead Principal Investigator (PI): Dr. Steven Ramp, Monterey Bay Aquarium Research Institute

Funding Requested: \$19,997,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#ramp

“Implementation of the Great Lakes Observing System, 2011-2015”

Lead Principal Investigator (PI): Dr. Jennifer Read, Great Lakes Observing System

Funding Requested: \$19,547,080

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#read

“The Alliance For Coastal Technologies: National-Scale Efforts Toward Verification and Validation of Observing Technologies”

Lead Principal Investigator (PI): Mario Tamburri, University of Maryland

Funding Requested: \$15,000,000

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#tamburri

“Multi-sensor Improved Sea-Surface Temperature (MISST) for IOOS”

Lead Principal Investigator (PI): Chelle Gentemann, Remote Sensing Systems

Funding Requested: \$4,980,130

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-2-coordinated-regional-efforts-that-further-the-ioos/#gentemann

MARINE MAMMAL DETECTION AND MONITORING

“DCL System Using Deep Learning Approaches for Land-based or Ship-based Real-time Recognition and Localization of Marine Mammals”

Lead Principal Investigator (PI): Dr. Christopher Clark, Cornell University

Funding Requested: \$1,048,861

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-1-marine-mammal-detection-and-monitoring/#Clark1

“Portable and Persistent Autonomous Real-time Marine Mammal Acoustic Monitoring”

Lead Principal Investigator (PI): Dr. Christopher Clark, Cornell University

Funding Requested: \$1,049,818

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-1-marine-mammal-detection-and-monitoring/#Clark2

“Expansion of Metadata Management, Visualization, and Data Processing Functionality of OBIS-SEAMAP”

Lead Principal Investigator (PI): Dr. Patrick Halpin, Duke University

Funding Requested: \$317,993

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-1-marine-mammal-detection-and-monitoring/#Halpin

“Instantaneous Passive and Active Detection, Localization and Monitoring of Marine Mammals over Long Ranges”

Lead Principal Investigator (PI): Dr. Purnima Ratilal, Northeastern University

Funding Requested: \$431,978

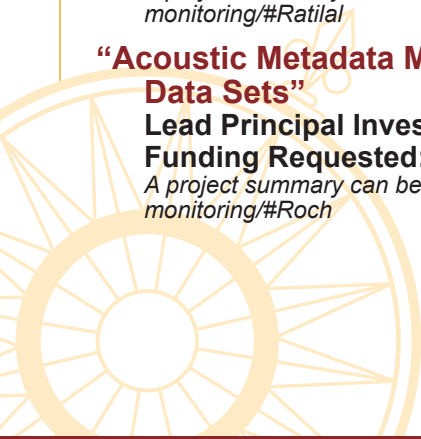
A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-1-marine-mammal-detection-and-monitoring/#Ratilal

“Acoustic Metadata Management and Transparent Access to Networked Oceanographic Data Sets”

Lead Principal Investigator (PI): Dr. Marie Roch, San Diego State University

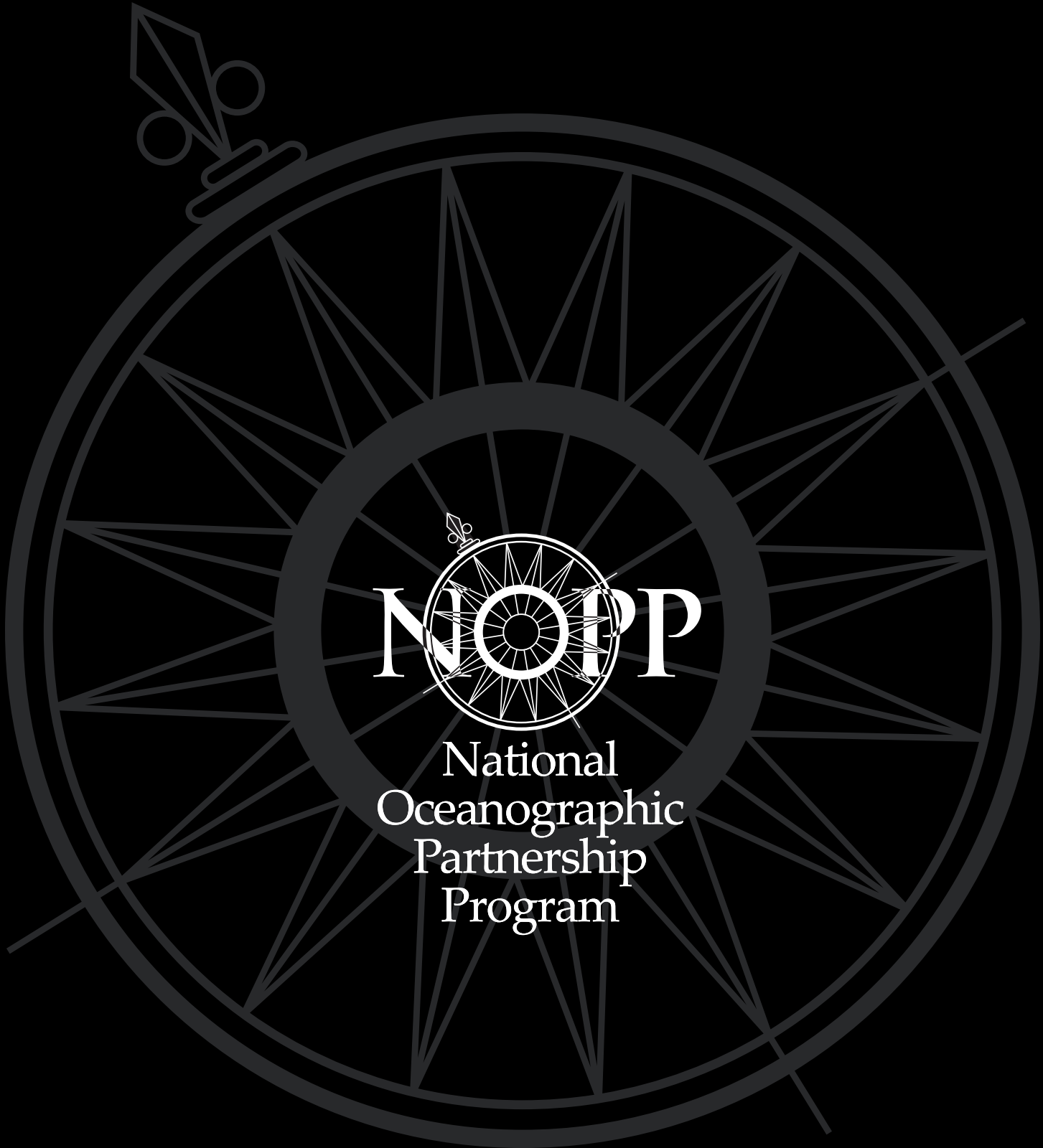
Funding Requested: \$855,499

A project summary can be found at: www.nopp.org/funded-projects/fy2011-projects/topic-1-marine-mammal-detection-and-monitoring/#Roch



Acronyms and Abbreviations

BAA	Broad Agency Announcement
BOEM	Bureau of Ocean Energy Management
BOEMRE	Bureau of Ocean Energy Management, Regulation, and Enforcement
BON	Biodiversity Observation Network
DOE	Department of Energy
FACA	Federal Advisory Committee Act
FFO	Federal Funding Opportunity
FROEWG	Federal Renewable Ocean Energy Working Group
FY	Fiscal Year
ICCAGRA	Interagency Coordinating Committee for Airborne Geosciences Research and Applications
ICOSRMI	Interagency Committee on Ocean Science and Resource Management Information
IOOC	Interagency Ocean Observation Committee
IOOS	Integrated Ocean Observing System
IWG-FI	Interagency Working Group on Facilities and Infrastructure
IWG-OA	Interagency Working Group on Ocean Acidification
IWG-OP	Interagency Working Group on Ocean Partnerships
JSOST	Joint Subcommittee on Ocean Science and Technology
M	Million
NASA	National Aeronautics and Space Administration
NGO	Non-Governmental Organization
NMEA	National Marine Educators Association
NOAA	National Oceanic and Atmospheric Administration
NOC	National Ocean Council
NOPP	National Oceanographic Partnership Program
NORLC	National Ocean Research Leadership Council
NOSB	National Ocean Sciences Bowl
NSF	National Science Foundation
OATF	Ocean Acidification Task Force
ONR	Office of Naval Research
ORAP	Ocean Research Advisory Panel
RFP	Request for Proposals
SOST	Subcommittee on Ocean Science and Technology
TFUS	Task Force on Unmanned Systems



NOPP

National
Oceanographic
Partnership
Program