Dear Colleagues,

On behalf of the Ocean Studies Board, I’d like to invite you to attend the next meeting of the board on October 20-22, 2015 at the National Academies’ Keck Center, 500 5th St. NW, Washington, DC. Please see the full announcement under the Contents section below.

Sue

Susan Roberts, Director, Ocean Studies Board

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Ocean Studies Board Fall Meeting

The next meeting of the Ocean Studies Board is October 20-22 in the Academies’ Keck Center, 500 5th St. NW, Washington DC. The Fisheries Subcommittee meeting will be held on October 20 from noon to 5:00 pm. The full OSB meeting will begin on October 21. The meeting will include sessions on Oil Spill Science; Transmission of Ocean Information and Cybersecurity; and Multi-Hazard Coastal Flood Mapping. The draft agenda is available at: [http://dels.nas.edu/osb](http://dels.nas.edu/osb).

Join OSB at AGU!

Join OSB at the fall AGU Meeting! In conjunction with the Space Studies Board and Polar Research Board, the OSB has organized a Union Session on Decadal surveys: The Concept and Conduct of Decadal Surveys and Strategies for Developing Research Priorities. The session is scheduled for Friday, 18 December 2015 at 10:20 - 12:20, Moscone South – 102.

OSB New Studies and Committees:

**Review of the Marine Recreational Information Program (MRIP).** This study is sponsored by NOAA Fisheries and will entail a review of the new survey program developed to estimate the recreational catch. A call for nominations has been issued. Contact Stacee Karras for additional information ([ckarras@nas.edu](mailto:ckarras@nas.edu)).

**Earth Science and Applications from Space (ESAS 2017).** The Space Studies Board has announced the start of the next decadal survey for the earth sciences. This study will be conducted in collaboration with several DELS units including the Ocean Studies Board, Board on Earth Sciences and Resources, Polar Research Board, Board on Atmospheric Sciences and Climate, and Water Sciences and Technology Board. Check out the ESAS 2017 web site ([www.nas.edu/esas2017](http://www.nas.edu/esas2017)) for more information about the study. The ESAS staff will create a special mailing list for people who wish to receive updates about the survey (signup link to be posted on the website soon). Also, a request for information (RFI) in the form of white papers has been posted. Check out the website for more information on the study and instructions on submitting white papers and nominations for the committee.

The new **Standing Committee for BOEM’s Environmental Studies Program** has been selected – see roster below. The first meeting of the standing committee has been scheduled for Dec. 8-9 in Washington, DC.

**STANDING COMMITTEE ON ENVIRONMENTAL SCIENCE AND ASSESSMENT FOR OCEAN ENERGY MANAGEMENT:**

- Dr. Gary B. Griggs—University of California, Santa Cruz
- Dr. Peter J. Auster—University of Connecticut, Storrs, CT
- Mr. Deerin Babb-Brott—SeaPlan, Boston, MA
- Dr. Keith R. Criddle—University of Alaska, Fairbanks, Juneau, AK
- Dr. Hajo Eicken—University of Alaska, Fairbanks, Juneau, AK
- Dr. Paul G. Falkowski—Rutgers University, New Brunswick, NJ
- Dr. Mary (Missy) H. Feeley—ExxonMobil (Retired), Houston, TX
- Dr. Mardi C. Hastings—Georgia Institute of Technology (Retired), Atlanta, GA
- Dr. Bonnie J. McCay—Rutgers University, New Brunswick, NJ
- Dr. Richard McLaughlin—Harte Research Institute, Corpus Christi, TX
- Dr. Jacqueline Michel—Research Planning, Inc., Columbia, SC
- Dr. Timothy J. Ragen—Marine Mammal Commission (Retired), Anacortes, WA
- Dr. Mary Ruckelshaus—Stanford University, Stanford, CA
- Dr. William C. Webster—University of California, Berkeley (Retired), Kensington, CA
OSB Staff News

Senior program officer Deb Glickson has accepted a new position as the Associate Director of the NOAA Cooperative Institute for Ocean Exploration, Research, and Technology, at Harbor Branch Oceanographic Institute-Florida Atlantic University. Although we will miss her, we wish Deb all the best in her new endeavors. During her 7 years of excellent work at OSB, Deb worked on 10 reports!

Heather Coleman has accepted a position as a postdoctoral researcher with the OSB. Heather was a National Academies’ Mirzayan Fellow, and we’re fortunate to have her continue on as a postdoc. She will be working with Claudia Mengelt on the consensus study, “Effective Approaches for Monitoring and Assessing Gulf of Mexico Restoration Activities,” sponsored by the Gulf Research Program. Heather is also working with the Board on Atmospheric Sciences and Climate and providing support for OSB activities.

Payton Kulina has been accepted into the graduate program at American University in sustainability management. Fortunately for OSB, Payton will be able to continue working as a senior program assistant while undertaking the coursework for a Master’s degree.

Latest Reports from OSB


Ocean science connects a global community of scientists in many disciplines - physics, chemistry, biology, geology and geophysics. New observational and computational technologies are transforming the ability of scientists to study the global ocean with a more integrated and dynamic approach. This enhanced understanding of the ocean is becoming ever more important in an economically and geopolitically connected world, and contributes vital information to policy and decision makers charged with addressing societal interests in the ocean.

Science provides the knowledge necessary to realize the benefits and manage the risks of the ocean. Comprehensive understanding of the global ocean is fundamental to forecasting and managing risks from severe storms, adapting to the impacts of climate change, and managing ocean resources. In the United States, the National Science Foundation (NSF) is the primary funder of the basic research which underlies advances in our understanding of the ocean. Sea Change addresses the strategic investments necessary at NSF to ensure a robust ocean scientific enterprise over the next decade. This survey provides guidance from the ocean sciences community on research and facilities priorities for the coming decade and makes recommendations for funding priorities.

Link to Study Website: http://nas-sites.org/dsos2015/
Link to Summary: http://dels.nas.edu/Materials/Special-Products/DSOS2015-Summary?bname=osb
Link to full report: http://www.nap.edu/openbook.php?record_id=21655
Recent Reports from OSB

Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration (2015)

The signals are everywhere that our planet is experiencing significant climate change. It is clear that we need to reduce the emissions of carbon dioxide and other greenhouse gases from our atmosphere if we want to avoid greatly increased risk of damage from climate change. Aggressively pursuing a program of emissions abatement or mitigation will show results over a timescale of many decades. How do we actively remove carbon dioxide from the atmosphere to make a bigger difference more quickly?

As one of a two-book report, this volume of *Climate Intervention* discusses CDR, the carbon dioxide removal of greenhouse gas emissions from the atmosphere and sequestration of it in perpetuity. *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration* introduces possible CDR approaches and then discusses them in depth. Land management practices, such as low-till agriculture, reforestation and afforestation, ocean iron fertilization, and land-and-ocean-based accelerated weathering, could amplify the rates of processes that are already occurring as part of the natural carbon cycle. Other CDR approaches, such as bioenergy with carbon capture and sequestration, direct air capture and sequestration, and traditional carbon capture and sequestration, seek to capture CO2 from the atmosphere and dispose of it by pumping it underground at high pressure. This book looks at the pros and cons of these options and estimates possible rates of removal and total amounts that might be removed via these methods.

With whatever portfolio of technologies the transition is achieved, eliminating the carbon dioxide emissions from the global energy and transportation systems will pose an enormous technical, economic, and social challenge that will likely take decades of concerted effort to achieve. *Climate Intervention: Carbon Dioxide Removal and Reliable Sequestration* will help to better understand the potential cost and performance of CDR strategies to inform debate and decision making as we work to stabilize and reduce atmospheric concentrations of carbon dioxide.


Climate Intervention: Reflecting Sunlight to Cool Earth (2015)

The growing problem of changing environmental conditions caused by climate destabilization is well recognized as one of the defining issues of our time. The root problem is greenhouse gas emissions, and the fundamental solution is curbing those emissions. Climate geoengineering has often been considered to be a "last-ditch" response to climate change, to be used only if climate change damage should produce extreme hardship. Although the likelihood of eventually needing to resort to these efforts grows with every year of inaction on emissions control, there is a lack of information on these ways of potentially intervening in
the climate system.

As one of a two-book report, this volume of *Climate Intervention* discusses albedo modification - changing the fraction of incoming solar radiation that reaches the surface. This approach would deliberately modify the energy budget of Earth to produce a cooling designed to compensate for some of the effects of warming associated with greenhouse gas increases. The prospect of large-scale albedo modification raises political and governance issues at national and global levels, as well as ethical concerns. *Climate Intervention: Reflecting Sunlight to Cool Earth* discusses some of the social, political, and legal issues surrounding these proposed techniques.

It is far easier to modify Earth's albedo than to determine whether it should be done or what the consequences might be of such an action. One serious concern is that such an action could be unilaterally undertaken by a small nation or smaller entity for its own benefit without international sanction and regardless of international consequences. Transparency in discussing this subject is critical. In the spirit of that transparency, *Climate Intervention: Reflecting Sunlight to Cool Earth* was based on peer-reviewed literature and the judgments of the authoring committee; no new research was done as part of this study and all data and information used are from entirely open sources. By helping to bring light to this topic area, this book will help leaders to be far more knowledgeable about the consequences of albedo modification approaches before they face a decision whether or not to use them.


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**Ongoing Studies and Committees at OSB**

**Review of the Marine Recreational Information Program (MRIP)** (Study is just getting under way – check our OSB website soon for updates!)

**Standing Committee on Environmental Science and Assessment for Ocean Energy Management (BOEM)** [http://dels.nas.edu/global/osb/BOEM-Standing-Committee](http://dels.nas.edu/global/osb/BOEM-Standing-Committee)

**Earth Science and Applications from Space** (ESAS 2017; Space Studies Board)

**Assessment of the Cumulative Effects of Anthropogenic Stressors on Marine Mammals**


**Developing a U.S. Research Agenda to Advance Sub-seasonal to Seasonal Forecasting** (with BASC)
[http://dels-old.nas.edu/Study-In-Progress/Developing-Research-Agenda/DELS-BASCPR-13-05](http://dels-old.nas.edu/Study-In-Progress/Developing-Research-Agenda/DELS-BASCPR-13-05)

**Frontiers in Decadal Climate Variability: A Workshop** (with BASC)
[http://dels.nas.edu/Study-In-Progress/Frontiers-Decadal-Climate-Variability/AUTO-4-44-11-C?bname=basc](http://dels.nas.edu/Study-In-Progress/Frontiers-Decadal-Climate-Variability/AUTO-4-44-11-C?bname=basc)
Recent Reports of Interest from other NRC Boards


http://www.nap.edu/openbook.php?record_id=21709

Robust Methods for the Analysis of Images and Videos for Fisheries Stock Assessment: Summary of a Workshop (2014)

http://www.nap.edu/openbook.php?record_id=18809

Ongoing Studies and Committees of Interest from other NRC Boards

Standing Committee on Earth Science and Applications from Space (CESAS)
http://sites.nationalacademies.org/SSB/SSB_066587

Advice to the US Global Change Research Program
http://dels.nas.edu/Study-In-Progress/Advice-Global-Change/DELS-BASC-11-01?bname=basc

The Future of Atmospheric Chemistry
http://nas-sites.org/atmchem/

Improving the Understanding of Clouds and Aerosols in Climate Models
http://dels.nas.edu/Study-In-Progress/Improving-Understanding-Clouds/DELS-BASC-11-05?bname=basc

Arctic Matters: Understanding How the Arctic is Changing and What it Means for People and Places Around the Globe: A Symposium
http://dels.nas.edu/Study-In-Progress/Arctic-Matters-Understanding-Arctic/AUTO-2-08-57-G

Visit the OSB Website at http://dels.nas.edu/osb