Outer Continental Shelf Scientific Committee
Meeting Agenda

May 14-16, 2013

This meeting of the Bureau of Ocean Energy Management's Outer Continental Shelf's Scientific Committee was held in accordance with the published Federal Register notice and followed the attached agenda (Appendix I). Held in New Orleans, Louisiana, this meeting was attended by the members and visitors shown in Appendix II. An outline created from the verbatim transcripts and references page numbers of the transcripts, which may be reviewed, is provided in Appendix III.

All external requests for the meeting transcripts should be submitted to the CDER, Freedom of Information office.

These proceedings for May 14-16, 2013, Meeting of the OCS Scientific Committee were approved on August 14, 2013.

I certify that I attended the March 2013 meeting of the OCS Scientific and that these proceedings accurately reflect what transpired.

/s/ Aug 13, 2013

Lorrie D. Rea
Chair, OCS Scientific Committee

Date

/s/ Aug 14, 2013

Robert P. LaBelle
Designated Federal Officer

Date

OCS Scientific Committee Meeting
May 14-16, 2013
New Orleans, Louisiana

Official Proceedings

Tuesday

- Agenda
- Presentations
  - Welcome to the Gulf of Mexico OCS Region – Mr. John Rodi
  - Chief Environmental Officer's Message – Mr. Robert LaBelle
  - Environmental Studies Program Updates – Dr. Rodney Cluck
  - Overview of Regional Environmental Programs including Regional components of the ESP – Dr. Ann Scarborough Bull, Dr. Dee Williams, Dr. Mary Boatman, Dr. Pat Roscigno
  - BOEM's Role in Implementing the National Ocean Plan – Mr. Robert LaBelle

Region	Proposed Interdisciplinary Studies	Presenter
National	Topical and Functional Expansion of EcoSpatial Information Database	Mike Rasser
	Evaluating the effectiveness of BOEM-imposed adaptive management of biological mitigation and monitoring requirements	Brad Blythe
	Environmental Effects and Cost Comparison of Single Beam, Swath, and Multi-beam Bathymetric Surveys Before and After Dredging Operations	Mike Miner
	Monitoring Dredging Intensity Using Variable Grid Analysis of Dredge Quality Management Data (staying in agenda)	
	Variability in Ecosystem Service, Resiliency, and Post-Dredging Recovery of Ridge-Swale Habitat and Biological Communities in the Mid- and South-Atlantic Bight	
	Developing BOEM's Access to Protected Species Occurrence Data for Impact Analyses and Rule-making	James Price
	Support for the Development of an Improved Biostatistical Method to Analyze and Interpret Observations from Marine Mammal Behavioral Response Studies	
Pacific	Potential Impacts of Submarine Power Cables on Crab Harvest	Ann Bull
	Archaeological and Biological Assessment of Submerged Landforms off the Pacific Coast	Donna Schroeder
	Understanding and Mitigating the Effects of Marine Renewable Energy Technologies on the Coastal and Marine Environment in the Pacific OCS Region	
Alaska	Ecological Processes in Lower Cook Inlet and Kachemak Bay: A Partnership in Monitoring	Kate Wedemeyer
	Integrated Seabed Surveys in the Arctic Ocean: Bathymetry, Archaeological Resources, and Ice Gouge Magnitude and Recurrence Rates	Dee Williams
Atlantic	Real-time Opportunity for Development Environmental Observations (RODEO)	Mary Boatman
	Evaluation of Beneficial Impacts from Offshore Renewable Energy Development	Brandi Carrier
Gulf of Mexico	Synthesizing and Quantifying Environmental Effects on the Gulf of Mexico	Erin O'Reilly

Wednesday

- Biological and Ecological Sciences Discipline Breakout Group Session

Region	Proposed Studies	Presenter
Alaska	Data Interface Tools to Support Environmental Analyses: Interpretation of Existing Marine Mammal Data	Kate Wedemeyer
	Genomics of Arctic Cod: A Sentinel Species in a Changing Environment	
	Benthic Invertebrate Habitats in Cook Inlet	
	Baleen Whale Distribution, Abundance, and Ecology in Cook Inlet and Shelikof Strait	
Pacific	Data Synthesis and High-resolution Predictive Modeling of Marine Bird Spatial Distributions on the Pacific OCS	David Pereksta
	Predicting and Detecting the Effects of Climate Change and Ocean Acidification Using Long-term Ecological Data	Donna Schroeder
	Collecting and Archiving Invertebrates from MARINe Sites for Deposition in the Smithsonian Institute with Local Replicate	Mary Elaine Helix
	Year-round and Diel Patterns in Habitat-use of Seabirds off Oregon	David Pereksta
	Strategic Resampling of Biodiversity Surveys at MARINe Sites: Completion of the Decadal Assessment	Mary Elaine Helix
Gulf of Mexico	Investigation of Pre-Riser Discharge from Wells within Proximity to Deep Water Benthic Communities for Plans with a "Zero Discharge" Mitigation	Michelle Nannen
	Coastal Land Loss and Oil & Gas Infrastructure	Megan Milliken
	Long-Term Monitoring at the East and West Flower Garden Banks: 2014-2017	Michelle Nannen
	Long-Term Ecosystem Monitoring of the Deep Gulf of Mexico, Phase 1: Deep Water Coral Sites Impacted by the 2010 Deep Water Horizon Oil Spill	Greg Boland
Atlantic	Atlantic Marine Assessment Program for Protected Species	Desray Reeb
	Trawl Surveys in the Mid-Atlantic	
	Determining Offshore Use by Marine Mammals and Ambient Noise Levels Using Passive Acoustic Monitoring	
	EMF (Electromagnetic Field) Impacts on Elasmobranch (sharks, rays and skates) and American Lobster Movement and Migration	
	Movement Ecology of Terns in New England	

- Physical Oceanography Sciences Discipline Breakout Group Session

Region	Proposed Studies	Presenter
Gulf of Mexico	Cumulative Impacts Modeling in the Gulf of Mexico Region	Holli Ensz
	Trends Analysis of OCS Emissions in the Gulf of Mexico	
	Assessment of Mud-Capped Dredge Pit Evolution on the OCS, Peveto and Sandy Point SE Borrow Areas	Mike Miner
Atlantic	Microclimate Formation within Wind Turbine Arrays and Its Effects on Local Weather and Climate	Callie Hall
	Use of Northeast Coastal Ocean Forecast System in Offshore Wind Energy Resource Planning	
Alaska	Physical and Chemical Analyses of Crude and Refined Oils: Laboratory and Mesoscale Oil Weathering	Heather Crowley
	Cook Inlet Circulation Model Calculations	
National	Environmentally Benign Oil Simulants to Mimic the Behavior of Oil Droplets in the Ocean	Walter Johnson

- Social Sciences Discipline Breakout Group Session

Region	Proposed Studies	Presenter
Atlantic	Wind Energy Development on the Atlantic OCS: The Identification of Port Modifications and their Environmental and Socioeconomic Consequences	Brandi Carrier
National	Human Dimensions National Portal Rebuild Using the Department of the Interior Science Base Platform	John Primo
Gulf of Mexico	Testing and Assessment of the Effects of an Oil Spill on Coastal Archaeological Sites	Megan Milliken
	Geo-Spatial Analysis of OCS Petroleum Effects on Gulf Coast Communities	Sindey Chaky

- **Thursday**
  - Agenda
  - Discipline Subcommittee Presentations
    - Biology and Ecology
    - Physical Sciences
    - Social Sciences
    - Interdisciplinary Studies
  - Open Discussion of Subcommittee Reports
  - Committee Business

- Acronyms

Transcripts are available upon request. Please go to Transcripts Outline and request which pages you would like to receive.

Supporting Materials

- Committee Members
- *Ex Officio* Members
- Committee Officials
- Regional Director
- Regional Studies Chiefs and Chief, Office of Renewable Energy Programs
- Regional Discipline Breakout Group Presenters
  - Alaska OCS Region
  - Office of Renewable Energy Programs
  - Gulf of Mexico OCS Region
  - Pacific OCS Region
  - Headquarters (National)
- Discipline Groups and Subcommittees
- Attendees
- Transcript Outline

OFFICIAL PROCEEDINGS

Tuesday, May 14, 2013

Introduction
The Outer Continental Shelf (OCS) Scientific Committee (SC) is chartered under the Federal Advisory Committee Act to advise the Bureau of Ocean Energy Management, Regulation and Enforcement, which is now the Bureau of Ocean Energy Management (BOEM), on the feasibility, appropriateness, and scientific value of BOEM's Environmental Studies Program (ESP). Its May 2013 meeting was called to order by Chair Dr. Lorrie Rea and Dr. Rodney Cluck, Chief of Environmental Division and Executive Secretary of the Committee.

After introductions, Dr. Rea gave Ms. Jennifer Ewald the floor to introduce the speakers during this meeting.

Welcome from the Regional Director, Gulf of Mexico OCS Region

Presentation by Mr. John Rodi

Mr. Rodi shared a brief overview of some of the current Gulf of Mexico region's issues, particularly those which may relate to some of the discussions that will be taking place during this meeting as well as his role as a decision maker within the organization.

Mr. Rodi commented:

- that the full environmental impact of the Macondo tragedy and spill event is still being studied with discoveries of new scientific information;
- that the Gulf of Mexico contributes 24 percent of our Nation's domestic oil and eight percent of our Nation's domestic gas that will continue for several years to come;
- on how the extensive deep water oil activity and emerging shallow-water deep gas drilling is reshaping and reclassifying the ESP;
- on the coastal restoration needs which have never been greater in the Gulf of Mexico;
- on the handling of aging oil and gas infrastructure in the Gulf of Mexico associated with platform decommissioning and well abandonment which is also raising important questions from both a government policy perspective as well as an environmental perspective;
- that the Gulf of Mexico is not the hotbed for renewable energy yet, but clearly it's coming and other renewable energy projects are being considered for other parts of the Gulf;
- on the devastating impact of the sequestration on the Gulf of Mexico region in the sense that while no one has been furloughed, significant budget cuts elsewhere in the organization has had to be made; and on
- the aging oil and gas infrastructure in the Gulf of Mexico.

Chief Environmental Officer's Message

Presentation by Mr. Robert LaBelle

Mr. LaBelle welcomed the members to the 38th OCS SC meeting and, on behalf of Director Tommy Beaudreau, thanked the members for their expert scientific advice on the ESP. He addressed the Committee on issues and challenges BOEM is facing and presented recent accomplishments of BOEM.

He read an excerpt from Director Beaudreau's letter to the Committee in response to its good advice from last year.

"The Scientific Committee is a valuable resource in helping to ensure the integrity of the science and methodologies used to inform BOEM's decisions. Partnerships with the Nation's leading scientists, including members of this Committee, enable us to make offshore energy development decisions with a strong science-based understanding of the risks posed by those activities and the way those risks may be mitigated. The input we receive from the Committee is more important

to BOEM than ever as we face increased challenges to meet our mission goals as a result of the budget sequester over the remainder of this fiscal year. We appreciate your continued efforts and attention to this critical work."

He announced that the Department of Interior (DOI) has a new Secretary, Ms. Sally Jewell who, with her dedication, knowledge, and interest in science-based decisions will guide the Department. He also relayed that Dr. Alan Thornhill, the former Chief Environmental Officer has taken a position with U. S. Geological Survey (USGS) and that the Environmental Studies Branch has now become the Division of Environmental Sciences and is composed of the Physical and Chemical Sciences Branch and the Biological and Social Sciences Branch.

He explained that on March 1 of this year, the President issued a sequestration order in accordance with the Balanced Budget and Emergency Deficit Control Act which meant a budget cut of $85 billion across the federal government, including a five percent reduction in non-exempt, non-defense discretionary funding that applies to BOEM. This translates to a cut of $887 million across DOI and an $8 million cut to BOEM's budget which is equivalent to a nine percent reduction over the rest of fiscal year (FY) 2013. Since this sequestration does affect new studies being started in FY 2014, he requested the Committee's advice on how to proceed.

The 2014 President's budget request includes $169 million which is a proposed increase of about $8.7 million above BOEM's 2012-enacted level in order to support a number of high-priority initiatives including e-plans, which is a portal for electronic submission of company exploration and development plans, new geological and geophysical data buys for the Atlantic; an air quality regulatory program in Alaska, advancing offshore wind lease sales in the Atlantic, and BOEM's Marine Minerals Program in light of the increasing demand for sand for coastal restoration which has actually received $11.7 million additional funding from the Hurricane Sandy Relief funding.

Environmental Studies Program Updates

Presentation by Dr. Rodney Cluck

Dr. Cluck's presentation included the new organization structure which effectively puts science first and fosters collegiality across offices and regions; data management and how dissemination of that data is being improved, new research partnerships that are being explored, the development of evolving long-term ecosystem monitoring programs, and how BOEM is using science to mitigate conflict among stakeholder.

He explained that the mission of the ESP is to provide the information needed to identify, assess and minimize impacts from offshore energy and marine mineral exploration, development, and production activities on human, marine and coastal environments and that its goals are to:

- establish the information needed for assessment and management of environmental impacts;
- assess impacts on the marine biota; and
- monitor human, marine, and coastal environments.

He also announced that this is the ESP's 40th birthday and that an upcoming issue of BOEM's *Ocean Science Journal* will contain an article about BOEM's accomplishments over the 40 years.

Dr. Cluck explained that BOEM, at the suggestion of the OCS SC during the last meeting, has created subject matter expert (SME) teams across BOEM which, with input also from the Bureau of Safety and Environmental Enforcement (BSEE), reviews and advises on proposed study profiles. Previously, he said, a regional office would review a study profile and then submit it BOEM staff who would also review it and send comments back to the regional staff. This was more of a back and forth process and now these staff will be working together as a team to develop the best science possible with the revised profile. Another reason to change this process is that BOEM, which employs over 200 scientists will bring together these scientists in a way to utilize their expertise. These teams could be comprised of several scientists to review each of the study profiles.

Another step being taken is the attempt of formalizing BOEM's data policy and improving contracting language to standardize any kind of data that is provided within the contracts. This step will also help to fulfill any jurisdictional or compliance in regard to feeding in to National Environmental Policy Act (NEPA) or any other type of consultations information we may need.

Dr. Cluck gave an update of BOEM's geo-Environmental Studies Program Information System, which is a web-based visual display of completed and ongoing study efforts that will assist BOEM in:

- planning new research;
- promoting collaboration with other agencies on similar projects;
- evaluating exploration and development plans; and
- improving BOEM decision making to safeguard activities on the OCS.

He described the Multipurpose Marine Cadastre as an integrated marine information system that provides legal, physical, ecological and cultural information in a common geographic information system framework. All organizations considering an offshore activity can benefit from this comprehensive, visual approach to data analysis. This tool was created to comply with Section 388 of the Energy Policy Act (EPA) of 2005, but is also provides the geospatial framework needed for the broader coastal and marine spatial planning initiative called for in the President's ocean agenda.

Open Discussion

Dr. Mark Johnson asked Dr. Cluck to highlight the differences between the SME teams and the charge of this Committee. Dr. Cluck explained that the SME teams seem to be more effective by having only a couple of expert avian biologists review only avian biological study profiles instead of having 30+ biologists, for example, review all biological study profiles. Committee members would review these profiles to ensure duplicate efforts are not being made and also be attentive as to what other kind of issues may occur from a larger perspective.

Dr. Robert Diaz commented on Dr. Cluck's development of long-term ecosystem programs with other agencies and asked if BOEM would support just the existing programs. Dr. Cluck responded that hopefully BOEM is engaging enough and will be able to build upon the existing science. He said that, for example, funds from the Resources and Ecosystems Sustainability, Tourist Opportunities, and Revived Economies (RESTORE) of the Gulf Coast States Act of 2012 would not only enable partnerships, but the OCS SC could become engaged to assist BOEM on how to move forward. The purpose of the National Oceanic and Atmospheric Administration's (NOAA) RESTORE Act Science Program is to increase the understanding of the Gulf of Mexico ecosystem and support its long-term sustainability, including its fish stocks, habitats, wildlife, and fishing industries. As an example, he said that BOEM has done the majority of work in the Gulf of Mexico such as Lophelia corals data and the challenge is going to be combining the NOAA's and the National Academy of Sciences' (NAS) existing science with that of BOEM's. Dr. Roscigno further explained the roles of NOAA and NAS existing science with that of BOEM during his presentation. Dr. Dee Williams added that the Committee's role would remain the same, however, more complicated so that is also relevant to know that a profile may be linked in significant ways to a broader collaborative effort.

Dr. Diaz asked Dr. Cluck if there has been any mention of aquaculture on old platforms. Dr. Cluck responded that this topic has been discussed for many years and there are some proposals for aquaculture in the Gulf of Mexico although no detailed regulations have been developed. He feels that BOEM needs to be involved in coordinating this science into what BOEM has already developed.

Dr. Lisa Levin asked about sequester planning and whether or not different scenarios have been considered if the money was sequestered permanently as well as the money returning next year or the next. Mr. LaBelle responded that if there are few starts for fiscal year (FY) 2014 and BOEM is hit again with the sequestration in FY 2015, the Committee will be asked for advice on what can be done. He said that the regions relinquished some of the initiatives that had been hoped to start in FY 2014 and if the sequester remains more than the next year, it is sort of mimicking what BOEM has been used to in terms of the overall studies budget over the years. Dr. Cluck added it is critical that partnerships between federal agencies continue to strategically plan together as a federal government in looking at long-term goals which have been laid out within the National Ocean Policy (NOP).

Regional Updates

Pacific OCS Region

Presentation by Dr. Ann Scarborough Bull

Dr. Bull is the chief for the Environmental Sciences Section, which covers the studies in the Pacific region and includes the OCS off the states of Washington, Oregon, California and Hawaii. This region supports and monitors conventional energy and is preparing for wind and wave renewable energy.

She told the Committee that little has changed in the Pacific region since the last meeting held in May 2012. Conventional energy industry continues to expand its production from the existing oil and gas platforms, there are new pipelines, new power cables in the area and the region continues to be vibrant and robust off California.

However, renewable energy has progressed to the application of real projects for electrical conversion of both wave and wind energy off Oregon and Hawaii.

There are four preliminary renewable energy lease applications in the Pacific region:

- Pacific Marine Energy Center research lease off Newport, Oregon, to test wave energy conversion devices and small arrays
- Principle Power WindFloat project for a commercial lease for wind energy conversion off Coos Bay, Oregon; and
- two commercial leases for wind energy conversion off Oahu, Hawaii.

Dr. Bull gave a perspective on the Pacific region's studies from 1973 to 2014:

- 306 studies have been completed at nearly $141.5 million;
- there are FY 2012 ongoing studies at nearly $12.6 million;
- there are six new starts for FY 2013 at nearly $3.4 million with two new starts being deferred to FY 2014; and
- there are 10 studies proposed for FY 2014 at nearly $4.7 million.

Of these proposed studies, 22 percent is considered competitive, 39 percent is considered university partnerships, 17 percent is considered a partnership with NOAA, 19 percent is considered a partnership with USGS and three percent of these studies will be done in-house.

Dr. Bull explained that one of the interesting things about what BOEM has done for some renewable energy competitive studies is partnering not only with the Department of Energy (DOE) but using the National Oceanographic Partnership Program (NOPP) as the administrative tool which enables BOEM and DOE to pool funds together and award multiple competitive projects and awards for research and for information.

Approximately 39 percent of BOEM's studies are partnered with private universities and with state colleges and state universities. Almost all of the 39 percent of BOEM's studies are done through the Cooperative Ecosystems Studies Units which is an agreement with all the members, federal agencies, private colleges, and state universities and colleges to maintain the lowest overhead possible so more money can go toward that research effort and somewhat less in accounting for overhead. Seventeen percent are interagency agreements with NOAA, about 19 percent of intra-agency agreements are with USGS and there is one in-house study that accounts for about 3 percent, where only BOEM scientists, in the region, perform the work.

She said that in developing the Pacific OCS Region's study development plan, two major outreach efforts with BOEM's stakeholders have been accomplished. For both conventional and renewable energy, over 30 letters were sent to stakeholders which described the history of the ESP, gave guidance on how the Pacific OCS Region wants to move forward, and asked what information they believe is needed to proceed with decisions. Quite a number of responses were received and some of the ideas imposed are in the study development plan for FY 2014.

The other major effort completed was an Oregon Marine Renewable Energy Science Conference which was held the last week of November in 2012 at Oregon State University (OSU), Corvallis. The principal goals of the conference were 1) to showcase primary research that has taken place or is currently underway; 2) to synthesize new research and existing information into products that agencies and resource managers can use for decision making; and 3) to identify gaps in understanding technologies or potentially affected systems to determine where to focus future research efforts.

Dr. Bull revealed that both of these efforts have confirmed that the Pacific OCS Region is right on track for supporting conventional energy and for moving forward with renewable energy.

For conventional energy, there are oil and gas platforms and production of oil and gas from as far north as Point Conception in San Luis Obispo County and down south to Orange County, which is actually south of Los Angeles, in Long Beach.

There are 43 producing federal leases and 23 platforms in federal waters. There hasn't been an oil and gas lease sale since 1984 in the Pacific region.

For conventional energy questions to consider for study funding include:

- How do we update the Pacific oceanographic oil spill modeling capability for the OCS platforms?
- Should we resample biodiversity surveys at Multi-Agency Rocky Intertidal Network (MARINe) sites to complete the decadal assessment?

She continued that for renewable energy as far as wave energy conversion in concerned there is activity in both Hawaii and Oregon. Hawaii has a small wave energy conversion device being tested in Kaneohe Bay, which stretches from the Mokapu Peninsula, where the U.S. Marine Corps is based. Hawaii does not appear interested with continuing this testing at this time.

Oregon, however, she said, is extremely interested and wants to be a major environmental center for wave energy testing with an associated engineering center. They have onshore engineering and small scale testing and OSU has applied for a research lease on the OCS to form an offshore testing center.

For renewable energy questions to consider for study funding include:

- What are the year-round and Diel patterns in habitat-use of seabirds off Oregon?
- Will fishery-targeted crab species cross energized power cables to be harvested?
- What short, directed studies can help us understand and develop mitigations for the impacts of offshore renewable energy?
- Can we synthesize existing data and predictively model marine bird spatial distributions for the entire Pacific OCS?
- What paleo-landforms exist off the Pacific west coast and what is their essential fish habitat value?
- When should the Pacific Region host an Information Transfer Meeting (ITM)?
- Will the DOI southern California long-term dataset allow for the prediction and detection of ocean acidification and climate change?
- How should we collect and archive invertebrates from MARINe sites for deposition in the Smithsonian Institution?

Dr. Bull presented the list of ten studies being considered for FY 2014:

- Expansion of West Coast Oceanographic Modeling Capability
- Potential Impacts of Submarine Power Cables on Crab Harvest
- Data Synthesis and High-resolution Predictive Modeling of Marine Bird Spatial Distributions on the Pacific OCS
- Archaeological and Biological Assessment of Submerged Landforms off the Pacific Coast
- West Coast ITM
- Predicting and Detecting the Effects of Climate Change and Ocean Acidification Using Long-term Ecological Data
- Understanding and Mitigating the Effects of Marine Renewable Energy Technologies on the Coastal and Marine Environment in the Pacific OCS Region
- Collecting and Archiving Invertebrates from MARINe Sites for Deposition in the Smithsonian Institution with Local Replicate
- Year-round and Diel Patterns in Habitat-use of Seabirds off Oregon
- Strategic Resampling of Biodiversity Surveys at MARINe Sites: Completion of the Decadal Assessment

Open Discussion

Dr. Willett Kempton stated that he was glad to see the mention of ocean acidification as one proposed study and asked if there are any sort of preliminary ideas about how this would be incorporated into environmental impact statements (EIS) and how these potential studies would be done. Dr. Bull explained that for both of these programs the existing environment

changes as does the baseline from which an attempt to gauge what impacts or effects there may be during assessment. Dr. Kempton encouraged that and thought it as a good addition.

Dr. Levin asked if any linkages or partnerships have been developed with any of the Pacific coast time series, like California Cooperative Oceanic Fisheries Investigation (CalCOFI) of southern California or the Ocean Observatories Initiative off Oregon and SEACAM, which is a Pacific-wide acidification monitoring network. Dr. Bull replied that there are professors at the University of California Santa Barbara and at OSU working on the issues, and, interestingly enough, the region has worked with CalCOFI. Its data supplies the ichthyoplankton information for BOEM's ongoing studies that look at the ecosystem role of the platforms in the southern California bite. She added that CalCOFIe goes north of the most northerly platform and all the way south. The ocean observation systems have all been engaged for some physical oceanography information.

Dr. Richard McLaughlin stated that since the issue of decommissioning is huge in the Gulf of Mexico, was it more theoretical in the Pacific or are there some rigs that are scheduled to be removed in the near future. Dr. Bull answered that because of some of the major incidents that have happened in the last decade in California, a law has been passed that, if determined to be a productive habitat, will allow reefing of platforms.

Dr. Richard Merrick asked Dr. Bull if she has worked with Dr. Elizabeth (Libby) Jewett, a NOAA scientist with diverse science and management experience in ocean acidification and coastal hypoxia (low oxygen) research programs and who is the first director of NOAA's Ocean Acidification Program. He said that NOAA has an ocean acidification program as well, with very limited funding and he thought it might be useful to BOEM. Dr. Bull agreed that was an excellent idea. Ms. Ewald added that she had recently attended a meeting concerning NOP where it was announced that a new group for the ocean acidification and climate change group is being created.

Alaska OCS Region

Presentation by Dr. Dee Williams

Dr. Williams welcomed the Committee members and presented updates on what is taking place in the Arctic with regard to collaborative research, the studies program and leasing and operational activities.

He said that he believed that the decades of neglect in the Arctic is finally reversing and scientific research is clearly gaining momentum, which is exciting to see. The Arctic and Alaska are really seen as having great potential for the emerging issues of the 21st century, not just in terms of energy production but also strategic metals and conservation areas, the concern over food and water security, marine transport and climate change.

Dr. Williams informed the Committee that there are very significant adjustments institutionally under way with regard to multilateral interdisciplinary efforts and mentioned the Interagency Arctic Research Policy Committee (IARPC), the Study of Environmental Arctic Change (SEARCH), and the NOPP.

The IARPC is a consortium of 13 agencies across the Federal system that has created a 2013 to 2017 research plan which is now final and in circulation and describes seven areas for collaboration:

- sea ice and marine ecosystem studies,
- terrestrial ice and ecosystem studies,
- atmospheric studies,
- observing systems,
- regional climate models,
- adaptation tools for sustaining communities, and
- human health studies.

The SEARCH vision and mission reflects the evolution of SEARCH and Arctic science over the past several years and emphasizes SEARCH's role in developing scientific knowledge that is relevant to decision making. Its vision is for the scientific understanding of Arctic environmental change to help society understand and respond to a rapidly changing Arctic and its mission is to provide a foundation of Arctic change science through collaboration with the research community, funding agencies, and other stakeholders.

NOPP facilitates interactions among federal agencies and academia and industry to increase visibility for ocean issues on the national agenda and achieves a higher level of coordinated effort across the broad oceanographic community.

Dr. Williams listed the current ongoing partnership studies with other agencies (42) and the dollar amount BOEM has funded is ~$56,234,000.

He added that BOEM has a longstanding program in Alaska and that over $425 million have been spent since 1973. He said that BOEM Alaska has a large number of not just technical reports, but also peer review publications and that at any one time may contain
basically 60 ongoing studies.

He listed OCS Planned Activities for FY 2013:

Proposed studies for the Chukchi Sea:

- no exploration drilling will be occurring in the Chukchi or Beaufort seas in 2013
- TGS is proposing a Geological & Geophysical (G&G) survey in the Chukchi Sea
    - BOEM is evaluating the permit application
    - BOEM is preparing an environmental assessment (EA) and is seeking public comment on issues to consider in the EA from now until May 10, 2013
    - G&G activities proposed from July 15 – October 31, 2013
- The website is www.regulations.gov. Docket ID: BOEM-2013-0018
- SAExploration is proposing a G&G survey in the Beaufort Sea
    - G&G activities proposed from July 1 to October 15, 2013 (application not yet complete)
    - Shell is considering 'ancillary activities' on some of its Chukchi Sea leasesGeophysical surveys to gather data on ice gouges, shallow hazards and other seafloor conditions on select Chukchi Sea leases from mid-July to mid- October 2013
    - BOEM is in the environmental review process
- BPXA is conducting ancillary activities at Liberty Prospect (Beaufort Sea)
    - Activities are proposed to be conducted from April 1 to May 31, 2013

BOEM actions beyond FY 2013include a Chukchi Sea lease sale scheduled for 2016, a Call for Information feedback, draft, final EIS and a Proposed Notice of Sale.

Proposed studies for the Beaufort Sea Planning Area

- Data Interface Tools to Support Environmental Analyses: Interpretation of Existing Marine Mammal Data (includes: Chukchi Sea & Cook Inlet Planning Areas)
- Genomics of Arctic Cod: A Sentinel Species in a Changing Environment (Includes: Chukchi Sea Planning Area)
- Physical and Chemical Analyses of Crude and Refined Oils: Laboratory and Mesoscale Oil Weathering (Includes all Alaska Planning Areas)

Proposed studies for the Chukchi Sea Planning Area

- Subsistence Mapping of Wainwright, Point Lay, and Point Hope
- Polar Bear Habitat Use, Ecology, and Population Status in the Chukchi Sea
- Integrated Seabed Surveys in the Arctic Ocean: Bathymetry, Archaeological Resources, and Ice Gouge Magnitude and Recurrence Rates Proposed Studies

Proposed studies for the Cook Inlet Planning Area

- Cook Inlet Circulation Model Calculations
- Ecological Processes in Lower Cook Inlet and Kachemak Bay: Monitoring Partnership
- Benthic Invertebrate Habitats in Cook Inlet
- Baleen Whale Distribution, Abundance, and Ecology in Cook Inlet and Shelikof Strait
- Polar Bear Habitat Use, Ecology, and Population Status in the Chukchi Sea

Open discussion

Dr. Gary Kofinas asked what Dr. Williams' assessment is of the many efforts in scenario planning and analysis that brings the science together in a policy-relevant way in the Arctic. Dr. Williams responded that a collaborative and comprehensive arctic science planning process would bring great value to the decisions required to proceed with development of oil and gas and other strategic assets in the Arctic in a changing climate environment and are valuable tools for decision makers and is, indeed, a relatively hot topic in Alaska. Scenarios bring into focus consideration of

future developments where predictions are not feasible. These images can help decision makers to plan for a range of futures. BOEM has somewhat of a different take on scenarios which are built into all EIS work and have to be very specific about a scenario and what it might look like. Dr. Merrick added that in the Integrated Arctic Management Report and the National Arctic Strategy both specifically require the need for scenarios.

Office of Renewable Energy Programs

Presentation by Dr. Mary Boatman

Dr. Boatman reported that wind energy and marine hydrokinetics energy are currently the two energy areas of interest along the Atlantic.

She explained that the 2,000 miles of coastline is being assessed for energy development.

- In Maine, Statoil has proposed a demonstration project using four floating turbines and are looking to have operating turbines in the water in 2016. She added that Cape Wind has an approved construction and operation plan and are preparing to have wind turbines Installed in 2014.
- In Massachusetts, the EA is being completed.
- Rhode Island-Massachusetts are of mutual interest and BOEM is in the process of advertising the final notice that a lease sale will be held later this year.
- The State of New York has committed $14 million over the next 4 years to collect baseline information to support offshore wind development.
- New Jersey provided significant resources in 2007 and 2008 for collecting baseline information and Fisherman's Energy is planning a demonstration project in state waters.
- In Delaware, BOEM's second lease has been issued to build sometime in the future.
- The State of Maryland has about $30 million to collect baseline information to support wind energy.
- In Virginia, there is hope to have a lease sale within the next year for a wind energy area; a demonstration project involving two six-megawatt turbines has been proposed.
- In North Carolina, three areas for wind energy development have been identified.
- In South Carolina, there is interest, but BOEM is deferring that for a while because of sequestration and prioritization.
- In Georgia, Southern Company has proposed a plan for providing either a met tower or buoy and an EA is being prepared.
- Florida Atlantic University has proposed an area offshore Florida to test ocean current technologies.

She presented a pie chart depicting how much money has been spent on Air Quality ($320,827), Fates and Effects ($1,924,445), Habitat and Ecology ($17,420,364), Information Management ($1,360,080), Marine Mammals and Protected Species ($383,800), Physical Oceanography ($498,035), and Social Sciences and Economics ($4,980,833).

Letters, she said, were emailed to over 600 people on intergovernmental task forces which bring together state, tribal, local government entities, as well as federal agencies, asking for input on what kind of studies they believed would be the most important. Thirty study ideas were received and 14 profiles are included in this year's study development plan.

Dr. Boatman described the four major steps in the decision processes:

- planning, which is developing wind energy areas;
- leases or grants, going out with a lease sale;
- site assessment; and
- construction and operations plans.

Between the Delaware Bay and Chesapeake Bay wind energy area, surveys have been conducted since 2005 and last summer DOE had contracted for aerial and boat surveys for birds, marine mammals, and sea turtles.

Baseline information has been collected on Tourism and Recreation, Historical Properties, and Archaeological Sites. Being able to see wind energy apparatuses from onshore and how it may alter the local environment are two of the major negative impacts of wind energy.

Dr. Boatman stated that there are conundrums in spatial scales for consistent data collection and decision and support tools and that she is anxious to discuss these with the Committee during the Discipline Breakout Groups (DBG) sessions.

Dr. Boatman concluded her presentation by presenting conundrums in spatial scales for consistent data collection and decision and support tools and that she is anticipating discussions of these with the Committee during the Discipline Breakout Groups sessions.

Open Discussion

Dr. Levin asked Dr. Boatman to explain the relationship between her office and the jurisdiction it has over renewable energy and the Pacific office and its renewable energy activities. Dr. Boatman described her office as being two parts – the headquarters aspect, which is the Renewable Energy Programs, and the other part being the Atlantic region. The Alternate Energy Programs office in Herndon focuses on the Atlantic and its activities and the Pacific regional office focuses on renewable efforts in the Pacific; however the Alternate Energy Programs office in Herndon has a broader picture overlay of what is being looked at with respect to renewable energy.

Dr. McLaughlin asked her the same questions in regards to the Gulf of Mexico OCS Region. Dr. Pat Roscigno responded that the Region is behind the other regions and, at this point, is in the process of supporting research; however, there have been several renewable energy studies that BOEM has sponsored for the Gulf and for the south Atlantic region, and stated that the Gulf of Mexico OCS Region is in a very formative stage. Mr. LaBelle added that that the overall renewable energy effort in DOI is the Secretary's office being heavily involved in seeing that the renewable energy program offshore gets underway.

Dr. Taber Allison concluded this discussion saying that DOI needs to decide whether or not there is any useful scientific analysis that could help develop a framework under which that approach might be taken, as opposed to a measuring-effects approach.

Gulf of Mexico OCS Region

Presentation by Dr. Pat Roscigno

Dr. Roscigno stated that great changes have been experienced in the Gulf post-Macondo and that its impacts have changed the way studies are now evolving.

He presented the biological studies being proposed for FY 2014:

- Investigation of Pre-Riser Discharge from Wells within Proximity to Deep Water Benthic Communities for Plans with a “Zero Discharge” Mitigation
- Long-Term Monitoring at the East and West Flower Garden Banks: 2014-2017
- Long-Term Ecosystem Monitoring of the Deep Gulf of Mexico, Phase 1: Deep Water Coral Sites Impacted by the 2010 Deep Water Horizon Oil Spill
- Comprehensive Nearshore and Offshore Avian Surveys in the Gulf of Mexico (FY2015)

He presented the physical science studies being proposed for FY 2014:

- Cumulative Impacts Modeling in the Gulf of Mexico Region
- Trends Analysis of OCS Emissions in the Gulf of Mexico
- Coral Reef Ocean Acidification Sentinel Site in the Flower Garden Banks National Marine Sanctuary (Reviewed by the OCS SC last year)
- Assessment of Mud-Capped Dredge Pit Evolution on the OCS, Peveto and Sandy Point SE Borrow Areas
- Synthesizing and Quantifying Environmental Effects on the Gulf of Mexico
- Workshop on Developing a New Leveraged Approach to Long-Term Monitoring in the Gulf of Mexico, (FY 2015)

Lastly, he presented the social sciences studies being proposed FY 2014 which are related to infrastructure impacts and land loss from OCS activities and from the impacts of OCS activities on coastal communities:

- Coastal Land Loss and Oil & Gas Infrastructure
- Geo-Spatial Analysis of OCS Petroleum Effects on Gulf Coast Communities
- Testing and Assessment of the Effects of an Oil Spill on Coastal Archaeological Sites
- Texas Coastal Land Loss from 1992 to 2010 (FY 2015)

Dr. Roscigno discussed the post-Macondo area which involves the natural resource damage assessments (NRDA) process, the Gulf of Mexico research initiative and the new upcoming RESTORE Act initiative.

He explained that when it comes to marine mammals, there is no conflict with NRDA since the study areas have been sequestered and split from NRDA activity area which allowed BOEM's marine mammal program to go forward without being impinged greatly by the NRDA process. However, modeling with the oil spill is being held up by the Department of Justice lawyers to make sure the NRDA zone is not going to be crossed.

The Gulf of Mexico Research Initiative (GOMRI), whose goal is to investigate the impacts of dispersed oil and dispersant on the ecosystems of the Gulf of Mexico and affected coastal States which will develop improved spill mitigation, oil and gas detection, characterization and remediation technologies is in its third year. Dr. Roscigno complemented GOMRI in producing a great deal of information.

Dr. Roscigno mentioned that during a GOMRI meeting last year, he had asked the chief scientist at GOMRI why social science studies had been excluded. The chief scientist explained that the social science associates in the Gulf of Mexico are just not teaming together to form a strong consortium that would be able to win some funding from the competition and, because of this, the Gulf of Mexico OCS Region has taken the initiative to lead a consortium-building team to speak with the community and getting social sciences in the area interested in applying as a consortium to get GOMRI studies. This will both satisfy BOEM's needs and provide a valuable service to the community in terms of looking at impacts.

He explained that the RESTORE Act paved the way for Congress to hold the parties responsible for the Gulf of Mexico disaster accountable for restoring the Gulf and NRDA trustees have already started phases one and two of early restoration projects. Once this process is completed, most of the RESTORE money is going to be channeled to the states that were impacted and each state will be responsible for developing their own plans and own processes.

Once the Treasury Department establishes the regulations, money will be disbursed to different foundations and institutions. Dr. Roscigno produced an "Oil Spill Funds Federal Power Map" which illustrated how the funds will be disbursed.

Open Discussion

Dr. Merrick clarified that 80 percent of the civil penalties will be shared among the five Gulf States; everything else, i.e., recovery, fines, is managed separately.

Dr. Johnson asked Dr. Merrick if there is a certain amount devoted to only restoration and/or science as opposed to bureaucratic growth. Dr. Merrick answered that under the RESTORE Act, only 3 percent can be used for administration. As for science, 2.5 percent goes to NOAA and the Center of Excellence which is a small amount of money so it's fairly difficult developing programs to administer based on that.

Dr. Rod Mather asked Dr. Roscigno how the social sciences studies are progressing. Dr. Roscigno replied that the major social sciences in the area have been recognized but that he was not sure whether or not they would succeed. Dr. Merrick added that it is expected to have social sciences funded under the RESTORE Act since ecosystem goods and services is an important part of ecosystem recovery, and the ecosystem goods and services cannot be done without doing social sciences. Dr. McLaughlin applauded BOEM for taking leadership in trying to develop a social science consortium.

BOEM's Role in Implementing the National Ocean Policy

Presentation by Mr. Robert LaBelle

Mr. LaBelle described BOEM's role in NOP and also discussed marine spatial planning.

He explained that NOP sets forth a vision of an America whose stewardship ensures that the ocean, our coasts, and the Great Lakes are healthy and resilient, safe and productive, and understood and treasured so as to promote the well-being, prosperity, and security of present and future generations. In order to better meet our Nation's stewardship, an Interagency Ocean Policy Task Force was charged to develop recommendations to enhance national stewardship of the ocean, coasts, and Great Lakes. The National Ocean Council was named to oversee this effort; DOI was part of the Task Force and BOEM had a substantive role in meeting the goals set forth in the National Ocean Policy Implementation Plan, which was released on April 16, 2013.

The plan is broken into five broad themes:

- Ocean Economy,

- Safety and Security,
- Coastal and Ocean Resilience,
- Local Choices, and
- Science and Information.

The plan also outlines specific milestones and action items for nine priority objectives including Marine Spatial Planning (CMSP). Marine planning is a tool developed from the bottom up to improve collaboration and coordination among all coastal and ocean interests, and to better inform and guide decision making that affects their economic, environmental, security and social and cultural interests.

NOP subdivides the United States into nine regions for CMSP. In each region, a Regional Planning Body (RPB) will develop and implement a CMPS. RPBs, which is voluntary for regions, consists of representatives from coastal states, tribes, and federal agencies who are charged with creating and implementing a regional ocean plan.

He mentioned the regions that have created RPBs:

- Northeast
- Mid-Atlantic
- Caribbean
- Pacific Islands

He stated that the goals of the RPBs are to develop their own charter and plan what they would like to do.

He added that there are a lot of opportunities for the RPBs to provide input on NEPA, in consultations, for example; the tough things, all the way down to the submission of a construction and operations plan and supporting, monitoring, and mitigation activities.

CMSP is designed to decrease user conflict, improve planning and regulatory efficiencies, decrease associated costs and delays, engage affected communities and stakeholders, and preserve critical ecosystem functions and services.

Mr. LaBelle said that there are also other groups providing information to the data sets. An example he used was a recreational boating survey data from the Northeast Regional Ocean. This information was some of the missing recreational data that BOEM wanted to study. Not only does it show where the boats go, but also sort of what they're doing, i.e., swimming, diving, viewing, and fishing. Another example he highlighted involved the Stellwagen Bank ship traffic and that by monitoring right whales in the area they were able to reduce collisions by over 80 percent for whales and 58 percent for the endangered right whales.

Dr. Jerry Galt commented that no matter how well you understand a domain study and the statistics of a particular piece of information, it doesn't really answer the decision kind of questions that BOEM needs to make. In fact, he said, the co-variations of the statistics between various studies are where the real issues come in that can only be understood in a scenario context. Although each area can have specific studies at the area level, there is going to be a synthesis component that looks at the co-variants. In real life the scenario trajectory is the manifold of the situation space where you really live, and that starts to really limit the applicability of various problems. In some cases it makes them go away; in other places it makes them leap to the front. He wanted to make the plea that at the regional and national levels, there has to be some kind of a program that looks at the scenarios and attempts to explore the diversity of the situation space. He said, however, the real issue is to pick the situations where 1) you can really be and 2) things really happen. Mr. LaBelle said that the EIS analysts have to do that in a focused way when they work on a scenario for a given action and then they try to write about the impacts from that scenario. But the more data collected, the harder it is to do in some regards. He said that he is concerned about decision models that not only come to conclusions but put a dollar value on many of the things.

Dr. Steve Elgar commented that although BOEM does not foresee any furloughs due the sequestration, outside scientists who anticipated having new starts are going to be laying people off in exchange and suggested that BOEM may want to think about the long-term effects may be instilled on BOEM.

Wednesday, May 16, 2013

Biological/Ecological Discipline Breakout Group Presentation

Members: Drs. Taber Allison, Robert Diaz, Lisa Levin, Milton Love, and Lorrie Rea

General Comments

Dr. Allison revealed that the DBG feels that Data and Information Synthesis is an important activity and suggested casting as wide as net possible by looking to other sources of information.

The Group suggested that it is an appropriate time for an independent and external program review for marine and long-term monitoring at the Flower Garden Banks since there were questions regarding changing the frequency of monitoring and using a different type of analysis to help guide changes in the monitoring program.

BOEM Data Availability. The Group supported that all BOEM data should be available through a common portal and accessible with other relevant data sets with the goal of trying to get all the relevant data together in one place, to the extent that it's practical.

Consolidate Study Efforts. Dr. Allison explained that there were multiple instances where different regions were proposing very similar studies and suggested that these studies be managed in one location so that they are consistent in methodological or analytical approaches so that it leads to consistent permitting decisions.

Climate Change. Dr. Allison commented that with a rapidly changing climate and concomitant ecological change there is a need to establish permanent reference sites for comparison to allow assessment of impacts. The Group suggested establishing permit reference sites for comparisons to allow assessment of impacts. Another comment focused on higher trophic levels and not forgetting the benthos as the base of the food chain which is critical and must be understood.

Alaska OCS Region

General Comment. As recommendations from the IARPC are available, BOEM needs to recognize BOEM's its institutional mandates and that there will probably be some overarching mandates that come from that effort.

The following studies were reviewed and discussed:

- Data Interface Tools to Support Environmental Analyses: Interpretation of Existing Marine Mammal Data
- Genomics of Arctic Cod: A Sentinel Species in a Changing Environment
- Ecological Processes in Lower Cook Inlet and Kachemak Bay: A Partnership
- Benthic Invertebrate Habitats in Cook Inlet
- Polar Bear Habitat Use, Ecology
- Baleen Whale Distribution, Abundance, and Ecology in Cook Inlet and Shelikof Strait

Pacific OCS Region

General Comments. BOEM should consider an explicit strategic planning process to develop a more comprehensive vision (additional funding may be needed); coordinate among regions to develop consistent analytical approaches for leasing decisions; and build partnerships with existing oceanographic infrastructure along the coast.

The following studies were reviewed and discussed:

- Data Synthesis and High-resolution Predictive Modeling of Marine Bird Spatial Distribution on the Pacific OCS
- Predicting and Detecting the Effects of Climate Change and Ocean Acidification Using Long-term Ecological Data
- Collecting and Archiving Invertebrates from MARINe Sites for Deposition in the Smithsonian Institute with Local Replicate
- Year-round and Diel Patterns in Habitat Use of Seabirds off Oregon

- Strategic Resampling of Biodiversity Surveys at MARINe Sites: Completion of the Decadal Assessment

Gulf of Mexico OCS Region

General Comments. The DBG recognizes that this is a challenging time for the region to think ahead since there are going to be a lot of resources flowing into this region which may make it difficult in trying to see what might be leveraged from those resources to support BOEM needs versus what are BOEM's specific needs to plan studies.

The following studies were reviewed and discussed:

- Investigation of Pre-Riser Discharge from Wells within Proximity to Deepwater Benthic Communities for Plans with "Zero Discharge" Mitigation
- Long-Term Monitoring at the East and West Flower Garden Banks:2014-2017
- Long-Term Ecosystem Monitoring of the Deep Gulf of Mexico, Phase 1: Deep
- Comprehensive Nearshore and Offshore Avian Surveys in the Gulf of Mexico (FY2015)

Office of Renewable Energy Programs

General Comments. The DBG applauded the well-coordinated collaborative efforts and the coordinated renewable energy efforts with other regions.

The following studies were reviewed and discussed:

- Atlantic Marine Assessment Program for Protected Species
- Trawl Surveys in the Mid-Atlantic
- Determining Offshore Use by Marine Mammals and Ambient Noise Levels Using Passive Acoustic Monitoring
- Electromagnetic Field (EMF) Impacts on Elasmobranchs and American Lobster Movement and Migration.

Physical Sciences Breakout Group Presentation

Members: Drs. Mark Johnson, Steve Elgar, Jerry Galt, and Sandra Werner

General Comments. Dr. Johnson told the Committee that the DBG is impressed with the quality of the proposed programs and the quality of the presentations and that the presenters were quite knowledgeable and were able to answer questions.

Alaska OCS Region

The following studies were reviewed and discussed:

- Cook Inlet Circulation Model Calculations
- Ecological Processes in Lower Cook Inlet and Kachemak Bay: A Partnership in Monitoring
- Environmentally Benign Oil Simulants to Mimic the Behavior of Oil Droplets in the Ocean

Gulf of Mexico OCS Region

The following studies were reviewed and discussed:

- Cumulative Impacts in the Gulf of Mexico Region
- Trends Analysis of OCS Emissions in the Gulf of Mexico
- Simulating Planktonic Prey and High-Trophic Habitat Variability in the Gulf of Mexico
- Assessment of Mud-Capped Dredge Pit Evolution on the OCS, Peveto and Sand Point SE Borrow Area
- Synthesizing and Quantifying Environmental Effects on the Gulf of Mexico
- Workshops on Developing a New, Leveraged Approach to Long-Term Monitoring in the Gulf of Mexico
- Microclimate Formation within Wind Turbine Arrays and its Effects on Local Weather and Climate
- Use of Northeast Coastal Ocean Forecast System in Offshore Wind
- Energy Resource Planning

- Physical and Chemical Analyses of Crude and Refined Oils: Laboratory and Mesoscale Oil Weathering

Social Sciences Breakout Group Presentation

Members: Drs. Rod Mather, Steve Elgar, Richard Gould, Willett Kempton, Gary Kofinas, and Richard McLaughlin

General Comments. There were concerns about the relative number of social science studies being brought forward for consideration which included the sequestration, pattern, quality, and existence of personnel in each region with time/knowledge. There were also concerns about the degree of social science integration into the interdisciplinary studies (excluding archaeology), but adding social science to some of the proposed studies would enrich them and increase their value to managers.

Dr. Mather said that the DBG was very interested in the proposals that were put forward and had good and fruitful discussions about them. The DBG generated a ranking system: 1) strongly recommend; 2) recommend and 3) not to recommend categorization.

Alaska OCS Region

There was only one proposed study that was reviewed and discussed:

- Traditional Knowledge Implementation: Establishing Arctic Community Panels of Subject Matter Experts which the DBG strongly recommended

Gulf of Mexico OCS Region

The following studies were reviewed and discussed:

- Testing and Assessment of the Effects of an Oil Spill on Coastal Archaeological Sites which the DBG strongly recommended
- Geo-Spatial Analysis of OCS Petroleum Effects on Gulf Coast Communities which the DBG did not recommend
- Coastal Land Loss and Oil & Gas Infrastructure which the DBG strongly recommended

Office of Renewable Energy Programs

There was only one proposed study that was reviewed and discussed:

- Wind Energy Development on the Atlantic OCS: The Identification of Port Modifications and their Environmental and Socioeconomic Consequences which the DBG strongly recommended

National

There was only one proposed study that was reviewed and discussed:

- Human Dimensions National Portal Rebuild Using the Department of the Interior Science Base Platform which the DBG did not recommend

Interdisciplinary Studies Presentation

Reviewers: Full Committee

General Comments. Dr. Elgar reported that there is a lack of social science in the proposed interdisciplinary studies such as the crab study that is partly based on crabbers' perceptions. It was felt that with a little extra money surveys can be conducted to determine why people have the perceptions that they do and do their perceptions change after given scientific data, and if not, why not.

In each section there were studies that seemed to be asking for feedback as a tool that BOEM can use for information or data needs and not for science which may separate a proposed study into separate proposals for which science advice and guidance can be provided. Also there should be a limited number of interdisciplinary study proposals since the Committee had no time to discuss all of them until the 2-hour session that morning which had been planned for other

Committee discussions. Therefore, it was recommended that in the future, time be given to the Committee to discuss the interdisciplinary studies.

There were 15 studies that were reviewed and discussed:

- Topical and Functional Expansion of EcoSpatial Information Database
- Evaluating the Effectiveness of BOEM-Imposed Adaptive Management of Biological Mitigation and Monitoring Requirements
- Environmental Effects and Cost Comparison of Single Beam, Swath, and Multi-beam Bathymetric Surveys Before and After Dredging Operations
- Monitoring Dredging Intensity Using Variable Grid Analysis of Dredge Quality Management Data
- Variability in Ecosystem Service, Resiliency, and Post-Dredging Recovery of Ridge-Swale Habitat and Biological
- Developing BOEM's Access to Protected Species Occurrence Data for Impact Analyses and Rule-making
- Support for the Development of an Improved Biostatistical Method to Analyze and Interpret Observations from Marine Mammal Behavioral Response Studies
- Potential Impacts of Submarine Power Cables on Crab Harvest
- Archaeological and Biological Assessment of Submerged Landforms off the Pacific Coast
- Understanding and Mitigating the Effects of Marine Renewable Energy Technologies on the Coastal and Marine Environment in the Pacific OCS Region
- Ecological Processes in Lower Cook Inlet and Kachemak Bay: A Partnership in Monitoring
- Integrated Seabed Surveys in the Arctic Ocean: Bathymetry, Archaeological Resources, and Ice Gouge Magnitude and Recurrence Rates
- Real-time Opportunity for Development Environmental Observations (RODEO)
- Evaluation of Beneficial Impacts from Offshore Renewable Energy Development
- Texas Coastal Land Loss from 1992 to 2010 (FY2015)

In an effort to limit the number of studies being presented, Dr. Brad Blythe asked the Committee members whether or not they would prefer focusing on the science presentations and not the sort of in-house data management type tools proposed studies. Dr. Rea replied that the consensus from the Committee's earlier discussion on this subject was that the Committee does want to see it all; however, it would be easier on the Committee to have the proposed studies categorized into two different sessions, one session being designated as proposed study science presentations and the other as those proposals needing feedback, i.e., in-house data management type tools.

Committee Business

Dr. Kempton suggested that a formal proposal be made to the Renewable Energy Subcommittee to review RODEO and the Pacific OCS Region's renewable study and made a motion that the Subcommittee review those studies and suggest variables. Dr. Rea asked for a show of hands in favor of this motion and it was passed by the Committee.

Dr. Diaz asked whether or not BOEM has the opportunity to look at the pre or post environmental studies which are funded by the industry and what happens to that information that the industry collects. Dr. Roscigno replied that while industry does perform a lot of studies, those studies are usually proprietary. However, when the National Studies List was developed, industry was requested to instrument their platforms with Acoustic Doppler Current Profiler and to provide that information to BOEM.

Dr. Werner asked in the case of regulatory requirements, what does BOEM specifically do with that data and where is it accessible to the communities of scientists? Dr. Roscigno responded that while BOEM does receive Remotely Operated Vehicles (ROV) surveys, it is stored within BOEM but is not analyzed. However, some of information is used immediately i.e., for whale sightings during seismic activities. This information is requested in permit processes. In the Alaska region,

Dr. Williams added, industry reports are systematically received about monitoring programs and are available. Dr. Bull mentioned that in the past 3-5 years, the OCS Pacific Region has made a concerted effort to not only get the video footage from ROVs and the reports involving water quality and discharge. Then in-house SMEs are able choose videos and spreadsheets for their review.

Dr. Rea mentioned that she regularly attends the annual Alaska Marine Science Symposium (AMSS) where there are a lot of presentations from contractors working for various industry companies and it appears that this information would be helpful for the OCS SC members to understand the research in ecology and biology in the areas that are being studied. For instance not only marine mammal sound impacts and maneuvering around acoustic buoys but also information on other benthic community studies. She said that she'd like to get not only a broader understanding of how BOEM uses that research information through the process, but with that next layer of research that industry is doing, is there a capacity to explore for finding a way to get that more accessible to the general public. Dr. Williams replied that there is currently an effort underway on multiple fronts to deal with this type of situation. He reminded the Committee that BOEM has a synthesis effort, Synthesis of Arctic Research (SOAR) that is partnered with NOAA that it has been funded for several years. Since the anticipation of new leasing in the Chukchi Sea, BOEM has invested roughly $40 million in new research efforts and within the last year and a half, industry has provided funding to the National Science Foundation and to the North Pacific Research Board to have a parallel synthesis effort. Dr. Roscigno explained that when a plan comes in for review, industry provides BOEM an impact assessment of the document as part of the plan to be processed. So there's a lot of information that the industry provides BOEM on site specific planning, and then SMEs, who are most of the time the same scientists who conduct the studies, will develop an EA if one is required. On a larger level, several BOEM staff participates in different technical advisory committees that deal directly with the American Petroleum Institute and other industries in determining standards.

Dr. Werner asked that if all of the data were synthesized, would that information be usable by BOEM or another agency for the scientific assessment or is it feared that various parties may say that this information is biased research. Mr. LaBelle replied that this is definitely a concern, and he believes that, depending on the more controversial the issue, the more likely whatever information is available regardless of who collected it, will be used. In regard to marine mammals and seismic, there is an ongoing effort not only in the oil and gas industry but the seismic industry and other partners and NOAA. Workshops on this very large effort to advance BOEM's understanding in that area are being conducted.

Dr. Galt stated that a briefing presentation may be very helpful from the program's point of view that maps the information flow. He felt that a presentation along that line would be a rather easy way to identify component sources which are planned to do internally and other ones which may be shared in partnership programs to identify what appear to be gaps. Dr. Cluck said that could become very complicated very quickly, but he is sure there is a way to do it at a high enough level that it is informative and it would be considered.

Environmental Sensitivity Subcommittee

Presentation by Dr. Lorrie Rea

Members of this Subcommittee include Dr. Rea, Chair, and Drs. Gary Kofinas, Joe Smith, Ken Dunton, Richard Hildreth, Sandra Werner, and Taber Allison.

Dr. Rea reported that the members of this Subcommittee have been working closely with Dr. Blythe focusing specifically on a project, *The Development of Environmental Sensitivity Analysis*. The Subcommittee assisted with him on developing its study plan. She added that the Subcommittee has also had the opportunity to review this study plan and provided comments to Dr. Blythe.

Deep Water Subcommittee

Presentation by Dr. Bob Diaz

Members of this Subcommittee include Dr. Diaz, Chair, and Drs. Jerry Galt, Jim Coleman, Joe Smith, Lisa Levin, Mike Kosro, Mike Rex, Richard McLaughlin, Sandra Werner and Tyler Priest. Dr. Diaz announced that this subcommittee has been inactive.

Alaska Subcommittee

Presentation by Dr. Mark Johnson

Members of this Subcommittee include Dr. Johnson, Chair, and Drs. Duane Gill, Gary Kofinas, Jerry Galt, Ken Dunton and Lorrie Rea. He announced that this subcommittee has been inactive.

Renewable Energy Subcommittee

Presentation by Dr. Taber Allison

Members of this Subcommittee include Dr. Allison, Chair, and Drs. Bob Diaz, Lisa Levin, Mike Kosro, Milton Love, Ralph Brown, Richard Hildreth, Richard McLaughlin, Steve Elgar and Willett Kempton.

Dr. Allison informed the Committee that this Subcommittee has been inactive; however, there is now a task in front of them which will involve talking with the staff in the Office of Renewable Programs, the Pacific, and Gulf of Mexico OCS Regions about how to proceed and how best to be responsive to what their needs are and how the Subcommittee may be of help. He mentioned a multi-disciplinary workshop, Offshore Wind Energy Development Site Assessment and Characterization: Evaluation of the Current Status and European Experience, which engaged European scientists and regulators with experience in site assessment and site characterization for offshore wind energy projects. The goal of the workshop was to better understand what information is needed for environmentally responsible siting of wind energy infrastructure and focused on three areas of interest: birds, seafloor habitats, and archaeological resources. BOEM is in the process of collecting foundational information about these topics and has proposed initial guidelines for industry to use in collecting site specific information. European countries have several commercial facilities already in operation, and BOEM has organized this workshop to learn from the progress they have made. This, he said, is another example of the responsiveness of BOEM to this Committee's informal recommendation.

He said that the workshop was an excellent example of the kinds of things that the Committee has discussed as a step in the process of synthesizing existing information. In the case of offshore wind energy development, the extensive experience European scientists should be useful for BOEM. However, he said that in spite of their experience, they are not that far ahead in understanding conceptually what is needed. It was very helpful and very interesting to talk to the scientists who are working and have been working on this issue, and he encouraged BOEM to continue bringing in this type of expertise since it would be helpful, especially in the context of the synthesis and evaluation that has been discussed.

Dr. Boatman asked Dr. Allison what his impressions of the format for the workshop were since it was more of a sit-down conversation and not presentations and if he thought the informational chatting was useful. Dr. Allison replied that, while there were a few presentations, they were brief which allowed more opportunity to engage in conversation and have detailed back and forth with the European experts, as well as many of the people from a variety of different federal agencies, state agencies and conservation organizations. He stated that it was very interesting to hear from the other disciplines, including archaeological/cultural groups talk about the different issues and hearing the commonality between what's going on in Europe and what's going on in the U.S., and that the Europeans are still wrestling with some of the same questions.

Archaeological Protocols for Standardization of Data Collection and Data Reporting Subcommittee

Presentation by Dr. Richard Gould

Members of this Subcommittee include Dr. Gould, Chair and Dr. Rod Mather with assistance from Dr. David Ball who is an archaeologist for BOEM in the Pacific OCS Region.

Dr. Gould mentioned that although this Subcommittee is small in stature, it is important for archaeologists. He said that he realized during the last couple of Subcommittee meetings that the operating parameters for archaeological surveys, looking at both the shipwrecks and submerged terrestrial sites, vary quite a bit from one region to another which prompted a closer look at the documentation as to what is expected of the lessees in their survey work, the kinds of instructions and how to comply with those instructions.

He reported that he had done a systematic comparison of the different regions for the purpose of moving toward a standardization of underwater archaeology. There are two good reasons for this issue:

- Oil and gas companies operate in more than one region and if not confronted with different sets of expectations and different requirements in each region, the end result would not be scientifically credible and
- If there are more uniform standards, BOEM's credibility will be better.

He added that there are recognized individual differences between the regions and that specific circumstances might determine different levels of survey accuracy; however, there needs to be uniform standards for under-water archaeology – at least as standardized as possible.

Dr. Mather suggested that in order to be more helpful and have a better structure, SMEs in archaeology need to meet with this Subcommittee in order to identify some of the issues and some of the questions. Dr. Gould agreed saying that feedback is needed from those people doing hands-on work. He announced that he is putting out a kind of general call with any maritime archaeologists who have had experience working with different kinds of lane spacing in relation to different types of sensing, such as ROVs, magnetometry, site scan, etc., in order to obtain a good minimum estimate that will give the best possible information.

Dr. Cluck mentioned the AMSS where although he and Dr. Dunton presented research separately, both Drs. Galt and McLaughlin were supported through BOEM to attend in order to expand their exposure to the great amount of work being presented by the staff from the Alaska OCS Region and asked Drs. McLaughlin and Galt to share their comments with the Committee.

Dr. McLaughlin said that he was very appreciative of the opportunity to attend the symposium and learn more about the international law of the sea for this region which is probably the most important area of research at this time. He also said that it triggered some questions he had in trying to understand why the kind of broader development of the Arctic region isn't a more important topic in the research proposals for the next few years. Why, for instance, isn't there more concern or interest by BOEM in addressing the not so much oil and gas development, but related development issues associated with ports, shipping, etc., with other issues in the Arctic Region? He pointed out that there were some studies involving these issues in the Gulf, but not for the Arctic.

Dr. Williams replied that the short answer is priorities since there are limited funds and a lot of information needs. He shared with the Committee that study profiles have been previously submitted on various topics and marine transport is a very significant issue for the Arctic. BOEM does receive and review these proposals but they are either in need of more information or are not considered to be the core essential responsibility for BOEM. USGS has assumed a lead role in climate change research in the Arctic and is dedicated to baseline and monitoring change. Therefore, a lot of their research effort is dedicated to baseline and monitoring change related to climate issues. BOEM is also very concerned

about maritime accidents especially since more traffic is being forced into a very narrow channel through the Bering Strait and developing navigational approaches that would eliminate high probabilities of maritime accidents is a high priority for Alaska in general, but that is not one of BOEM's missions.

Dr. Galt commented that he, too, thought the symposium was very excellent and that he realizes that both the quality and quantity of the research being done is impressive. He acknowledged BOEMs role in co-funding programs is very obvious which reveals that BOEM does have an important role in the Arctic. He also commented that BOEM's outreach program is very impressive.

Dr. Love remarked that in late fall of 2012, he had been asked to make a presentation on the effect of EMFs on sea lions during a renewable energy off Oregon meeting that had been BOEM co-sponsored. He stated that he had a discussion with a marine mammalogist from Scotland who told him that no one ever talks about the effects turbines have on bats and birds in the North Sea but discuss only those animals specifically mentioned by the European Union. Dr. Love realized then how far ahead of the curve BOEM is after their discussion.

Dr. Bull asked the Committee to form a Pacific Subcommittee to work with the region to examine scenarios in light of recommendations recently received through the Oregon Marine Renewable Energy Environmental Science Conference and Experts Workshop to develop a strategic approach and build some scenarios for wind energy research in that region to include marine hydrokinetics, as well as wind. This Subcommittee would also help to determine to what extent, given limited funds, limited personnel, how these needs should be prioritized. After a lengthy discussion, the motion was passed that instead of forming a Pacific Subcommittee that the current Renewable Energy Subcommittee will work with the Pacific OCS Region. At that time, Dr. Love asked that he be added to the Renewable Energy Subcommittee.

Dr. Rea referred to the Coastal Marine Institute review which had been held in October at the University of Alaska. She said she was very impressed with the quality of the Alaska OCS Region's presentations and research that is underway there.

Public Comments

There were no public comments.

Committee Business (continued)

Emerging issues or topics of interest.

Data Synthesis. Dr. Rea began the discussion by introducing the idea of data synthesis because it seems to have been an overarching comment on many of the individual study plans. During earlier discussion, the Committee considered the value of collecting data synthesis, specifically when there may further financial difficulties and concluded that it might be a good strategy to keep the research moving forward in a productive way without having the large ticket items of continuing field work as an alternative strategy. It was also felt by the Committee that there would be a huge value to having BOEM SMEs being integrally involved in and participating in synthesis because of the scientific expertise and knowing all of the work being currently done.

Dr. Diaz added that by BOEM building internal capabilities to do its own synthesis, it would no longer have to continually pay to have someone else do it.

Dr. Rea suggested instigating mini-sabbaticals from management responsibilities which, in the end, could be very cost-effective by being less expensive than contracting. Dr. Cluck agreed and said that by building that intellectual capital internally is critical to BOEM's mission and agreed, too, that the idea of framing it like a sabbatical might be a very good thing because it will enable a person to immerse himself/herself in the task at hand.

Dr. Williams commented that had applied for and received permission to undertake a detail event that lasted four weeks. The goal of the detail was to excuse him from the daily routine of meetings and email traffic to concentrate on developing a synthesis report of social research in the Arctic that would contribute to a variety of analyses underway, both within the Alaska OCS and external to BOEM. This process, he said, had reverberating implications in a lot of ways:

- It allowed for greater collegiality between regions;
- It allowed an opportunity for other staff to experience the exchange and difference of perspective from region to headquarters;
- Staff who is appointed acting chief may decide to pursue a professional interest in wanting to be a studies chief.

Climate Change. Dr. Allison reiterated the recommendation from the Biology/Ecology DBG that suggested BOEM sets aside permanent sites that will not be developed but instead be used as reference sites which are measured and compared with the developed site. This would enable BOEM to track both activity and climate changes.

Non-Scientific Related Proposals. Profiles and Presentations. Although the decision of whether or not to perform studies proposed for BOEM's internal communication, data communication, and those dealing with fulfilling EPA requirements is BOEM's, the Committee is interested in reviewing these types of profiles for information purposes only and requested that these proposals also be presented to the Committee. Dr. Rea suggested that these proposals could be presented in such a way as the interdisciplinary studies are presented.

Dr. Werner, who had left the meeting earlier due to other commitments, had emailed the Committee the following general comments for incorporation into the plenary discussion or for the Committee letter:

- BOEM should build internal capacity, including hiring new young scientists to conduct synthesis;
- BOEM needs to consider external review of environmental studies proposals and the contractor selection process. The goal is to increase competitiveness and quality of proposals and the ensuing work.
- BOEM needs to encourage a digital object indicator (a managed system for persistent identification of content-related entities on digital networks).
- The Committee encourages peer review publication of study results.
- BOEM needs to make the maximal use of all new OCS industry activities as learning opportunities (renewable energy installation, new oil and gas platforms, etc.) encouraging pre, during and post operation information collection.
- The Committee encourages incorporation of industry data into decision making (after vetting and legitimization).
- BOEM needs to examine all Gulf Coast proposals for feasibility of full or partial RESTORE Act funding. Combine similar research across coasts for cost-efficiency, conceptual benefit and methodological consistencies.
- In times of tight funds where sample collection is involved in any study, BOEM needs to consider whether archiving material (frozen and/or in Smithsonian ethanol) can serve future uses in assessing impacts or under spill/collision scenarios.
- BOEM needs to go beyond birds and mammals because of the general need to pay more attention to the water column and benthos for ecosystem based management decision making.
- The Committee recommends a big picture strategic planning in the Pacific Region that will bring in more scientific expertise from a broader range of West Coast universities and government agencies and establishes linkages to ongoing monitoring efforts.

Other Committee Business

Dr. Gould asked how the DBG reports should proceed. Dr. Cluck replied that the DBG reports can be disseminated to the entire Committee for concurrence/comments.

The Committee members had previously been approached and asked if sequestration results in a lot fewer study profiles being presented next year, is there a potential data difference or change in format that might be useful to this group along the same theme of synthesis. She added that having less studies to review would allow regions a little more time to give

updates on different projects. Another thought was it might be a really good point in the SOAR process to be getting an idea of where that process is at and how applicable that kind of approach might be to other regions or other subject matter areas.

Dr. Boatman explained that the Office of Renewable Energy Programs has recently drafted an overarching strategy for birds along the Atlantic to help tie together all the different pieces of information being collected in order to tell a picture of how to move forward and to help plan what additional studies are needed. Although this is in-house, she would like to sit down with the Committee to discuss and prepare a strategy to help plan for the future studies and also explain why things are being done the way are and how and where this information is being used and then decide how to prioritize any additional studies with respect to birds.

Dr. Roscigno explained that about 8 or 9 years ago, Dr. Harry Luton, along with other social scientists, worked very intently with the Scientific Committee to develop a strategic vision for the social science program which worked very well, and said he thought an integrated plan over a long period of time could be designed which would be of value. He added that Committee can be used as a sounding board to discuss maybe one or two strategic visions or strategic plans for the next 5 to 10 years on viable topics and how to have long-range planning in a specific area about some of these topics.

The Committee discussed possible meeting dates and sites for the 2014 meeting. The second full week of May will remain as meeting dates and it was suggested that Alaska be the next venue.

Dr. Rea thanked Dr. Roscigno on giving the Committee the opportunity to interact with so many of the regional SMEs because it really makes it a much more productive meeting. Dr. Roscigno said that most of his staff is relatively newcomers so it was also a learning experience for them and he felt they benefitted from the whole interaction, over and above the scientific exchange.

Dr. Rea thanked everyone for being such an engaged Committee and Dr. Cluck echoed her comments.

Dr. Rea adjourned the meeting.

Regional Discipline Breakout Group Presenters

Alaska OCS Region

Heather Crowley
Physical Oceanographer

Dr. Crowley joined the Alaska OCS Region as a physical oceanographer in 2007 from NOAA's West Coast and Alaska Tsunami Warning Center. She earned a Ph.D. in coastal oceanography from Stony Brook University where she studied density-driven circulation in estuarine systems. In addition to her role in developing and overseeing environmental research projects, Heather serves as the Alaska Region's Studies Plan Coordinator.

Kate Wedemeyer
Fisheries Oceanographer

Ms. Wedemeyer is a Fisheries Oceanographer in the Alaska Environmental Studies office. She brings to her work a unique perspective born of long-term involvement in the scientific implementation of natural resource management throughout Alaska, an understanding of the mission and culture of multiple agencies with whom MMS coordinates, varied NEPA experience, and an awareness of the perspectives of local residents. She is responsible for developing the long-term fisheries oceanography study strategy for the Alaska AMM and for overseeing technical aspects of OCS oil and gas related fisheries studies. She also oversees a number of physical oceanography and contaminant study contracts. She has written fisheries and Essential Fish Habitat analyses and conducted interagency coordination on past Multi-year Beaufort Sea and Cook Inlet oil and gas lease sale EIS. She was an outreach team member for the 2007-2012 Five-Year Leasing Plan in the North Aleutian Basin.

Renewable Energy Program

Brandi Carrier
Archeologist

Brandi Carrier is a Registered Professional Archaeologist with more than twelve years of professional supervisory experience in cultural resources management, and an MA in Archaeology and Prehistory. She has extensive archaeological field and laboratory experience, having directed historic and prehistoric Phase I, II, and III surveys and mitigations throughout fifteen states, in the United Kingdom (UK), and in Greece. She has been responsible for all aspects of cultural resources management, including project design and implementation, field survey, artifact analysis, and report writing on projects ranging from corridor survey to urban construction monitoring to historic and prehistoric site excavation to large-scale records reviews and predictive modeling. In

addition to a thorough knowledge of Sections 110 and 106 of the National Historic Preservation Act (NHPA), Ms. Carrier has had extensive experience applying the National Register of Historic Places (NRHP) eligibility criteria, and has received certifications from the National Preservation Institute. She joined BOEM's Office of Renewable Energy Programs in 2011 to provide regulatory and marine archaeological support for the nation's development of offshore renewable energy. Key Experience:Tribal & Section 106 consultation; prehistoric archaeology; National Register of Historic Places eligibility determinations; Phase I, II, and III terrestrial field work; marine remote sensing; and contract, project, and program management.

Desray Reeb
Marine Biologist

Dr. Reeb obtained her Ph.D. in South Africa, working on the structure, development and function of the integument of the southern right whale, Eubalaena australis and participated in research involving acoustic, aerial and genetic studies on various cetacean species. After graduating, she collaborated with colleagues at Woods Hole Oceanographic Institute in a project looking at novel methodologies to try to determine health indices for North Atlantic right whales. Dr. Reeb participated in aerial and ship-based surveys with the Provincetown Center for Coastal Studies and the New England Aquarium off the east coast of the US. As a term employee for NOAA SWFSC, for the past 6 years, she has worked with the various NOAA Science Centers, participating in marine mammal line-transect surveys, as well as Protected Species Observer duties for industry projects.

Gulf of Mexico OCS Region

Bruce Baird
Biological Oceanographer

Mr. Baird has a B.S. in Biological Sciences and an M.S. in Biological Oceanography. After working for the state of Louisiana’s Departments of Environmental Quality and then Wildlife and Fisheries for over seven years, he worked for the U.S. Army Corps of Engineers for 15 years, focusing primarily on freshwater diversion projects and NEPA documents. He took a position with MMS working on the CIAP Program, and was lead coordinator of the 2012-2017 Multisale EIS, the largest EIS ever produced in the GOMR region. He currently works as an SME on wetlands, coastal barrier beaches, chemo and nonchemosynthetic communities.

Rebecca E. Green
Oceanographer; Biology Studies Lead

Dr. Green’s interest in the oceans began at a young age scuba diving with her father in the Caribbean and other tropical destinations. She received her Bachelor’s degree in the Independent Studies Program, focused on biology and physics, at the California Institute of Technology (Caltech, Pasadena, CA). She then obtained her Ph.D. from the Joint Program in Oceanography at M.I.T. and Woods Hole Oceanographic Institution, with an emphasis on bio-optics and phytoplankton ecology. After moving to New

Orleans, she performed post-doctoral research at Tulane University, Louisiana Universities Marine Consortium (LUMCON), and the Naval Research Labs/Stennis Space Center on developing shelf ecosystem models and remote sensing products to better understand Louisiana shelf hypoxia. In Spring 2010, Dr. Green was hired as an Oceanographer by the former MMS, now the Bureau of Ocean Energy Management (BOEM), in the Gulf of Mexico Region. She is currently the region's Biological Studies Lead and provides oceanographic expertise on topics ranging from oil spill modeling to long-term ecosystem trends.

Mike Miner

Lead Scientist for Sand and Gravel Programs

Dr. Miner received a B.S. and M.S. in geology from The University of Mississippi where he studied the stratigraphy and diagenesis of Early Cretaceous carbonates in subsurface of Mississippi and Louisiana Gulf Coastal area. He went on to complete his doctorate at the University of New Orleans (UNO) where his work focused on late Holocene to recent coastal and deltaic evolution of the Mississippi River delta plain. After completing his Ph.D. in 2007, he accepted a research position at the UNO Pontchartrain Institute for Environmental Sciences, a position he held until joining the U.S. Department of Interior, Bureau of Ocean Energy Management (BOEM) in March 2010. Dr. Miner's research over the past decade has focused on coastal and shelf geomorphic evolution and sediment dynamics, coastal response to hurricanes and sea-level rise, and deltaic evolution with applications to improving coastal management strategies. He works in the BOEM Gulf of Mexico Region Marine Minerals Program which is located in New Orleans, Louisiana, and manages Federal offshore sand and gravel resources for beach nourishment and barrier island ecosystem restoration projects. He also holds an adjunct faculty appointment in the Department of Earth and Environmental Sciences at UNO.

Michelle Nannen

Benthic Ecologist

Ms. Nannen is a benthic ecologist in BOEM's Gulf of Mexico Region Biological Sciences Unit. She has been with BOEM just shy of 3 years and focuses on benthic habitats in the Gulf of Mexico. She earned her bachelor's degree from Rider University in Marine Sciences and her MS in Marine Environmental Science from the Marine Sciences Research Center at the State University of New York at Stony Brook. Her MS thesis focused on critical body residues of PAH and chlorobenzenes in amphipods for developing sediment quality criteria. Ms. Nannen worked for 10 years as a senior marine ecologist for an environmental consulting firm on Long Island, NY conducting benthic and fisheries research in New York Harbor, Jamaica Bay, and surrounding NY waterways. She was the project manager of several baseline ecological studies for large scale projects including: the upgrade of New York City's water pollution control plants, improvements to New York City's Marine Transfer Stations for the Department of Sanitation, the Roosevelt Island Tidal Energy Project, and several proposed offshore wind projects. After joining BOEM Ms. Nannen served as a NOAA trustee representative on a NRDA cruise focusing on impacts of the Deepwater Horizon Incident on benthic communities and pelagic megaplankton. She also served as the

BOEM representative for the interagency OSAT-2 effort at the Unified Command Center as part of the Deepwater Horizon Response. Currently Ms. Nannen serves as COR on several BOEM funded studies, including the long term monitoring study at the Flower Garden Banks; reviews plans, pipeline, and structure removal applications to prevent impacts to protected deepwater and continental shelf benthic habitats; and is a subject matter expert supporting NEPA documents for several benthic habitats in the Gulf of Mexico.

Pacific OCS Region

Mary Elaine Helix

Biologist

Ms. Helix grew up in Southern California and received her bachelors in Biology from UCLA and completed work toward a Masters in Mechanical Engineering at California State University Northridge. She was hired by the USGS Conservation Division, Pacific Regional Office (predecessor to BOEM and Minerals Management Service) in Los Angeles in 1979 and conducted environmental analyses for oil and gas projects onshore for the western six states and offshore California. In particular, she developed the policy and procedures for conducting offshore deep water biological surveys. She was the Federal lead for the Joint Review Panel that prepared the joint Environmental Impact Statement/Environmental Impact Reports for four complex California offshore oil and gas development projects with onshore facilities. In 1990 she transferred to the Environmental Studies Section, where she has initiated and managed many biological and fates and effects studies and Environmental Studies Information Transfer Meetings. She established the now 20-year-old in-house biology team to monitor rocky intertidal habitats adjacent to oil and gas facilities in Southern California. She initiated the Natural Tar Seep study, a joint study with USGS and the County of Santa Barbara, to understand the occurrence and significance of natural seepage offshore. She pioneered and manages MARINe, the Multi-Agency Rocky Intertidal Network (www.MARINe.gov), a partnership of 38 State, Federal, and local agencies, universities, and private organizations; MARINe's shared database incorporates three decades of monitoring data from more than 130 established sites. Recently, she coordinated the Oregon Marine Renewable Energy Environmental Science Conference, at which 100+ scientists convened to identify environmental research needed to support planning for renewable energy projects offshore the Pacific Northwest.

David Pereksta

Marine Biologist

Mr. Pereksta is a native of New Jersey where he started watching birds at a very early age. His passion for birds and endangered species piqued his interest in a natural resource-related career and he went on to receive his Bachelor's degree in Natural Resources Management and Applied Ecology from Rutgers University. Before coming to BOEM in March 2010, he spent 16 years with the U.S. Fish and Wildlife Service working on the conservation and recovery of threatened and endangered species along the Pacific coast, and 3 years with the U.S. Forest Service surveying, monitoring and

managing late seral stage forest species in the Sierra Nevada. Throughout his work with various Federal and State agencies, he has studied a number of imperiled bird species including Snowy Plovers, Piping Plovers, Least Terns, Ospreys, Northern Goshawks, Brown Pelicans, Spotted Owls, and Ivory-billed Woodpeckers. He has spent nearly 200 days observing birds at sea off California and North Carolina and is a regular leader on pelagic bird trips in both the Pacific and the Atlantic. He is especially interested in the effects of offshore energy development on birds and is currently managing four avian-related studies for the Pacific Region.

Donna Schroeder
Marine Biologist

Dr. Schroeder has been a BOEM marine biologist since 2007, with expertise in fishes, fisheries, and marine habitats. Her research interests focus on offshore energy, marine population dynamics, seafloor mapping, artificial reefs, effects of contaminants (DDT, heavy metals, and PAHs) on marine species, and marine policy.

Headquarters

Brad Blythe
Chief, Biological and Social Sciences Branch
Biological Oceanographer

Dr. Blythe holds a Ph.D. in Marine Sciences from the University of Georgia and a Bachelor's Degree in Marine Science and Biology from Coastal Carolina University. He joined BOEM (then MMS) as a Presidential Management Fellow in 2008 and served as a Physical Scientist in the Leasing Division. As part of his Fellowship, he also served as Congressional Liaison, deputy Chief of Staff for Offshore Energy and Minerals Management, and was detailed to NOAA's Office of the Under Secretary's policy staff where he worked on energy and arctic science and policy issues. Dr. Blythe has served in BOEM's Division of Environmental Sciences as a biological oceanographer since 2010, and is currently the Chief of the Branch of Biological and Social Sciences and also serves as BOEM's Scientific Integrity Officer.

Gregory Boland
Biological Oceanographer

Mr. Boland is a biological oceanographer with the Department of Interior's Bureau of Ocean Energy Management (BOEM) Branch of Biological and Social Sciences, Division of Environmental Sciences in their headquarters at Herndon, Virginia since 2009. He works with benthic ecology studies in all regions including Alaska, Pacific, Atlantic and Gulf of Mexico. Before moving to headquarters, he worked in the Gulf of Mexico Region for 11 years and was responsible for both fisheries and deep water community subject areas. Prior to his Federal positions, he worked with an environmental consulting firm LGL Ecological Research Associates in Bryan Texas for 10 years and then 10 years at Texas A&M University's Department of Oceanography as a Senior Research Associate.

Jennifer Lee Ewald

Special Assistant and Adviser to the Chief Environmental Officer
Physical Oceanographer

Ms. Ewald is a Physical Oceanographer and Marine Hydro-kinetic Subject Matter Expert, operationally experienced in 60 physical oceanographic buoy deployments per season while working with NOAA, the Prince William Sound Science Center and Oil Spill Recovery Institute. Projects included circulation studies in Cook Inlet, Prince William Sound and Southeast Alaska, Humboldt Bay, CA, Narragansett Bay, RI and Chesapeake Bay. Developed and managed engineering improvements for submersible buoy systems to sustain in high speed, heavy sediment environments in support of acoustic technology including the development of the Cook Inlet Beluga Alaska Fish and Game Monitoring Program. I began service with the former Minerals Management Service during the Deepwater Horizon event in 2010, immediately stepping into a high level programmatic support role, which continued during the re-organization of the sister Bureaus, Bureau of Ocean Energy Management (BOEM) and Bureau of Safety and Environmental Enforcement (BSEE) and continues in my current position as special assistant and adviser to the Chief Environmental Officer for the BOEM Office of Environmental Programs and coordinator on partnerships, cooperative agreements and scientific collaboration both within the BOEM/BSEE programs and external coordination activities including, the Cooperative Ecosystems Studies Units, Inter-agency Working Group on Ocean Partnerships, Federal Renewable Ocean Energy Working Group and National Ocean Policy.

Walter Johnson

Chief, Branch of Physical and Chemical Sciences
Oceanographer

Dr. Walter Johnson is an oceanographer and Chief of the Branch of Physical and Chemical Sciences, in the Environmental Sciences Division of the Bureau of Ocean Energy Management (BOEM), in Herndon, Virginia. He joined the Minerals Management Service in 1989. Dr. Johnson has performed oil spill modeling for the Oil Spill Risk Analysis used by BOEM in environmental documents. He is a Contracting Officer's Representative for several contract and cooperative agreement studies.

Dr. Johnson was previously at the University of Alaska Fairbanks, in the Institute of Marine Science, doing research on the coastal ocean in the Gulf of Alaska, Kotzebue Sound and the Chukchi Sea. Dr. Johnson earned his B.S. and M.S. from the University of Miami in 1972 and 1976, and his Ph.D. from the University of Delaware in 1981.

Ronald J. Lai

Physical Scientist

Dr. Ronald Lai is a physical scientist in the Branch of Physical and Chemical Sciences, Division of Environmental. His subject area includes physical oceanography and Air Quality. Study areas he manages include ocean circulation, coastal dynamics, coastal meteorology, and air quality modeling.

James Moore
Marine Archaeologist

Dr. Moore is a marine archaeologist in the Division of Environmental Sciences at BOEM and serves as the discipline contact for the agency's studies pertaining to cultural resources. Dr. Moore received his B.S. degree in marine science from Eckerd College in 2000, his M.A. in history from East Carolina University in 2003, and his Ph.D. in oceanography from the University of Rhode Island in 2011. He has participated in research expeditions in the Caribbean, Mediterranean, and Black Seas; the Gulf of Mexico; and the Atlantic. His research interests include the corrosion behavior of iron and steel shipwrecks, deep sea survey and mapping technology, and the maritime history of vessels from the 19th and 20th centuries.

James Price
Physical Oceanographer

Dr. Price was an undergraduate Physics major at the University of Colorado and received a doctorate in Physical Oceanography from the University of Hawaii. He had a postdoctoral position at the oceanographic institute at the Christian Albrechts Universitaet Kiel, Germany, followed by a National Research Council Fellowship to work at the Naval Oceanographic Research and Development Activity, a Naval research laboratory in Mississippi. He then returned to the Hawaii Institute of Geophysics for 6 years doing research on the circulation around the Hawaiian Islands before coming to work for the Minerals Management Service (now BOEM) in the Oil Spill Modeling Group. Several years ago, he assumed the honorable position of coordinator for marine mammals research in the Environmental Studies Program.

John Primo
Ecological Anthropologist

Dr. John Primo is an ecological anthropologist in the Department of Interior's Bureau of Ocean Energy Management (BOEM). His responsibilities and duties involve research design, coordination, management and oversight at the programmatic and project level. He also serves as a spokesperson liaison and interagency contact for the socioeconomic research conducted by the Bureau's Environmental Studies Program by representing the program in a diversity of forums, conferences and partnership efforts. In this role Dr. Primo serves as a member of the Inter-agency Working Group for Ocean Social Science, a supporting body to the Ocean Science and Technology Interagency Policy Committee. He has conducted and/or supported research at the community, regional and national level related to the socioeconomics of marine and freshwater bodies. He holds a Doctoral Degree in Anthropology from the University of Georgia, as well as a Master of Arts Degree in Applied Anthropology and a Graduate Certificate in Environmental Management and Policy from the University of South Florida. He earned his Bachelor of Arts Degree, majoring in Anthropology, from the University of Arizona.

Mike Rasser
Marine Ecologist

Dr. Rasser currently serves as the national headquarters marine ecologist in the BOEM Environmental Studies Program overseeing the planning, initiation, coordination and

budgeting of applied marine ecology studies. His areas of expertise include salt marsh ecology, coastal processes, scientific data management and the use of geographic information systems (GIS) and remote sensing as tools for environmental monitoring and assessment. He holds an MS from the University of Florida, PhD from the University of Texas Marine Science Institute and a BA from Florida International University. Prior to joining BOEM in 2009, Dr. Rasser worked as a lead ecologist for a consultancy on large-scale environmental planning projects including the siting of interstate electric transmission lines.