

AUTUMN | 2012

MAKING WAVES

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OCE Division Director's Message

Welcome to the Autumn 2012 edition of the OCE newsletter "Making Waves."

In this issue you will find updates on NSF policies related to merit review, new program highlights, a listing of solicitations with upcoming proposal deadlines, examples of OCE-funded research in the news, and more. As always, please send suggestions for topics and ways to improve our newsletter to Editor [Larry Weber](#).

On the topic of "Making Waves", one of most thrilling events I have ever attended was the successful launch of the R/V Sikuliaq on October 13th in Marinette, WI. I urge you to check out the numerous [video clips of the splashdown on the web](#). The Sikuliaq is the first new research vessel built by NSF in over 30 years. Several hundred spectators were on hand including the ships "sponsors," Dr. Vera Alexander, dean emerita, and Dr. Robert Elsner, professor emeritus, respectively, of the University of Alaska School of Fisheries and Ocean Sciences. NSF Director Subra Suresh gave the keynote address. For more details, see the article below.

Speaking of ships, I want to draw your attention to an announcement in this newsletter about the best time to submit proposals involving use of UNOLS ships. **OCE is requesting that all proposals to OCE involving ship time be submitted for the August 15 target date rather than the February 15 target date.** This will not be a hard and fast rule. We will still accept proposals with ship time in the spring. However, by receiving the bulk of ship-based proposals in the fall at the beginning of our fiscal year (October 1), it will greatly help us in scheduling ships in a cost effective and predictive manner and also facilitate budget planning.

In the [June 2011 inaugural issue of the OCE newsletter](#), I mentioned the valuable service of the [Geosciences Advisory Committee](#) and its Ocean Sciences Subcommittee, and noted their charge to provide advice, be a base of contact with the community, serve as a forum, provide broad input into long-range plans, and perform oversight of Geosciences programs. The Advisory Committee provides program oversight through what are called Committees of Visitors (COV), which assess programs, typically at the Division level, every three years. This year's Ocean Sciences COV evaluated the Biological Oceanography, Chemical Oceanography, Physical Oceanography, Marine Geology and Geophysics,



Integrated Ocean Drilling, and Ocean Education and Ocean Technology programs. The COV, with a total of 10 outstanding members, was chaired by Dr. Robert Duce of Texas A&M University. I strongly urge you to read the [COV's in-depth assessment](#) of OCE's proposal review process for fiscal years 2009-2011, during which 3843 actions were considered, resulting in 1141 awards. In the report are numerous graphs depicting trends in such things as proposal success rate, average award size, diversity of applicants, and many more. In addition to the formal report, the COV members have chosen to submit a shorter manuscript for publication in a highly visible journal that examines 13 "myths and mysteries" about the proposal review process in OCE. On behalf of NSF and the entire community, I want to express sincere gratitude to Bob and all COV members for their outstanding service.

Comments on the concept of a Decadal Survey for the Ocean Sciences are still coming in (see the [Summer 2012 newsletter](#)). While feedback has been generally positive, some have raised concerns about the scope being too broad with suggestions about how to limit it. If you wish to provide input, I urge you to send comments to me soon at dconover@nsf.gov.

Finally, we are delighted to welcome Dr. Roger M. Wakimoto as the [new NSF Assistant Director for Geosciences](#). Dr. Wakimoto, currently Director of the National Center for Atmospheric Research, will begin his NSF appointment in February 2013. We express sincere appreciation to Dr. Marge Cavanaugh for her service as Acting Assistant Director.

Regards,

David O. Conover, Director

Division of Ocean Sciences





Proposals That Include Ship Time

In the [Summer 2012 OCE newsletter](#), we provided information on “Field Work: Proposals, Budgets, Ships, and Facilities.” Based on further discussion within NSF and with the community, OCE wants to strongly encourage PIs submitting proposals to OCE that request ship time and/or significant shipboard technical support to submit to the August 15th target date for cruises that would be scheduled in the next available planning year (at least 16 months later). This will provide a better timeframe for coordination between ship operations and the science programs on proposals selected for research funding, and result in a more effective ship scheduling process within available budgets. This request does not represent a shift toward reduction in support for ship time, nor does it reflect an attempt to reduce the number of ship-based proposals we receive. It merely reflects the need to better manage operational expenses for infrastructure with greater foresight and long range planning.

If you have questions about how your proposal/project might be impacted, please contact either [Jim Holik](#) (for technician support) or [Rose Dufour](#) (for ship support). For proposals submitted to other NSF competitions that request ship time via the UNOLS request system, please consult the specific language in those solicitations and announcements. If in doubt, consult with the cognizant program officers listed therein.



NSF Realignments

In September, the NSF Director announced that, pending fulfillment of statutory and other obligations, a transition would begin October 1, 2012 to realign the four program offices in the Office of the Director, as follows:

- The Office of Polar Programs will become a division within the Directorate for Geosciences
- The Office of Cyberinfrastructure will become a division within the Directorate for Computer and Information Science and Engineering
- The Office of International Science and Engineering will be merged with the Office of Integrative Activities, and the combined unit will become the Office of International and Integrative Activities.



Revisions to the NSF Merit Review Criteria

An [October 4, 2012 Dear Colleague Letter](#) listed significant changes in the new [NSF Proposal & Award Policies and Procedures Guide \(PAPPG\) \(NSF-13-1\)](#). The new guidelines will be effective for all proposals submitted or due on or after January 14, 2013. Here we highlight changes related to NSF merit review criteria.

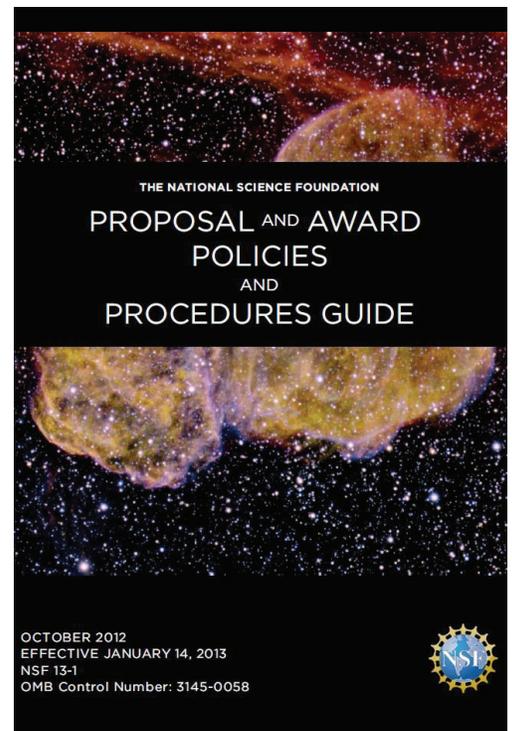
The National Science Board issued a report in December 2011 titled, "[National Science Foundation's Merit Review Criteria: Review and Revisions](#)." While recommending that the two merit review criteria (intellectual merit and broader impacts) remain unchanged, the National Science Board provided guidance to clarify and improve the function of the criteria. The changes in PAPPG related to merit review criteria reflect NSF's implementation of those recommendations.

The new PAPPG section on [NSF Proposal Processing and Review](#) includes a discussion of Merit Review Principles and Merit Review Criteria. The two criteria to be used for all proposals are described as:

- Intellectual Merit: The Intellectual Merit criterion encompasses the potential to advance knowledge; and
- Broader Impacts: The Broader Impacts criterion encompasses the potential to benefit society and contribute to the achievement of specific, desired societal outcomes.

The guidelines call for 5 elements to be considered in the review for **both criteria:**

- 1 What is the potential for the proposed activity?
 - a. Advance knowledge and understanding within its own field or across different fields (Intellectual Merit); and
 - b. Benefit society or advance desired societal outcomes (Broader Impacts)?
- 2 To what extent do the proposed activities suggest and explore creative, original, or potentially transformative concepts?
- 3 Is the plan for carrying out the proposed activities well-reasoned, well-organized, and based on a sound rationale? Does the plan incorporate a mechanism to assess success?
- 4 How well qualified is the individual, team, or organization to conduct the proposed activities?
- 5 Are there adequate resources available to the PI (either at the home organization or through collaborations) to carry out the proposed activities?



When preparing proposals, PIs should review the [Project Summary and Project Description](#) sections of the new PAPPG. The one-page Project Summary must include an overview, a statement on the intellectual merit of the proposed activity, and a statement on the broader impacts of the proposed activity. A new requirement is that the Project Description must contain, as a separate section within the narrative, a discussion of the broader impacts of the proposed activities. Likewise, if reporting on [Results from Prior NSF Support](#), the summary must describe, in two separate sections, accomplishments related to the intellectual merit and broader impact activities supported by the award.



Facilities, Equipment and Other Resources Section of Proposals

The new NSF Proposal & Award Policies and Procedures Guide (PAPPG) (NSF-13-1), which will be effective for all proposals submitted or due on or after January 14, 2013, includes modifications to the Facilities, Equipment and Other Resources section.

The guidance begins by stating, "This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both Intellectual Merit and Broader Impacts review criteria." To comply with **NSF cost sharing policy**, proposers are then instructed to provide an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded. The

description should be narrative in nature and must not include any quantifiable financial information. Listed resources should include **senior project personnel** for which no person months and no salary are requested in the Budget.

As described in the PAPPG section on **Budget/Salaries and Wages/Procedures**:

"For consistency with the NSF cost sharing policy, if person months will be requested for senior personnel, a corresponding salary amount must be entered on the budget. If no person months and no salary are being requested for senior personnel, they should be removed from section A of the budget. Their name(s) will remain on the Cover Sheet and the individual(s) role on the project should be described in the Facilities, Equipment and other Resources section of the proposal."

R/V SIKULIAQ

The R/V SIKULIAQ was successfully launched on October 13th at Marinette Marine Corporation in Marinette, Wisconsin. More information about the launch and the vessel itself can be found at the **University of Alaska Fairbanks website** and in the **NSF press release**.

Delivery to the University of Alaska Fairbanks is scheduled for July 2013. Science trials will take place from October through December 2013 as part of the transit to the vessel's home port in Seward, Alaska. Numerous port stops are planned during this transit to mobilize the trials parties along the east and west coasts including Woods Hole Oceanographic Institution and Oregon State University. As the science trials plan begins to take shape, it will be posted on the **UNOLS website** as SIKULIAQ's 2013 schedule.

Science operations will begin in early 2014 when the SIKULIAQ officially transitions to the OCE Ship Operations Program. The vessel is already included in the UNOLS Ship Time Request System. Ocean Sciences and Polar Programs would like to remind the science community that both organizations, as well as other federal agencies, have been entertaining science proposals that require



Credit: Val Ihde Photography

the SIKULIAQ for the past year. The CY 2014 ship scheduling process will begin in early 2013 and there is only one remaining OCE panel that will consider ship time in CY 2014 (February 2013 submittals). For other agencies and NSF divisions, contact your appropriate program officer for proposal submittal requirements. Regardless of the funding source, a UNOLS Ship Time Request should be submitted for each proposal.

Please contact either **Capt. Dan Oliver** or **Dr. Terry Whitledge** concerning science trials and 2014 cruise planning.



Cascadia Initiative Progress Report- Offshore Component

The Cascadia Initiative (CI) is a community experiment with an onshore/offshore network of seismic and geodetic stations from Cape Mendocino in California to Cape Flattery in Washington. The network, which will run for several years, is targeted at understanding the structure and processes of this subduction margin, which has a history of large earthquakes every 300-500 years. The instrumentation and data acquisition are jointly supported by the Division of Earth Sciences and Marine Geology and Geophysics (MGG) in OCE. Data are made freely available to the community as quickly as possible.

The first year of the MGG component of the CI was completed this summer. All 62 Ocean Bottom Seismometers (OBS) that were deployed in 2011 were successfully recovered and 97% of these instruments recorded data. Considering all channels, including pressure and three-component seismic, the data return rate was ~85%. For further information, see the [Cascadia](#)

[Initiative Expedition Team website](#). Waveform data, in submitted form, can be obtained from the [IRIS Data Management Center \(DMC\)](#). Instrument orientation determinations are underway at DMC, and waveform metadata will be updated as results are obtained. A report summarizing Cascadia Year 1 OBS orientation uncertainties and general data quality will be produced and, together with the algorithms used, made available via the DMC as early in 2013 as possible. OBS deployments for Year 2 have successfully been completed with 98% of the instruments functioning as expected upon departure from the field area. A related 2012 project with open access data provides improved imaging off the coast of Washington state, with ~1100 km of multi-channel seismic data targeting that portion of the plate boundary.

Ocean Observatories Initiative Update

The Ocean Observatories Initiative (OOI) has achieved many milestones this quarter. The [Ocean Observatories website](#) provides updates and photos of progress, and an [installation schedule webpage](#) provides a one-page depiction of all deployments. Starting in the summer of 2013, pre-commissioned data sets from the deployments will be available on the website. Approval to commence Transition to Operations activities for OOI will occur in 2013 after receipt and successful review of an Operations Proposal that presents an efficient and effective management plan with high fidelity operating cost estimates. We look forward to community engagement in the review process.

Looking ahead, NSF is encouraging interested individuals and groups to propose and participate in science workshops centered around different components of OOI (see the [Pioneer Array workshop](#) report as an example). Individuals/groups interested in submitting research



proposals to NSF should contact their programs officer(s) for information about the timing and process. In 2014, NSF expects the project to achieve certain milestones that will allow NSF to communicate a process to the community for proposals that add instruments or infrastructure to the current OOI configuration. These milestones include: 1) The OOI data from a commissioned Release 3 must be complete and available to the public; 2) The specific array must be commissioned; and 3) The project has an efficient and effective observatory management plan.



IODP News

In September, NSF issued solicitations for **Operations and Management of the Drilling Vessel JOIDES Resolution for the International Ocean Discovery Program (IODP)** and **Science Support Office for the International Ocean Discovery Program (IODP)**. NSF is pleased to report that multiple Letters of Intent were submitted by the October 30 deadline for both solicitations. Following the required Letters of Intent, the deadline for full proposals is January 22, 2013. A single panel will be convened in late February, 2013 to examine both sets of responses and to make recommendations for selection to NSF.

The JOIDES Resolution is currently utilized by the IODP approximately 8 months per year. During times when the vessel is not required by IODP, NSF has made it possible for the U.S. Implementing Organization (USIO), working with owner Siem Offshore Inc., to seek alternative work for the vessel. If alternative work is found, financial responsibility for the vessel during that time period is removed

from the NSF contract. NSF does not participate in this activity, nor is the USIO reimbursed by NSF for seeking or participating in this activity.

The JOIDES Resolution recently conducted two months of such “off-contract” work for an industry consortium led by Royal Dutch Shell offshore northwest of Greenland. During this work, the USIO staffed both a science and a technical party, resulting in the creation of a proprietary science volume for the consortium and representing a unique collaboration between industry and academia. Importantly, NSF saved over \$5 million in day rate obligation, with the work also resulting in numerous Health, Safety, and Environment improvements through vessel modification, equipment and facility addition, changes in laboratory practices, and enhanced vessel

operation reporting. These savings will result in NSF being able to support more JOIDES Resolution operations in FY13 and FY14 than would otherwise be possible.

Call for Nominations for JOIDES Resolution Facility Board:

In the Summer 2012 issue of the **OCE newsletter**, we described the framework for the new International Ocean Discovery Program (IODP). In the new IODP, three newly established Facility Boards will be responsible for the effective delivery of each facility’s contribution to the program, in line with the goals established in the 2013-2023 IODP Science Plan. The JOIDES Resolution Facility Board will oversee the operations of the JOIDES Resolution, including scheduling expeditions, approving program plans, monitoring the advisory panels to ensure efficient and effective review of drilling proposals and developing and monitoring policies for data collection, publications and core curation. Five leading members of the international



Credit: IODP

scientific community will form the core of the JOIDES Resolution Facility Board, with an accomplished U.S. scientist serving as chair. U.S. and international scientists are encouraged to apply for membership on the JOIDES Resolution Facility Board, which will have its first meeting on March 18-20, 2013 in Washington, DC. U.S. scientists are eligible to be considered for the Chair position. Please visit the **U.S. Science Support Program webpage** for more information about the application process and the new program structure. The deadline to apply is January 4, 2013.



New Program: Coastal SEES

The last OCE Newsletter reported briefly on the release of the Coastal SEES solicitation with a January 17, 2013 proposal deadline. With approximately \$15m for new projects, this is a significant new opportunity for ocean scientists from a wide variety of backgrounds. A goal and challenge presented by this new program is the interconnection of areas of scholarship about natural and human processes in ways that will better inform societal decisions about the use of coastal systems. It is noteworthy that the Directorate for Geosciences, Directorate for Biological Sciences, Directorate for Social, Behavioral & Economic Sciences, Directorate for Engineering, and Polar Programs are jointly supporting Coastal SEES. Review and funding of the multi-disciplinary proposals will be coordinated by a cross-NSF management team.

While proposals are by now probably well underway, we wish to highlight a few points:

- FAQs are posted on the [Coastal SEES website](#), and we recommend a quick look at them.
- NSF has new requirements for describing and evaluating Broader Impacts that apply to ALL proposals with due dates of January 14, 2013, or later. This includes this solicitation. See the separate write-up in this newsletter, and the updated notices on the NSF and the Coastal SEES web sites.
- The coastal zone is diverse, and we want to reiterate that the program is interested in proposals dealing

with all facets of coastal systems, including land that is closely connected to the sea, with its wetlands, beaches, cities, towns, recreational areas, and maritime facilities; estuaries; the Great Lakes, the continental seas and shelves; and the overlying atmosphere.



Credit: Hollie Putnam

- Because sustainability involves reciprocal interactions between humans and the broader biological and geophysical world, proposals to Coastal SEES must include meaningful and well-integrated contributions from multiple disciplines. How this is done, for example, the particular aspect(s) or breadth of the processes and interactions being investigated, and the disciplinary composition of the investigative team, is left to the PIs. A reasonable way to think of an integrated research team is one in which the results of each individual or group are utilized by other members of the research team, and researchers from each disciplinary area contribute directly to the final product of the research. PIs are reminded that the Merit-Review Panel will be made up of individuals from many disciplines and will be specifically looking for integration of elements within each project.

For OCE-related questions about the Coastal SEES program, please contact [Lew Incze](#).



New Program: Hazards SEES

Interdisciplinary Research in Hazards and Disasters (Hazards SEES) is a new program within the [NSF Science, Engineering and Education for Sustainability \(SEES\) portfolio](#). Hazards SEES aims to catalyze well-integrated interdisciplinary research efforts in hazards-related science and engineering in order to improve the understanding of natural hazards and technological hazards linked to natural phenomena, mitigate their effects, and to better prepare for, respond to, and recover from disasters. Hazards SEES seeks research projects that will productively cross the boundaries of ocean, earth, and atmospheric and geospace sciences; computer and

information science; cyberinfrastructure; engineering; mathematics and statistics; and social, economic, and behavioral sciences and advance new paradigms that contribute to creating a society resilient to hazards.



Credit: Advanced Visualization Laboratory, National Center for Supercomputing Applications

See the [Hazards SEES program website](#) for details. The proposal deadline is February 4, 2013.

For OCE-related questions about the Hazards SEES program, please contact [Thomas Janecek](#).



OCE-PRF and OCE-RIG Updates

The Next target date for proposals to the OCE-PRF and OCE-RIG programs is January 14, 2013.

The [Ocean Sciences Postdoctoral Research Fellowships: Broadening Participation \(OCE-PRF\)](#) program is intended to support the research of the individual fellows and increase the diversity of the U.S. ocean sciences research community. Substantive changes from last year's pilot program include:

- Deleted the "within the last 36 months" requirement for receipt of PhD.
- Changed the requirement of "Have no more than 24 months of full-time-equivalent postdoctoral research experience" to "Not have worked for more than a total of 24 full-time-equivalent months in positions that require the doctoral degree. If more than 24 months have elapsed between conferral of the doctoral degree and the OCE-PRF proposal target date, the candidate must include specific language in their Biographical Sketch affirming that they meet this eligibility requirement."
- Added language about international opportunities.

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 under-represented groups in ocean sciences. Substantive changes from last year's pilot program include:

- Changed time in tenure track appointment requirement from "no more than 36 months" to "no more than 3 full-time-equivalent years."
- Changed limit on prior awards from "Have not been a PI or co-PI on a new federal research grant since starting the tenure track position" to "Have not received salary support as a PI or co-PI on a new federal research grant since starting the tenure track position."

OCE looks forward to receiving proposals that creatively address the dual goals of these programs.

NSF-U.S. Agency for International Development Partnership

As reported in the [October 2011 OCE newsletter](#), the Partnerships for Enhanced Engagement in Research (PEER) program is a competitive grants program that invites scientists in developing countries to apply for funds to support research and capacity building activities on topics of importance to USAID and conducted in partnership with NSF-funded PIs. The PEER program is funded by USAID and managed by the U.S. National Academies. PEER proposals are not accepted from U.S. researchers. Developing country PIs who apply to PEER should either be actively engaged in or plan to be engaged in a collaborative research project with an NSF-funded U.S. researcher who is a PI on an NSF award that will be active over the requested duration of the PEER project. PEER funds may not be used to cover

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the U.S. partner's salary, travel, or other expenses. In consenting to serve as partners on PEER proposals, U.S. PIs must understand that they cannot receive PEER funds and that, while they may seek [supplemental funds from NSF](#) if necessary, such supplemental support cannot be guaranteed.

Please see the [National Academies' PEER website](#) for program details, including descriptions of the [42 projects funded in the first cycle](#). The next proposal deadline is December 4, 2013.



Upcoming Solicitation Dates

Most OCE programs continue to have 2 target dates per year for unsolicited proposals: February 15 and August 15. The [Oceanographic Technology and Interdisciplinary Coordination \(OTIC\) Program](#) has a single annual target date of February 15. For other programs under the [Oceanographic Centers, Facilities and Equipment](#) umbrella please go to the website.

We'd like to highlight the following NSF program solicitations, with their next proposal due dates:

[Ocean Acidification](#) (NSF 12-600) December 4, 2012

[Cyber-Enabled Sustainability Science and Engineering \(CyberSEES\)](#) (NSF 13-500) December 4, 2012 for Letters of Intent

[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

[Innovation Corps Teams Program](#) (I-Corps Teams) (NSF 12-602) December 17, 2012 and March 15, 2013

[Innovation Corps Sites Program](#) (I-Corps Sites) (NSF 12-604) January 7 and July 1, 2013

[Long Term Research in Environmental Biology](#) (NSF 12-501) January 10, 2013

[Ocean Sciences Postdoctoral Research Fellowships](#) (OCE-PRF) (NSF 13-504) January 14, 2013

[Ocean Sciences Research Initiation Grants](#) (OCE-RIG) (NSF 13-505) January 14, 2013

[Advancing Informal STEM Learning](#) (NSF 12-560) January 14, 2013

[Transforming Undergraduate Education in Science, Technology, Engineering and Mathematics](#) (NSF 10-544) January 14, 2013

[Coastal SEES](#) (NSF 12-594) January 17, 2013

[Major Research Instrumentation Program](#) (NSF 13-517) February 21, 2013

[Interdisciplinary Research in Hazards and Disasters](#) (Hazards SEES) (NSF 12-610) February 4, 2013

[Research Coordination Networks – SEES Track](#) (NSF 11-531) February 4, 2013

[Critical Zone Observatories](#) (NSF 12-575) February 5, 2013

[Integrated NSF Support Promoting Interdisciplinary Research and Education \(INSPIRE\)](#) (NSF 13-518) February 20, 2013 for Track 2 Letters of Intent, and March 29, 2013 for Track 1 Letters of Intent

[Research Experiences for Undergraduates \(REU\) Sites](#) (NSF 12-569) May 24, 2013
(The May 24 deadline is for REU Site proposals requiring access to Antarctica. All other proposals must be submitted to the August 28, 2013 deadline.)



OCE Research in the News

Cheryl Dybas
NSF Science Information
Officer for Geosciences and
Environmental Research



Credit: Daniel Vaultot

This quarter's news of interest to the ocean sciences community includes the following. Keep 'em coming!

- 1) [Where North Meets South in the Sea](#)
- 2) [Why are Coastal Salt Marshes Falling Apart?](#)
- 3) [Tropical Reefs Surviving Environmental Stresses: Corals' Choice of Symbiotic Algae May Hold the Key](#)
- 4) [All Washed Up and Somewhere to Go](#)
- 5) [Two NSF Sustainability Research Networks Are Each Awarded \\$12 Million](#)
- 6) [National Science Foundation Awards Grants for Research on Coupled Natural and Human Systems](#)
- 7) [Controlling the Spread of Diseases Among Humans, Other Animals and the Environment](#)
- 8) [Ocean Acidification: Finding New Answers Through National Science Foundation Research Grants](#)
- 9) [How Is Earth's Water System Linked With Land Use, Climate Change and Ecosystems?](#)
- 10) [Stemming the Tide of Biodiversity Loss on Earth](#)
- 11) [NSF Investments Develop a Workforce for Sustainability Research and Education](#)
- 12) [Unusual Symbiosis Discovered in Marine Microorganisms](#)
- 13) [Maintaining Earth's Sustainability: Scientists, Engineers, Educators Take Coordinated Approach](#)
- 14) [Brazil Joins International Marine Research Effort](#)
- 15) [Scientists Define New Limits of Microbial Life in Undersea Volcanoes](#)
- 16) [Ancient Alteration of Seawater Chemistry Linked With Past Climate Change](#)
- 17) [Scientists Discover New Trigger for Immense North Atlantic Plankton Bloom](#)
- 18) [Small Marine Organisms' Big Changes Could Affect World Climate](#)
- 19) [Stirred Not Mixed: How Seawater Turbulence Affects Marine Food Webs](#)
- 20) [Coral Reef 911: Corals Attacked by Seaweed Use Chemical Signals to Summon Help](#)

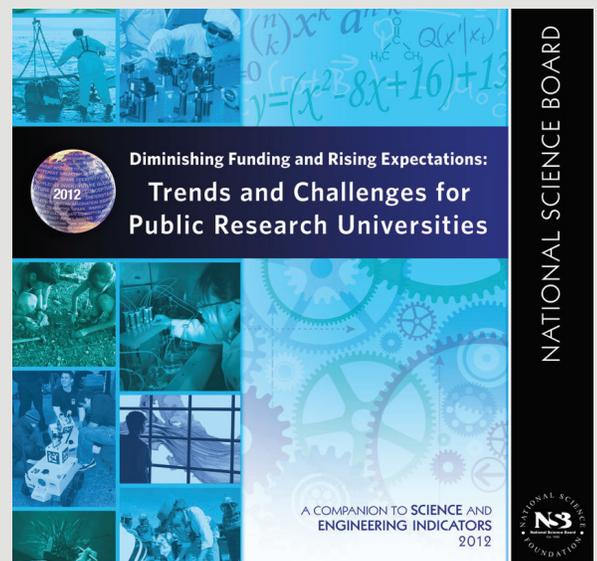


Graduate Research Fellowships Program – 60th Anniversary

NSF is celebrating the 60th anniversary of the Graduate Research Fellowship Program (GRFP), its flagship program since 1952 for graduate students in Science, Technology, Engineering and Mathematics (STEM). GRFP provides fellowships for early-career graduate students who pursue research-based master’s and doctoral degrees in NSF-supported disciplines, supporting the development of a diverse and globally engaged U.S. science and engineering workforce. To date, the program has offered and/or awarded fellowships to over 45,000 graduate students, including 40 Nobel Laureates, and countless educators, scientists and engineers nationwide. NSF is recognizing current and past Graduate Fellows in the celebration. In addition to an event planned for December 2012, a website will be launched (hosted at www.nsfgrfp.org) to feature program highlights, Fellow stories, and the winning videos submitted by current Fellows from the GRFP “Creating the Future” video contest.

National Science Board Report on Research Universities

On September 25, 2012, the National Science Board released a report titled, “Diminishing Funding and Rising Expectations: Trends and Challenges for Public Research Universities.” The report notes that declines in state funding threaten the ability of major public research universities to educate new scientists and engineers, recruit and retain the best faculty and students, and continue performing top-quality research. The report is summarized in a [press release](#) and is available on the [National Science Board website](#).



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This newsletter is designed to share timely information about the National Science Foundation’s Division of Ocean Services. 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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