MAKING WAVES

National Science Foundation (NSF)

Summer, 2012

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OCE Division Director's Message

Dear Members of the Ocean Sciences Community,

Welcome to the summer 2012 edition of the OCE newsletter "Making Waves". In this issue you will find updates on a variety of programs, listings of new solicitations, and changes in OCE staff. As always, please send suggestions for topics and ways to improve our newsletter to Editor Larry Weber.

In the spring 2012 newsletter, I described the budgetary challenges faced by OCE and our approach to coping with them. The overarching problem we face is the rising cost and the growing fraction of the OCE budget that is consumed by infrastructure expenses (e.g., general fleet operations, ocean drilling platform, Ocean Observatories Initiative). As additional technologies are developed that enable new frontiers to be explored, the desire for more facilities support will likely continue to grow. At the same time, the National Ocean Policy calls for advancing ocean science on a number of fronts and the supporting infrastructure. One of the operating principles of NSF is to make strategic decisions in light of input from the community, but we lack a mechanism to do so on the long term challenges we now confront.

Other disciplines (e.g., astronomy) and federal agencies (e.g., NASA) have successfully used a decadal survey process for prioritizing science and infrastructure relative to costs and projections of resource availability. In the ocean sciences, there have been well-conducted, community-based efforts to define research priorities such the 2007 report "Charting the Course for Ocean Science in the United States for the next Decade: an Ocean Research Priorities Plan and Implementation Strategy." In addition, there are numerous National Research Council reports that develop priorities for various segments of the ocean sciences realm including, for example, those on critical infrastructure through the year 2030, ocean acidification, ocean drilling, and requirements for sustained ocean color observations. But none of these were developed in relation to expected costs and revenue, and none evaluate tradeoffs in relation to other investments that are necessary to advance the ocean sciences. These highly valuable individual reports also do not feed into a subsequent broader process that evaluates the full portfolio of investments. By way of analogy, we lack a mechanism for community input on an "ecosystem-based" approach to managing our investments in ocean sciences, one that recognizes the tradeoffs. The establishment of a recur-

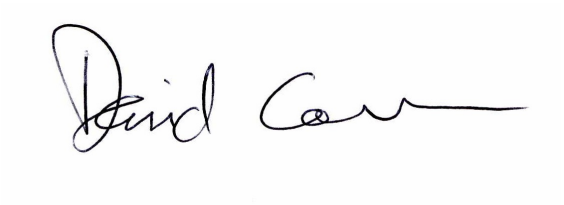
OCE Division Director's Message (continued)

ring, decadal cycle also provides a predictable schedule with which the research priority plans that emerge from different realms of ocean sciences could be synchronized so as to maximize their impact on long range planning.

In addition to providing input on how to slice the ocean sciences pie, decadal surveys also have the potential to enable the pie to grow larger. When a science community comes together to speak with one voice about the compelling need to advance a subset of priorities that will benefit the Nation, it becomes a powerful statement that is more likely to garner support from stakeholders and policy makers.

On the other hand, there are many challenges to engaging in a decadal survey. First, we are a much more diverse and interdisciplinary community than the disciplines that have taken this approach. It may be very difficult to reach consensus on the relative merits of one alternative over another. Second, NSF is not the sole source for research in the ocean sciences, and a decadal survey should incorporate the role of other federal agencies as appropriate. Moreover, the National Ocean Council provides a framework and the expectation that the federal agencies will work together on ocean issues. How this would be done in the context of a decadal survey of the ocean sciences remains an open question. Finally, there are the related issues of time and expense. Decadal surveys must follow a deliberate process of community engagement with ample time for input from all stakeholders, hence, perhaps taking as much as two years to complete.

This brief introduction to the decadal survey concept is intended merely to stimulate your thinking. There are many complex issues to be considered and much more information and input to be gathered before a decision on this approach is rendered. I invite you to share your thoughts on the pros and cons of beginning a decadal survey of ocean sciences by emailing me at dconover@nsf.gov. I look forward to your responses.



David Conover, Director
Division of Ocean Sciences

Field Work: Proposals, Budgets, Ships, and Facilities - oh my!

Sean Kennan and Rose Dufour

In the new budget environment, the squeeze on ocean science facilities is increasingly tight. The Ocean Sciences Division continues to provide facilities support to science projects in the form of UNOLS ship time, shared resources, and line items budgeted in funded proposals. Nevertheless, it is becoming ever more challenging to balance science and facilities requirements. To help PIs with the shepherding of their projects, we recommend that they give special consideration to their logistical needs for complex field projects when submitting proposals to OCE.

The UNOLS request form remains the primary mechanism by which advance planning for ship needs begins for science proposals. The planning process is hindered by incomplete or inaccurate submissions. In the past, healthy budgets allowed for some leniency in planning for science and transit days, ships size, and equipment requirements. However, we now find ourselves in an environment where not only are last minute changes and requests for increased resources difficult to satisfy – we are struggling to fulfill our present and near-term commitments. As a PI, you can help ensure the success of your field campaign by thoroughly and accurately completing the UNOLS request form before submitting your proposal. Three key items that are needed in this form are 1) vessel class/size; 2) number of "science" days required; and 3) special requirements, equipment, or constraints (see the May 2012 OCE note on Facilities Costs and Coordination).

The vessel class depends on factors such as the equipment which will be deployed; the anticipated working areas of UNOLS ships near the time of the experiment; the number of days needed at sea; and perhaps equipment, such as *Alvin*, associated with particular ships. The number of days required consists of science days, port days and transit time. Science days are based on the sampling needs, the vessel speed during sampling or moving between stations, and "wire time". It may be reasonable to include down-time for weather. Loading and offloading should be based on community standards and past experience (e.g. it is not reasonable to assume a one day turn around after a 30 day cruise). Port calls are intended to provide time for both the science party to accomplish their loading and offloading needs, as well as the ship's company to re-provision the vessel. Apart from activities that require shore support, loading and offloading time should not be used for last minute testing or instrument preparations. When in doubt about loading and offloading needs, consult with experienced colleagues, the ship operator, and/or the NSF Ship Ops Program Director (Rose Dufour). When planning transit days, PIs should keep in mind the geographic and timing requirements of field work, and for complex field programs, consult with the ship operator and NSF Ship Ops Program Director. Assuming the closest ports of departure and return seldom works out. Ship schedules are coordinated across the Fleet to maximize overall science return and cost efficiency, so discussions ahead of time that will help arrive at a good **estimate** for transit days are very important. PIs should also keep in mind the effects that ports and transit time combinations have on travel needs for science parties and be sure to include these in the proposal budget along with proper justification; it is not reasonable to submit a budget that includes salaries based solely on "science days". Finally, it is important to remember that the ship schedules are inherently uncertain – subject to cancellations and other changes. Proposal plans and budgets should include some flexibility to account for this risk. OCE cannot generally supplement projects because of scheduling changes. Thus, it is not reasonable to plan on field work in the last year of a project. Likewise, additional ship time should not be requested as

Field Work: Proposals, Budgets, Ships, and Facilities - oh my! (continued)

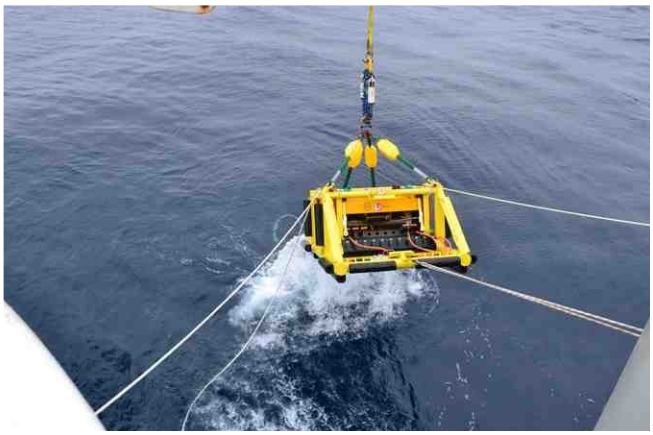
part of a no cost extension. PIs should contact the NSF Ship Ops Program Director for guidance if you have questions on any of these issues.

In order to develop ship day estimates for use in proposal budget submissions, PIs should consider preparing cruise plans, similar to those provided to the ship operators prior to their field work. This applies even when planning to go to sea on non-UNOLS vessels where other NSF facilities support may be anticipated, especially since the UNOLS ship form is not used in such cases. These projects may require shared use (pooled) equipment or resources to which the PI should draw the attention of Program Directors at OCE and ensure adequate budgeting. While we are not asking for cruise plans to be submitted through Fastlane, program officers may call on PIs to provide details for complex field work, or when planning needs at NSF otherwise require them. Being prepared with a cruise plan related to your project scope, timing, and budget will help ensure that if your proposal is successful, it will receive the budgetary and facilities support required, as well as aid OCE in maintaining the scientific and fiscal health of its programs.

Ocean Observatories Initiative Update

Major Progress – Power to the Seafloor

The Ocean Observatories Initiative (OOI) deployed four out of seven power step down nodes connected to the cable. The completion of the power step down node deployments is expected by the end of August 2012 with acceptance of the nodes expected by winter. During the summer of 2013, the seafloor instrumentation deployments are planned, and in 2014, the water column instrumentation will be deployed. Congratulations to the OOI project team and especially to the University of Washington and their subcontractor L3 Maripro.



Credit: OOI Program Management Office

OOI – Schedule and Transition to Operations

The OOI has continued to mature through the design/procurement/build phases. Vendor delivery schedules are being received and deployment schedules are firming up. The project team is developing data management processes, array sampling rates and operational policies and procedures. NSF will run a series of external community reviews of the project. In September 2012, the Consortium for Ocean Leadership (COL) will deliver a fully integrated project schedule to the NSF and a review strategy will be planned and communicated. Throughout this quarter, COL will be posting information about the design details, instruments selected, and deployment schedules on their project website. NSF has established a UNOLs Ocean Observing Science Committee (OOSC) and we look forward to receiving an integrated project schedule and planning next steps.

IODP NEWS

National Science Board action regarding the *JOIDES Resolution*

On July 16, 2012 the National Science Board authorized a request by NSF for continued operations and management of the ocean drilling vessel *JOIDES Resolution* for an additional year (October 1, 2013 to September 30, 2014) beyond the currently approved 10-year period. This one-year contract extension will enable high-priority scientific operations to continue while NSF conducts a robust re-competition for the operations and management of the *JOIDES Resolution* for the new International Ocean Discovery Program. Note that the name of the program will change from Integrated Ocean Drilling Program to International Ocean Discovery Program effective October 1, 2013.

Re-competition of Operations and Management of the *JOIDES Resolution*

To ensure that the NSF and the Federal Government are receiving the greatest value for the substantial investment in the *JOIDES Resolution*, it is the intent of NSF to competitively solicit proposals for the operation and management of the *JOIDES Resolution* drill ship to support the future International Ocean Discovery Program. Re-competed tasks will include onboard science operations, down-hole measurements, core and data repository management, management of the ship leasing subcontract with Overseas Drilling, Limited (ODL), and integrative logistical, planning and management support. NSF expects a solicitation to be issued soon, with at least a 120-day window for proposal submission. All proposals will be reviewed by an external panel convened by NSF. Following this re-competition, and contingent upon 1) a well-reviewed, highly meritorious proposal; 2) the availability of funds from NSF and its international partners; and 3) the ability of OCE to maintain a balanced portfolio of investments in infrastructure and science, NSF would then seek approval from the National Science Board in December 2013 for a Cooperative Agreement to continue support for operation of the JOIDES Resolution beyond FY 2014.

The New IODP Framework

The Integrated Ocean Drilling Program began with ambitious goals and a range of drilling platforms that enabled study of the history of ocean basins throughout Earth's oceans. However, as the program progressed, it became clear that the original managerial complexity of the program made it overly costly and cumbersome. To simplify management and reduce costs, the 25 international partners of the current IODP have come together to design a new management structure and business model for the next drilling program that retains both the multi-platform capabilities and transformative science goals. A short summary of the main features of this new framework is provided below. Please see the IODP-MI website for the full document.

In the new program, the three different platforms (*JOIDES Resolution, Chikyu*, and Mission Specific Platforms) will be operated independently by their respective countries. NSF's investment in the *JOIDES Resolution* operations will also be leveraged through partnerships with other countries.

In this new management structure, yearly scheduling and long-term planning of *JOIDES Resolution* drilling operations will be done under the auspices of a Facility Governing Board (FGB), which will be led by NSF and will include representation of all partners contributing to *JOIDES Resolution* operations, members of the

IODP NEWS (continued)

international science community (who will make the scientific decisions), and the vessel science operator. Similarly, Chikyu and MSP operations will be overseen be similar Facility Governing Boards in Japan and Europe, respectively. Advising the U.S Facility Governing Board will be a Proposal Evaluation Panel, Site Characterization Panel and Environmental Protection and Safety Panel. These panels will also be utilized to review proposals for the other IODP platforms. Technical, operational, and engineering advice will be provided directly to the science operators through other, less formal groups. Drilling proposals for all platforms will be managed by a small Support Office, to be established late in FY2013 through a competitive, independent solicitation and supported with what is expected to be a five-year grant. Support for U.S. scientists in the new IODP will be initially provided through a one-year extension of the existing United States Science Support Program Cooperative Agreement (CA) with the Consortium for Ocean Leadership. A competitive solicitation for a new five-year CA to provide these services will be independently issued in FY2013.

An IODP Forum will be established to provide a venue for all entities in the new program to exchange ideas and views on the scientific progress of the program. Members of this Forum will include active community scientists, and representatives from funding agencies (to any platform), implementing organizations, and program member offices. The IODP Forum will also have liaisons from others interested in the IODP program (e.g., other large science programs, potential new members, etc.).

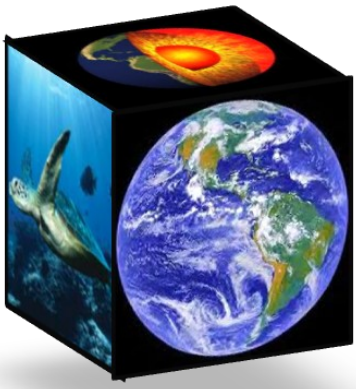
While the management structure has changed considerably, the U.S. community will see little change in the way they participate in the program. They will continue to have access to Chikyu and MSP through berth-sharing agreements and will be heavily involved in the new IODP advisory structure, including the new US Facility Governing Board and the IODP Forum. As in the past, samples and data will also be available to all community scientists.

Finally, a goal of the new program is to develop more efficient ship tracks for the *JOIDES Resolution* that minimize transits and maximize science output in relation to time and cost. This strategy requires consideration of the geographic distribution of highly-ranked drilling proposals and several years advanced notice to the scientific community about the expected operating regions of the *JOIDES Resolution.* Along these lines, the JOIDES Resolution is scheduled to end the current IODP in the western Pacific Ocean. It is our intent to have the ship remain in the Western and Southwestern Pacific and Indian Ocean region through FY2016. The community is strongly encouraged to submit drilling proposals for these areas to provide for a breadth of high-priority drilling targets in these regions.

New Zealand and Japan Earthquake Workshop Report

NSF supported a number of RAPID awards related to the 2010/2011 earthquakes in New Zealand and Japan. The Earthquake Engineering Research Institute (EERI) organized a February 9-10, 2012 workshop at NSF for the PIs involved in those RAPID projects in order to share information and ideas about emerging research needs and opportunities. The final workshop report is available on the EERI website.

EarthCube Update



The EarthCube endeavor is an alternative approach to creating a community-guided cyberinfrastructure environment. EarthCube is intended to significantly increase the productivity and capability of those involved in research and education about the Earth system. EarthCube began in June 2011 with several activities intended to facilitate a community dialog about creating, connecting, and governing a cyberinfrastructure environment that will serve a variety of needs expressed at a myriad of end-point-of-uses. To facilitate this dialog among community members, NSF made or is in the process of making 15 awards in support of a variety of topics pertinent to building an EarthCube environment which include, but are not limited to, conceptual designs of cross-domain interoperability, development of a modeling framework that will allow discipline-specific models to more easily work together, community groups to explore the various aspects of management, use, and mining of geosciences data, and a study that assesses stakeholder alignment.

Activities undertaken over the last year have provided valuable insight into: the complexity of the undertaking, the dynamics and interests of the community engaged in the activity, the alignment (or lack thereof) of the geosciences community with the goals of EarthCube, and new opportunities to advance the endeavor.

NSF plans additional EarthCube investments in the coming year which will further efforts already begun, initiate a community governance structure, further explore cyberinfrastructure for the geosciences, and continue additional reconnaissance of the needs, requirements, and aspirations of geosciences researchers and educators.

Opportunities for Broadening Participation in Ocean Sciences

Sea Slug Elysia chlorotica
Credit: Nicholas Curtis and Ray Martinez, University of South Florida

The Alliances for Graduate Education and the Professoriate (AGEP) program is committed to the national goal of increasing the numbers of under-represented minorities (URMs), including African Americans, Hispanic Americans, American Indians, Alaska Natives, Native Hawaiians and other Pacific Islanders, as well as URMs with disabilities in the science and engineering workforce. In particular, the AGEP program focuses on graduate education and postdoctoral training.

The new AGEP program solicitation allows alliances to be built around a single science, technology, engineering and mathematics (STEM) discipline area or a subset of STEM disciplines and interdisciplinary areas, such as Geosciences. Additionally, alliance partners can now include other entities besides institutions of higher education, such as industry, professional societies, non-profit organizations, national labs, and research centers.

AGEP proposals are due October 30, 2012. For further information, see the AGEP Program Page, AGEP Solicitation (12-554), AGEP Frequently Asked Questions (12-071), and August 2, 2012 GEO-AGEP webinar slides. For OCE-specific questions, please send an email to Lisa Rom or Larry Weber.

Research Experiences for Undergraduates

Sea Urchin
Credit: Paulo Maurin

The NSF-wide Research Experiences for Undergraduates (REU) program provides internships for undergraduates at academic institutions nationwide in all fields of science and engineering supported by NSF. The program provides funding for "Sites" and for "Supplements." In the spring newsletter, we encouraged submissions to the September 12, 2012 deadline for REU Site proposals. Here we want to highlight the *REU Supplement* mechanism. Detailed instructions are provided in the REU solicitation, and related guidance is given on the Biological Oceanography homepage. Key points include:

- Support for undergraduate students involved in carrying out research under NSF awards should be included as part of the research proposal itself instead of as a post-award supplement to the research proposal, unless such undergraduate participation was not foreseeable at the time of the original proposal.
- Normally, funds may be requested for up to two students, but exceptions will be considered for training additional qualified students who are members of underrepresented groups (women, minorities, and persons with disabilities). Centers or large research efforts may request support for a number of students commensurate with the size and nature of the project.
- Historically, the vast majority of REU participants have been junior- or senior-level undergraduates--students who have typically already committed to a major in science or engineering. So that the REU program can succeed in attracting students into science and engineering who might not otherwise consider those majors and careers, projects are also encouraged to involve students at earlier stages in their college experience. Some REU projects effectively engage first-year and second-year undergraduates at the PI's institution or through partnerships with, for example, primarily undergraduate universities or community colleges.
- High-quality mentoring is important in REU Supplements, and investigators should give serious attention not only to developing students' research skills but also to involving them in the culture of research in the discipline and connecting their research experience with their overall course of study. If the intent is to simply engage students as technicians, then an REU Supplement is not the appropriate support mechanism; instead, support should be entered on the Undergraduate Students line of the proposal budget.
- REU student participants must be U.S. citizens, U.S. nationals, or permanent residents of the United States.
- Students do not apply to NSF to participate in REU activities. Students apply directly to REU Sites or to NSF-funded investigators who receive REU Supplements.

Please contact the relevant OCE disciplinary program manager for project-specific questions about REU Supplements. For general REU questions, email Lisa Rom.

Catalyzing New International Collaborations

NSF's Office of International Science and Engineering (OISE) reissued the solicitation for Catalyzing New International Collaborations. This program supports the participation of U.S. researchers and students in activities intended to catalyze new international collaborations. Importantly, prior to submission of a proposal in response to this solicitation, PIs must establish communication both with the cognizant country or regional program officer in OISE and the cognizant program officer in the NSF division to which a follow-on proposal for support of the longer term research effort would be directed. Proposals to this OISE program may be submitted at any time.

Program Updates for OCE-PRF and OCE-RIG

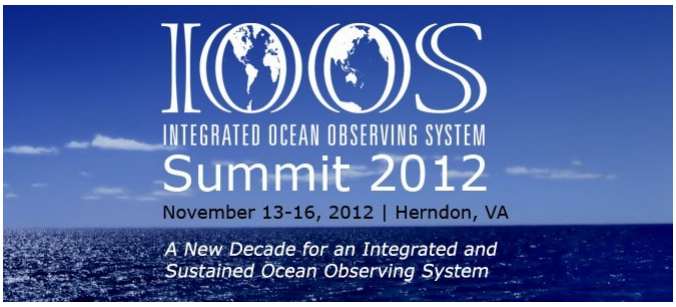
In FY 2012, OCE ran two pilot programs focused on workforce development and broadening participation.

The Ocean Sciences Postdoctoral Research Fellowships: Broadening Participation (OCE-PRF) program is intended to support the individual fellows' research and increase the diversity of the U.S. ocean sciences research community. A total of 10 awards are being made in response to the 50 proposals submitted to the January 2012 target date.

The Ocean Sciences Research Initiation Grants: Broadening Participation (OCE-RIG) program provides start up funding for researchers who have been recently appointed to tenure track (or equivalent) positions, with the twin goals of enhancing the development of their research careers and broadening the participation of underrepresented groups in ocean sciences. A total of 3 awards are being made in response to the 13 proposals submitted to the January 2012 target date.

Based on the numbers of proposals, and the very exciting projects we were able to support as part of the pilots, OCE intends to continue the OCE-PRF and OCE-RIG programs. The solicitations are being revised and will be reissued, with proposal target dates likely to be in January 2013. Please watch the program webpages for listings of the funded projects and for the revised solicitations!

Integrated Ocean Observing System Summit



The Interagency Ocean Observation Committee (IOOC) is bringing together community leaders in ocean observing, research, science, policy, management, and decision-making to develop a coordinated ocean observing strategy. Planning is in progress for an Integrated Ocean Observing System (IOOS) Summit to be held November 13-16, 2012 at the Hyatt Dulles in Herndon, Virginia, which will strive to achieve better integration of regional, national, and global ocean observing efforts. We encourage you to explore the Summit website to learn more about the current status of the planning efforts and to submit inputs for the summit or expressions of interest to participate in ocean observing strategic planning discussions through the IOOC.

Upcoming Solicitation Due Dates

Most OCE programs continue to have 2 target dates per year for unsolicited proposals: February 15 and August 15. For programs under the Oceanographic Centers, Facilities and Equipment umbrella please go to the website. As noted in the May newsletter, the Oceanographic Technology and Interdisciplinary Coordination (OTIC) Program now has a single annual target date of February 15.

In addition to opportunities referenced elsewhere in the newsletter, we'd like to highlight the following program solicitations, with their next proposal due dates:

- Research Experiences for Undergraduates – Sites (NSF 12-569) September 12, 2012
- Arctic SEES (NSF 12-553) September 14, 2012
- Innovation Corps Program (I-Corps) (NSF 11-560) multiple proposal windows throughout the year
- Science, Technology, Engineering, and Mathematics Talent Expansion Program (NSF 11-150) September 25, 2012
- EPSCoR Research Infrastructure Improvement Program Track-1 (NSF 12-563) October 3, 2012
- Discovery Research K-12 (NSF 11-588) October 4, 2012 for Letters of Intent
- ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers (NSF 12-584) October 5, 2012 for Letters of Intent
- Louis Stokes Alliances for Minority Participation (NSF 12-564)
    - Bridge to the Doctorate: October 5, 2012
    - Broadening Participation in STEM Education Research Proposals: October 19, 2012
    - LSAMP Alliance Proposals: October 19, 2012
- Paleo Perspectives on Climate Change (NSF 10-574) October 18, 2012
- Arctic Research Opportunities (NSF 10-597) October 18, 2012
- Advancing Digitization of Biodiversity Collections (NSF 12-565) October 19, 2012
- East Asia and Pacific Summer Institutes for U.S. Graduate Students (EAPSI) (NSF 12-498) November 8, 2012
- Graduate Research Fellowship Program (NSF 12-599) November 19, 2012 for Geosciences-related proposals.
- Dynamics of Coupled Natural and Human Systems (NSF 10-612) November 20, 2012
- NSF Science, Engineering and Education for Sustainability Fellows (NSF 11-575) December 3, 2012 (A revised SEES Fellows solicitation is expected to be released soon, and the deadline may be different.)
- Ocean Acidification (NSF 12-600) December 4, 2012
- Ecology and Evolution of Infectious Diseases (NSF 12-587) December 5, 2012 (See guidance on the Biological Oceanography webpage)
- Improvements in Facilities, Communications, and Equipment at Biological Field Stations and Marine Laboratories (NSF 12-505) December 14, 2012
- Major Research Instrumentation Program (NSF 11-503) January 24, 2013
- Research Coordination Networks – SEES Track (NSF 11-531) February 4, 2013
- Critical Zone Observatories (NSF 12-575) February 5, 2013
- Coastal SEES (NSF 12-594) January 17, 2013

Good Practices for Submitting Project Reports

Providing timely and informative project reports is an important responsibility for Principal Investigators (PIs) who receive funding from NSF. High quality reports help OCE program managers showcase the exciting research and education that goes on in ocean sciences. For Annual and Final Project Reports, it is important for PIs to fill out all relevant sections of the FastLane report templates rather than just attach a pdf file with equations, graphs and color figures. Key sections include:

> Project Participants: List all participants and their contributions to the project. This is important for us to assess contributions of the project to human capital development.
>
> Organizational Partners / Other Collaborators or Contacts: List outside collaborators, formal and informal, and what they contribute to or gain from the project.
>
> Research and Education Activities: Provide a brief summary of these activities rather than just refer to an attached document. If the project started recently and you don't have much to report, describe your near-term plans.
>
> Findings: Provide a brief summary of these activities rather than just refer to an attached document. An informative summary is very useful for identifying projects with potentially transformative results that we may want to highlight to a larger audience.
>
> Training and Development: Report on these as appropriate.
>
> Outreach Activities: Report on these as appropriate.
>
> Contributions within and outside the discipline: Together with the "Findings" section, an informative summary will help us identify projects that have the potential for large impacts.

As described in the Technical Reporting Requirements section of NSF's Award and Administration Guide, Annual Project Reports should be submitted via FastLane at least 90 days prior to the end of the current budget period and Final Project Reports should be submitted within 90 days following expiration of the grant. Failure to submit timely reports will delay processing of additional funding and administrative actions, including, but not limited to, no cost extensions.

In the case of continuing grants, failure to submit timely reports may delay processing of funding increments.
In addition to the Annual and Final Project reports submitted to NSF FastLane, PIs must submit a Project Outcomes Report for the General Public. This Outcomes Report, submitted via Research.gov within 90 days following expiration of the grant, serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. The report will be posted exactly as it is submitted and will be accompanied by the following disclaimer:
"This Project Outcomes Report for the General Public is displayed verbatim as submitted by the Principal Investigator (PI) for this award. Any opinions, findings, and conclusions or recommendations expressed in this Report are those of the PI and do not necessarily reflect the views of the National Science Foundation; NSF has not approved or endorsed its content."

The Outcomes Report should describe the project outcomes or findings that address the intellectual merit and broader impacts of the work as defined in the NSF merit review criteria. The description should be a brief (generally, two to three paragraphs) summary of the project's results that is written for the lay reader. Avoid the use of jargon, terms of art, or acronyms. NSF will automatically include all publications that are provided regarding the award in the FastLane project reporting system. Please list other products (e.g., collections, data sets, software, educational materials) that have resulted from the award. Information regarding anticipated publication of project results, as well as any other information that would be of interest to the public also may be included.

OCE Research in the News

Basking Shark (Cetorhinus maximus)
Credit: NOAA

Dear OCE PI s:

NSF news from the ocean sciences community has recently covered everything from the North Atlantic Bloom, to "blue carbon" in seagrasses, to the effect of ocean acidification on oyster larvae. Looking forward to the treasure trove the next quarter will bring. A selection from this quarter is below. Please let me know of NSF-funded research results.

All best,
Cheryl Dybas, NSF Science Information Officer for geosciences and environmental research

1. Scientists Find Slow Subsidence of Earth's Crust Beneath the Mississippi Delta
2. Ocean Acidification Linked With Larval Oyster Failure in Hatcheries
3. Global Warming Refuge Discovered Near At-Risk Pacific Island Nation of Kiribati
4. First-of-its-Kind Study Reveals Surprising Ecological Effects of 2010 Chile Earthquake
5. Seagrasses Can Store as Much Carbon as Forests
6. Today's Climate More Sensitive to Carbon Dioxide Than in Past 12 Million Years
7. Ecologists Call for Preservation of Planet's Remaining Biological Diversity
8. Scientists Reconstruct Pre-Columbian Human Effects on the Amazon Basin
9. Remote Siberian Lake Holds Clues to Arctic--and Antarctic--Climate Change
10. Scientists Discover New Trigger for Immense North Atlantic Plankton Bloom
11. Ancient Alteration of Seawater Chemistry Linked With Past Climate Change
12. Queen of Spades Key to New Evolutionary Hypothesis
13. Gulf Oil Spill: Scientists Develop New Model for Deep-water Oil Spills
14. All Washed Up and Somewhere to Go: Seaweed on Beaches Is an Ecological Treasure Trove

Grant Opportunities for Academic Liaison with Industry

OCE would like to call attention to industry-academic internship supplements that can be supported via the Grant Opportunities for Academic Liaison with Industry (GOALI) program. GOALI promotes university-industry partnerships by making project funds or fellowships/traineeships available to support a range of industry-university linkages. Special interest is focused on affording the opportunity for:

- Faculty, postdoctoral fellows, and students to conduct research and gain experience in an industrial setting;
- Industrial scientists and engineers to bring industry's perspective and integrative skills to academe; and
- Interdisciplinary university-industry teams to conduct research projects.

OCE is interested in supporting supplements to existing awards so that faculty and students can work with industry. Please contact Lisa Rom for more information about support of industry internships for students and faculty.

World Ocean Assessment – Pool of Experts

The United Nations has embarked on a regular process for global reporting and assessment of the state of the marine environment, including socioeconomic aspects, hereafter called the World Ocean Assessment (WOA). The projected completion date for the first WOA report is 2014, and subsequent reports will be generated on a five-year cycle.

The United Nations established a Group of Experts for scientific oversight of the first WOA report. The Group of Experts has developed a comprehensive outline which includes more than 50 subjects grouped within four themes: marine environment and understanding of the ocean's role in the global integrated Earth system; food security and food safety; human activities that influence the ocean or are influenced by the ocean; and marine biological diversity. The Group of Experts will select from an international Pool of Experts, estimated to be 1000-2000 people, in asking individuals to be authors and reviewers for the first WOA report. Members of the Pool of Experts are expected to have internationally recognized expertise relevant to a chapter of the WOA report and ability to serve in a voluntary and independent individual capacity.

Persons interested in participating in the Pool of Experts are encouraged to submit a Personal History Form (available on the United Nations' global reporting website) to Elizabeth Tirpak at the U.S. Department of State Office of Ocean and Polar Affairs. The Department of State will nominate individuals for the Pool of Experts. The call for participants for the Pool of Experts will remain open until the Group of Experts decides to close the process. The U.S. Department of State will transmit nominations at the end of each month until the process is closed.

Although it is expected that drafting and review efforts of the first WOA report will be conducted through electronic correspondence, there may be occasion for face-to-face meetings. Neither the U.S. Department of State nor the United Nations have funds to support expenses of members of the Pool of Experts.

Report on Science in Antarctica

A 12-member Blue Ribbon Panel was jointly commissioned by NSF and the Office of Science and Technology Policy in October 2011 to "conduct an independent review of the current U.S. Antarctic Program to ensure the nation is pursuing the best ... options for supporting and implementing the required national scientific endeavors" needed to make Antarctic activities most productive and affordable over the long term. The Panel released their report in July with the title, *More and Better Science in Antarctica through Increased Logistical Effectiveness.* The report includes numerous suggestions, with emphasis on streamlining logistics processes with a dedicated funding stream to support capital improvements that will ensure more dollars will be put to use in field research to the world's benefit. Please see the Executive Summary or full report.

USGCRP New Strategic Plan

The US Global Change Research Program (USGCRP) has released its new strategic plan covering 2012-2021. Through USGCRP, which was mandated by Congress in the Global Change Research Act of 1990, 13 agencies – including NSF - coordinate and integrate federal research on global environmental change and societal implications. The focus of the first two decades of USGCRP was on observations, process research and modeling of the physical climate system. The new plan highlights four goals:

1. Advance Science: Advance scientific knowledge of the integrated natural and human components of the Earth system.
2. Inform Decisions: Provide the scientific basis to inform and enable timely decisions on adaptation and mitigation.
3. Conduct Sustained Assessments: Build sustained assessment capacity that improves the Nation's ability to understand, anticipate, and respond to global change impacts and vulnerabilities.
4. Communicate and Educate: Advance communications and education to broaden public understanding of global change and develop the scientific workforce of the future.

The first goal - "Advance Science" - incorporates continued emphasis on advancing scientific knowledge of the natural and human components of the Earth system. Like all of the goals, it reflects a new emphasis on understanding the integrated Earth system, towards reaching effective responses to global change. Integration includes the physical, chemical, biological, and social sciences, and will continue to coordinate observations and modeling. The new goals reflect the needs of stakeholders and decision makers. Each of the primary goals has been further expounded upon through a series of objectives. For Goal 1: Advance Science, these are:

1.1 Earth System Understanding
1.2 Science for Adaptation and Mitigation
1.3 Integrated Observations
1.4 Integrated Modeling
1.5 Information Management and Sharing

While the science goals of the previous strategic plan are included, the new emphasis is on integration with a view to stakeholder needs. (Sean Kennan, skennan@nsf.gov)

SEES Newsletter

NSF issued its inaugural issue of the Science, Engineering and Education for Sustainability (SEES) Newsletter in May. The newsletter, to be produced twice per year, is intended to provide information on SEES programs and highlight research undertaken by SEES investigators. Instructions are given at the end of the newsletter on how to subscribe.

SEES

Staff Changes

Roxanne Nikolaus: Roxanne has rejoined OCE after two years on detail to the White House Office of Science and Technology Policy as an Ocean Policy Advisor. Roxanne's work within OCE focuses on NSF's engagement in interagency efforts to implement the National Ocean Policy.

Patricia Engel: Patricia completed her service as Science Assistant for the Physical Oceanography program at the end of July. During her time at NSF, she also served on the interagency management team for the Decadal and Regional Climate Prediction using Earth System Models program, the OCE strategic planning organizational structure committee, and as a co-Chair for the NSF Science Assistant Community of Practice. From NSF, Patricia will be entering environmental consulting as an Environmental Scientist for the Eastern Research Group.

Krista Henrie: Krista joined the Physical Oceanography program in July as a Science Assistant. Krista recently graduated from the University of Florida with her M.S. in Coastal and Oceanographic Engineering. She also received her B.S. from UF in Civil Engineering.

Rick Carlson: Rick, who served as a Program Director in the Marine Geology and Geophysics program, has returned to his faculty position at Texas A & M University. Rick oversaw two major initiatives within OCE: implementation of the new Ocean Bottom Seismometer Management Office at IRIS, and the Cascadia Initiative, an amphibious campaign initially supported with ARRA funds, and the first such study of the dangerous Cascadia subduction zone, a possible location for large magnitude earthquakes and tsunamis.

Donna Blackman: Donna began a rotation in OCE this July, serving as a Program Director in the Marine Geology and Geophysics program. She comes from Scripps Institution of Oceanography where she is a Research Geophysicist with emphasis on mantle flow, and the interplay between tectonics and magmatism along plate boundaries. In addition to handling core proposals in MGG, she will be involved with GeoPRISMS. She will serve as a primary contact for marine seismic endeavors that use the Ocean Bottom Seismic Instrument Pool and R/V Langseth.

Michael Sieracki: Mike, who was a Program Director in the Biological Oceanography program, is returning to Bigelow Laboratory for Ocean Sciences in East Boothbay Maine, as a Senior Research Scientist. He will be looking through the microscope again this summer at Bigelow, and then taking a Visiting Scholar position at the Institut Ciencias del Mar, in Barcelona, Spain for four months this fall to learn bioinformatics and protist phylogeny. He will be teaching "Oceans and Climate Change" for the Colby College JanPlan, and then continuing his research in microbial oceanography at Bigelow.

Staff Changes (continued)

Anton Post: Anton, from the Marine Biological Laboratory, Woods Hole, will join the Biological Oceanography program in mid-August. Anton's research area is microbial ecology and he brings expertise in this active and growing area of science to the program.

As announced in the spring newsletter, Deborah Bronk will join OCE on August 13, 2012 as Section Head for the Ocean Section. We thank first Eric Itsweire and then Larry Weber for their service as Acting Section Head during the period from Phil Taylor's departure until Deborah's arrival.

Sean Kennan: Sean, who was an Associate Program Director in the Physical Oceanography program for the past 2 ½ years, is taking a Program Director position at NSF with the EPSCoR Program starting September 10, 2012. A search for a new rotator with the Physical Oceanography program is underway.

Career Opportunities in OCE – Rotating Program Officers

In previous newsletters, we encouraged you to consider joining OCE for 2-3 years as a rotating program officer. The About NSF Rotator Positions website has been greatly expanded with an "NSF Rotator Microsite" that includes Video FAQs, rotator testimonials and recruitment materials. We encourage you to have a look and discuss opportunities with current OCE program officers.

Opportunities to Learn about NSF

If you would like to meet directly with NSF administrators and program officers, including representatives from OCE, plan to attend an NSF Grants Conference when it is held in your area. The next such conference will be October 22-23, 2012 in Arlington, VA, hosted by George Mason University. Registration is available on the conference website.

New Program: Coastal SEES

Coastal SEES is a new program within the NSF Science, Engineering and Education for Sustainability (SEES) portfolio (NSF 12-594). Coastal SEES is focused on the sustainability of coastal systems (the swath of land closely connected to the sea, including barrier islands, wetlands, mudflats, beaches, estuaries, cities, towns, recreational areas, and maritime facilities; the continental seas and shelves; and the overlying atmosphere). A major challenge is to understand the dynamics of this coupled human-natural system in order to inform societal decisions about the uses of coastal systems, including for economic, aesthetic, recreational, research, and conservation purposes. See the Coastal SEES program website for details. The proposal deadline is January 17, 2013. For OCE-related questions about the Coastal SEES program, please contact Lew Incze.

Opportunities for Enhancing Diversity in the Geosciences Program Update

Due to evolving priorities, initiatives and budgets, the Directorate for Geosciences (GEO) has suspended the Opportunities for Enhancing Diversity in the Geosciences (OEDG) competition. The OEDG solicitation (NSF 10-599), which included a call for proposals for FY2013, has been suspended, resulting in the call for OEDG Letters of Intent (originally due September 3, 2012) and for full proposals (originally due October 10, 2012) being cancelled.

GEO anticipates issuing a revised OEDG program solicitation by the sometime in FY2013. In the next few months, GEO will be inviting input from the community that will help shape the emphasis areas for this revised solicitation. It is anticipated a Dear Colleague Letter will be issued in September 2012 regarding this situation, which will include details on the rationale for this hiatus and information on the opportunity to provide input to our thinking about a future OEDG solicitation.

New Ocean Acidification Solicitation

A new Ocean Acidification Program solicitation has been released with a proposal deadline of December 4, 2012. The earliest start date for projects funded by this solicitation would be approximately August 2013. This is the third call for Ocean Acidification (OA) proposals as part of the NSF Science, Engineering, and Education for Sustainability (SEES) portfolio.

The new solicitation differs from the previous call (NSF 12-500) in that Exploratory (EAGER) and Research Coordinating Networks (RCNs) proposals are no longer accepted as part of the OA Program. EAGER proposals can be submitted through the appropriate Programs participating in the OA call, and RCN proposals can be submitted as SEES Track RCNs (with a submission deadline of February 4, 2013).

In FY 2012, NSF received OA proposals for 77 projects (118 proposals, some collaborative) with funding requests totaling ~$72M. With input from an April 2012 review panel, we have recommended 16 projects for awards with science support totaling ~$11M and ship support of ~$800K. We expect a NSF announcement after all awards are official, but for now you can access abstracts for processed awards using the search awards function on the NSF website.

In the first OA competition (2010-2011), NSF funded 21 projects for a total of ~$24M.

We anticipate another OA Program solicitation for FY 2014, subject to availability of funds and other considerations.

While there is an active cross-Foundation activity to fund OA research, proposals with this focus should be submitted in response to the OA solicitation, and not to the regular proposal deadlines of the disciplinary programs. Proposals submitted to the OA Program, and declined, must revise and resubmit to the next OA solicitation.

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This newsletter is designed to share timely information about the National Science Foundation's Division of Ocean Sciences. If you have comments or questions, please communicate with the relevant OCE program officer, or with Larry Weber (lweber@nsf.gov), who serves as newsletter editor. The newsletter will be distributed by email and posted on the OCE homepage. Please feel free to forward to colleagues.

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