

**Minerals Management Advisory Board
OCS Scientific Committee
April 22 – 24, 2003
Hilton Anchorage Hotel
Anchorage, Alaska**

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OFFICIAL PROCEEDINGS

Tuesday, April 22, 2003

Introduction

Dr. William Schroeder, retiring SC Chair, welcomed everyone to the meeting and introduced Dr. Lynda Shapiro and Dr. Robert Diaz as the Committee's new Chair and Vice Chair, respectively.

Dr. Shapiro announced and congratulated Dr. Fred King of the Minerals Management Service (MMS), Alaska OCS Region, who has been awarded the Federal Executive Association Award for the State of Alaska.

She welcomed the new members and informed them that she has very much enjoyed serving on this Committee because MMS has been very responsive to the SC's suggestions and feels that it has played a constructive role.

She explained that the first days' meeting will focus on current environmental studies being done in each region along with updates from the OCS Policy Committee and subcommittees; the second day will focus on the future and planned environmental research programs by the different regions, and on the final day, the SC will compile recommendations to the different regions and will begin developing formal recommendations that will be made to MMS.

Director's Presentation

Presented by Mr. Robert LaBelle

Mr. LaBelle, Deputy Associate Director for Offshore Minerals Management (OMM), gave a presentation on behalf of Ms. Johnnie Burton, Director, MMS, and Mr. Tom Readinger, Associate Director, OMM, who were unable to attend.

Prior to being appointed Deputy Associate Director, Mr. LaBelle was the Chief, Environmental Division, and has been attending the SC meetings for many years. He stated that he shares Ms. Burton's and Mr. Readinger's enthusiasm and respect for the important work the SC does and welcomed the new members. He introduced Mr. Dick Wildermann who is now the Chief of the Environmental Division which manages compliance with all environmental laws for the offshore program.

He introduced Dr. James Kendall, MMS Chief Scientist and Chief of the Environmental Sciences Branch who manages the Environmental Studies Program (ESP) and announced that Dr. Kendall is going to serve as the Executive Secretary for the SC.

Mr. LaBelle recognized Dr. Schroeder for his years of service on the SC, particularly for his chairing the Committee and involvement with many of its subcommittees, most recently the Mercury Subcommittee. Dr. Schroeder, along with Drs. Livingston Marshall, Denise Stephenson-Hawk, and Eric Crecelius, a past SC member, were invaluable in reviewing and evaluating the information pertaining to concerns over mercury in the waters and sediments of the Gulf of Mexico. The guidance they provided on what actions the MMS should take in the context of oil and gas activities in the Gulf has been extremely important, not only to MMS and the Department of the Interior (DOI), but also to an Interagency Working Group on mercury which has been established by the White House.

Mr. LaBelle explained that the role of the SC is to advise the MMS Director on the feasibility, appropriateness, and scientific value of the ESP, and commented that this Committee is an example of an effective merge of private, academic, and government sectors.

He also acknowledged Mr. John Goll, the Regional Director of the Alaska OCS Regional Office and Dr. Cleve Cowles, Studies Chief of the Alaska OCS Region's Environmental Studies Section. He introduced Ms. Carolyn Beamer who will be taking over Ms. Julie Reynolds' responsibilities to the SC as its main point of contact to ensure that logistics, agenda planning, etc., are continued.

General Information

The MMS is the largest land manager in the United States – albeit submerged lands - 1.76 billion acres. The OCS Lands Act (OCSLA) celebrates its 50th Anniversary this year and it is important that the exemplary record of the offshore industry in operating safely be recognized. The offshore industry is one of the safest industrial activities in the United States. This year's Safety in Seas Award was presented to ChevronTexaco and Oceaneering for being leaders in the field of safe operations in a demanding working environment. MMS is proud to be part of the selection process in recognizing the industry for maintaining this incredibly good safety record.

Ongoing Issues

Energy/Offshore Production. Mr. LaBelle reported that production from the 40 million OCS acres under lease accounts for about 30 percent of all domestic crude oil production and about 25 percent of all domestic natural gas production. MMS has managed these offshore lands from the initial assessment of the resources available to be drilled to the end-of-life of a producing field when a company plugs and abandons its wells and cleans the surrounding environment. The MMS has done this job for 20 years and has collected over \$80 billion in revenue generated by over 66 lease sales, 8.6 billion barrels (Bbbl) of oil, and 90 trillion cubic feet (Tcf) of natural gas.

It is projected that by the year 2006, the OCS could easily account for about 40 percent of U.S. oil production and it is expected that the OCS will continue to account for about 25 percent of domestic natural gas production. In the Gulf of Mexico, deepwater (greater than 1,000 feet) domestic production now accounts for about 60 percent of the Gulf's oil production and 23 percent of its natural gas production.

In 2002, 12 new deepwater discoveries were made. Three of these were in 8,000 feet or greater water depth and 14 new deepwater projects began production. These joined the 51 that were already in production and of these 65 projects, 41 are sub-sea completions with tieback to a surface facility.

Mr. LaBelle said that MMS expects a significant rise in the number of deepwater projects that will start production in the year 2003, perhaps as many as 19. This rise in production using the MMS low case estimate for 2006 would increase oil production from the OCS by 75 percent since 1995; high case estimate increase would be about 118 percent in a 10-year span.

Two of the major factors for the rise in production from the Gulf of Mexico and the importance of the OCS in the national energy picture are great geology and the application of ingenious technologies. However, there is a third component that MMS is directly responsible for, a flexible regulatory regime that seeks to use economic incentives to stimulate development.

The DOI, in the face of recognized shortages in natural gas facing the country over the next few years, has been working on trying to stimulate offshore production. The DOI offers a royalty incentive program for deepwater leases and it has expanded the incentives to promote development of natural gas from very deep wells in shallow water depth and is also considering extending these provisions to leases purchased before 2002. In March, a proposed rule was published to allow owners of existing leases to take advantage of a royalty relief incentive for drilling deep gas prospects in the shelf waters of the Gulf of Mexico.

Few other initiatives can address near and mid-term shortfalls in natural gas supplies due to long lead times needed to explore and develop resources. Deep shelf gas can be brought online quickly due to the extensive existing infrastructure in shallow waters. New leases can tap only a fraction of the deep shelf resource potential that underlies most existing leases issued from previous lease sales. Interest has been expressed for areas 30,000 feet and deeper and MMS will begin considering whether other measures are warranted for such extreme conditions.

The Department has also offered lease extensions for certain exploration activities that focus on hydrocarbons that occur beneath subsurface salt sheets. These deep shelf gas and sub-salt provisions are specifically targeted at bringing more natural gas production online in the near future to help meet the expanding demand for natural gas.

Alaska OCS Region. Economic incentives are being developed for exploration in offshore waters of Alaska and program-wide, and it is critical for the MMS to have a well-managed program of regular lease sales in the areas where exploration is allowed.

Gulf of Mexico OCS Region. MMS has another research program other than the ESP; the Technology Assessment and Research Program (TARP). This is a smaller program that addresses engineering, safety, and oil spill research. TARP has recently issued a call for white papers assessing the performance and damage experienced by Gulf of Mexico facilities during the recent Hurricane Lili. As a result, MMS is funding a number of major engineering research efforts and, because of a need for better physical oceanographic information, the ESP is funding the development of a comprehensive, definitive, and reliable database of wind, sea state, and currents associated with Hurricane Lili in the northern Gulf of Mexico. This information will be used to develop an MMS damage assessment report and to ensure that current MMS industry guidelines are adequate for future hurricanes.

Other. The main tenets of the OCSLA clearly state that the federal OCS is a vital national resource: Public lands should be made available for expeditious and orderly development subject to environmental safeguards, consistent with the competitive aspects of the economic system, and based on national needs.

Mr. LaBelle stated that MMS is working with the National Oceanographic and Atmospheric Administration (NOAA) which is responsible for implementing the Marine Mammal Protection Act (MMPA). The Act protects the marine mammals existing in areas where oil and gas activities are being conducted. The most recent instance of this working relationship is with the concern that seismic activities may be adversely affecting marine life, particularly sperm whales, which are an endangered species known to inhabit Gulf of Mexico waters. In December 2002, MMS petitioned NOAA Fisheries for a rulemaking for potential harm under the MMPA regarding seismic surveys in the Gulf. NOAA Fisheries published a notice of the petition in the March 2003 Federal Register that indicated that in the interim period before this rulemaking is complete, MMS will “enforce the mitigation measures outlined in this section to ensure the protections required by the Endangered Species Act and the Marine Mammal Protection Act.”

The security of offshore infrastructure is another issue of primary importance since the importance of domestic production has increased in view of the potential for a disruption in oil and gas imports. MMS has adopted a proactive approach towards homeland security by identifying key assets and sharing responsibility with other federal agencies. Communication, security awareness, and identifying vulnerabilities are being developed to improve the protection of offshore personnel and facilities. MMS has developed *Threat Security Guidelines* which form the foundation for a comprehensive offshore security system and establishes specific protective measures for each standardized threat condition level of the Homeland Security Advisory System. MMS is working with the Naval Facilities Engineering Service and the Sandia National Laboratories to develop a threat assessment and management methodology, and is working closely with the Coast Guard to develop security regulations for offshore fixed and floating facilities. One of the most recent successes has been to work with the American Petroleum Institute (API), the Coast Guard, and others to draft and publish security guidelines specifically tailored for offshore oil and gas production operations.

Mr. LaBelle announced that the Oceanology International 2003 Conference is scheduled for June 4-6, 2003, in New Orleans, Louisiana.

Alaska OCS Regional Overview

Presentation by Mr. John Goll

Mr. Goll, too, congratulated Dr. King on his award and explained that the Federal Executive Association Awards is very stiff competition and was awarded for the work that had been devoted to MMS's National Environmental Policy Act (NEPA) documents, the Environmental Impact Statements (EIS), and other management issues that the Alaska OCS Region has encountered. He added that the Region has won this award for the past 2 out of 3 years and that it represents the kind of employees in MMS who are recognized not just by MMS but also by its peers and the rest of the federal establishment.

The topics Mr. Goll presented were access, permitting, and challenges that have resonated at a number of meetings throughout Alaska.

Access. He stated that DOI has put a very high importance on Alaska to help provide access to federal lands for energy. Onshore, the Bureau of Land Management has been offering more areas in the National Petroleum Reserve Alaska on a regular basis and this is a much more ambitious program in this administration than previously. The State of Alaska is also looking to increase access to State lands throughout the State and sales are held each year.

Within MMS's leasing schedule for the next 5 years, four offshore areas are being offered for sale. They include the Beaufort Sea and Cook Inlet, which have had sales and activity in the past, and the Chukchi Sea/Hope Basin, and Norton Basin areas. The potential in the Chukchi Basin for oil can range from nine to 25 Bbbl and the gas amounts can range from 14 to 154 Tfc. One EIS for three sales has been completed for the Beaufort Sea, which is a different approach than has been done in the past since it is felt that this is much more efficient and also the State of Alaska has done an environmental review that covers about 5 years worth of proposed sales. The sale is planned for September 24, 2003.

For Cook Inlet, there is a different need driving this sale which is for more local use within South-central Alaska, which includes Anchorage and the Kenai Peninsula. He explained that in Cook Inlet, one EIS is being prepared for the two scheduled sales and comments are now being evaluated for the final EIS. The sale is planned for May 2004 with the second sale scheduled in 2006. Issues here include subsistence with some of the Native villages in the southern part of the area, zero discharge from platforms, and fisheries.

The Chukchi Sea area has economic challenges because of location and cost of doing work in the northwest of Alaska. The MMS sees its role as keeping options open if companies may be interested in searching that area; therefore, a different process is being used. Normal approach would be to start a sale process, write an EIS, announce the proposed notice, and then determine whether or not a company is interested in attending the sale. The new approach being used is to ask whether or not a company is interested in exploring in these areas first. If so, a more formal process of designing the sale around the areas that are of interest and then conducting an NEPA evaluation.

Economic incentives for the Beaufort Sea and other planned areas include royalty suspension volumes per lease where the first 30 to 45 million barrels, depending on location, would be royalty free, have a price floor of \$18.00 per barrel, and a price ceiling of \$28 per barrel during royalty suspension.

Permitting. Obtaining better clarity and certainty in the permitting arena are extremely important in order that industry knows what the rules are and that those rules are the ones that actually have to be followed. Upon taking office, President Bush issued an executive order regarding energy projects and notified federal agencies to act at a good pace; there have been observations made regarding the clarity in permitting. One item that has caused uncertainty is that some agencies have wanted to make decisions on issues that are more rightly the role of another agency and this has caused confusion. Agencies need to follow what it is that they are supposed to be doing and other agencies need to respect that.

Current projects. Mr. Goll described Northstar as being in operation for 1 year and nominally has produced about 60,000 barrels – 84 percent state and 16 percent federal. After over 20 years of leasing, this represents the first permanent Alaska OCS production.

Liberty is another development plan, however, bpAlaska is continuing to evaluate options for bringing the oil to shore.

A project of high interest during this past winter was the McCovey Project in the central Beaufort Sea. Phillips, with Chevron, proposed to use an ice island and drill solely during the winter which would enable them to avoid bowhead whales and other subsistence issues. However, due to local concerns about the use of an ice island, the project was redesigned to use a Steel Drilling Caisson (SDC) which is a tanker converted to an ice-strengthened drilling vessel. EnCana became the operator in partnership with ConocoPhillips and ChevronTexaco. They worked very closely with the communities on the North Slope both during the tow of the SDC and during operations, going into a quiet mode for about 2 months during the bowhead subsistence hunt from Cross Island. After drilling the well, EnCana plugged and abandoned it in February and are assessing the next step.

In Cook Inlet, the MMS is involved in the Cosmopolitan Unit that was drilled from onshore into state waters but includes two federal OCS leases. These represent the only leases in Cook Inlet due to limited leasing over the past 15 years.

Side Comments Regarding Gas. Many areas off the west coast of Alaska give indications for very good gas potential. In many locations, the gas could be used for communities especially if onshore sources are unavailable. There is also potential for enormous quantities of the presently unconventional resources of gas hydrates – estimates of 590 Tcf onshore and 170,000 Tcf offshore around the state. He added that there are also a number of proposals to build a pipeline. The goal of the State of Alaska is to get a pipeline built from the North Slope down the Alaska Highway through Canada or to Valdez into a Liquefied Natural Gas (LNG) plant.

Challenges. The State of Alaska is fighting a large budget deficit and is attempting to balance its budget. MMS is looking to economic incentives to help facilitate offshore activity with the goal not only to find more energy, but to ensure that the companies will be able to develop the resources safely with good economics while still protecting the environment.

Mr. Goll reported that the TransAlaska pipeline transports one million barrels per day as compared to two million barrels per day back in the 1980s. This fuel goes to the west coast for energy, gas, gasoline, heating fuel, etc., and state and federal agencies are trying to at least maintain that one million barrel level while trying to increase the amount of production.

Other challenges

- Oil spills and cleanup in broken ice
- Bowhead whale and subsistence - noise
- Subsistence in general
- Activity avoidance
- Sociological effects
- Impact assistance
- Environmental justice
- Lack of seismic vessels
- Lack of drilling vessels
- National Research Council (NRC) released its North Slope Cumulative Effects Report

Research

- Technology and Assessment Program – engineering and oil spill response
- Environmental Studies Program
- University of Alaska
 - Coastal Marine Institute (CMI) – new 5-year agreement
 - Marine Minerals Technology Center
 - INSTEP which is an Intern Program with the goal of getting more Alaska Natives interested in joining the Federal Government

Oil Spill Response Trials 2000 and 2002.

- Advancing Skimmer System
 - Advancing skimming systems are inefficient in heavy ice conditions
 - Boom collects ice as well as oil
 - Extensive ice management is required
 - Equipment easily damaged; skimmers can be cut off from oil
- Free Skimming Tactic Using Small Boats
 - No booms – rely on ice to concentrate oil for recovery
 - Boats better able to react and maneuver to where the oil would be
 - More time spent skimming oil instead of dodging ice
- Free Skimming Tactic Using Response Barge
 - Both large and small vessels can effectively access oil
 - Allows access to oil in melt pools on ice floes or along ice edge

- Various types of skimmers can be used depending on need

Research Meetings

- Information Transfer Meeting (ITM), held March 10-12, in Anchorage, Alaska
 - Physical Oceanography – monitoring
 - Fate and Effects – biology
 - Protected Species – social science
 - Economics
- Information Update Meeting (IUM), held March 14 in Barrow, Alaska

Open Discussion

Dr. Duane Gill asked what the opposition to oil and gas activities are in Cook Inlet with some of the communities. Mr. Goll answered that it varies: In Homer, for example, it has traditionally been opposed since it is a different lifestyle of people just not wanting the activity offshore. Some of the Native communities are very concerned about anything going into the water because of the subsistence foods that are consumed.

Dr. Gill asked how that interacts with commercial fishing to which Mr. Goll responded that many in commercial fishing have had the experience of working with oil and gas operators and believe activities can be coordinated. They want activities coordinated such that, for example, an exploration rig doesn't go out in the middle of a certain fishing season.

Dr. Gill asked what the subsistence issues are throughout the state, the bowhead whale up in the north, subsistence foods, perhaps the quality of foods in Cook Inlet and are there any similarities in subsistence issues or are more regionally specific? Mr. Goll answered that they are similar in the sense that the communities want to be able to keep their tradition of fishing or whale hunting. Part of the issue is concern over interference of oil and gas activities with subsistence, but part of it is also to make sure that the food is wholesome and that nothing is being introduced into the water that would prevent consumption.

Overview of the MMS Environmental Studies Program

Presentation by Dr. James Kendall

Dr. Kendall explained that the mission of the MMS is to manage the mineral resources on the OCS in an environmentally sound and safe manner and to timely collect, verify, and distribute mineral revenues from Federal and Indian lands. To this end, the ESP's mission is to provide the information needed to predict, assess, and manage the impacts from offshore oil and gas and marine mineral exploration, development, and production activities on human, marine, and coastal environments. He reported that for Fiscal Year (FY) 2004, the ESP budget would probably remain around \$17 million. Although the budget has not yet been approved, this is what is being anticipated.

Approximately 50 percent of the \$17 million will be spent in the Gulf of Mexico, with the remainder divided between the National Office and the Pacific and Alaska OCS Regions. Not all of this money is for new starts; there are also ongoing studies that will need to be funded. Of the \$17 million, after the ongoing studies are accounted for, there will be about 44 percent available for new starts.

He gave a breakout by discipline of how such funds have been spent over the past few years.

- Air Quality – 4 percent
- Biology – 18 percent
- Fates and Effect – 17 percent
- Information Management – 6 percent
- Minerals – 3 percent
- Endangered and Protected Species – 7 percent
- Pollutant Transport (Physical Oceanography) – 30 percent
- Socioeconomics – 12 percent
- Other – 3 percent

Dr. Kendall explained that most of the studies are managed by the Regions; however, there are a few items that are managed by the National Office, such as modeling enhancements, information management, and special initiatives.

Modeling Enhancements. Occasionally, the National Office is tasked to fund modeling and physical oceanography studies in order to keep the oil spill modeling program current.

Information management. At last year's meeting, the SC recommended listing citations from the ESP over the last year in a peer review literature. Dr. Kendall explained that in 1993, a listing of all peer reviewed science citations or references that resulted from the ESP had been published that amounted to just over 800 and covered years 1982-1993. He provided the SC a draft list of peer review articles and said that the entire list will be redone in 2004.

Special initiatives. Some studies start as a result of discussions held at the highest level, such as hydrates, where it may be too early for the Regions to become involved. The National Office will monitor those types of studies and sometimes will contribute funds to TARP for projects.

The ESP works through competitive contracts, interagency agreements, and cooperative agreements once a list of information needs and studies are approved.

- **Competitive contracts.** A Request for Proposal (RFP) is published and proposals are submitted. A Technical Proposal Evaluation Committee (TPEC) is formed to review each proposal and a contract is awarded. These contracts are awarded to outside researchers and companies.
- **Interagency Agreements.** These are entered into with other federal and state agencies that have the expertise and can do the required work, such as the Biological Resources Division (BRD) of the U.S. Geological Survey (USGS).
- **Cooperative Agreements.** Awarded to universities, colleges, and academia, i.e., CMI.

The ESP Process. Dr. Kendall explained that information needs are annually assessed. Even though most of the information is used by MMS, communication with outside stakeholders, such as a state, is required to determine whether they are in need of the same type or similar information.

Once information needs are determined, Studies Development Plans are produced and deliberations between the SC and MMS begin. Once deliberations are complete, the SC's recommendations, along with those of other stakeholders, are reviewed, the proposed study nominations modified as appropriate, and then the studies are ranked based on MMS needs. Although not all recommended studies will be funded, those that are desperately needed will be and it is those studies which become the National Studies List (NSL). Once the NSL is complete, it is reviewed by the Associate Director for Offshore.

Dr. Kendall explained that in 1986, the MMS contracted with the National Academy of Sciences (NAS) to conduct a very extensive review of the ESP which included physical oceanography, ecology, socioeconomics, and a general overview. The SC reviewed NAS's recommendations and asked how these issues had been addressed. Presentations were given to the SC which resulted in a letter to the Director stating that deficiencies NAS had found had been corrected. One recommendation given by the NAS was that the MMS should listen to its SC.

Peer review. Dr. Kendall stated that the MMS peer review process starts very early. For example, information needs are reviewed internally and externally, i.e., headquarters, regions, states, and industry; previous NAS recommendations, such as continue sending samples to the Smithsonian Institute, keep databases up-to-date, etc., are examined; and presenting new proposed studies to the SC for its review. After these reviews, the NSL is produced and RFPs are requested, received, and reviewed. These proposals are reviewed by a TPEC that may include non-MMS participants such as USGS, BRD, and SC members. Also, for most studies, a Scientific Review Board (SRB) is created, which is composed of scientists moderately participating in the study, to review projects on a quarterly or annual basis to make sure the scope of the studies and the quality of science are being maintained. Finally, publishing in the peer review literature is encouraged. It is not uncommon for a contractor to request additional funds in order to prepare a manuscript and/or publish its findings in journals.

President's Budget and Performance Integration Initiative. Dr. Kendall explained that for the next 4 years, 20 percent of all federal programs have to be dissected (reviewed) to determine whether or not taxpayers are getting their money's worth and that the Office of Management and Budget (OMB) had decided that the ESP was going to be part of this performance assessment. Some questions asked were:

- Is the program clearly focused?
- Is the budget aligned with program goals?
- Is the program evaluated on a regular basis?

Answers to these questions required detailed explanations. The OMB also asked about the SC:

- What is the SC and what does it advise?
- Why does MMS listen to the SC?
- Why should taxpayers pay the SC to tell MMS what it should do?

OMB was shown the recommendations from the Deepwater Subcommittee and the draft copy of Dr. Schroeder's mercury report. NAS's reviews and MMS's responses were also examined and when asked if MMS responded to the NAS recommendations, MMS produced the 1995 SC resolution, "...the OCS SC is pleased with the progress each Region has made in addressing the identified deficiencies in the research studies...", OMB was satisfied. OMB also looked at the ESP Website.

The result of this performance view was that the ESP has received the highest score from OMB, not only for MMS, but for DOI, and one of the highest, if not the highest, scores government-wide. Dr. Kendall emphasized that SC meetings not only affect the people attending these meetings, they affect senior management, DOI, OMB, and beyond.

Open Discussion

Mr. Mike Rex asked if MMS is keeping track of what the SC has done for MMS and, if not, suggested that it may be useful to know where the SC has been and how things have panned out. Dr. Kendall agreed with Dr. Rex's suggestion and said it would be beneficial to have something that shows how the SC has contributed to MMS over the years. Dr. Shapiro suggested one way would be to consolidate the SC recommendations with MMS responses from meetings and create an ongoing expanding table.

Dr. Diaz asked if MMS has any current or planned studies with NAS. Dr. Kendall responded that a proposal dealing with noise in the sea has recently been received and that he is involved with the interagency working group, National Oceanographic Partnership Program (NOPP), working to fund it. One of the functions of the NOPP is to solicit funds from agencies and jointly support research helpful to all. As an example, Dr. Kendall said that through NOPP, MMS is trying to fund a proposal with NOAA and the Office of Naval Research (ONR) to look at the issue of noise in the sea. Dr. Cowles added that the NAS review of the ESP also contained general recommendations relative to not only the studies program but also to the agency. He stated that the Alaska OCS Region is still responding and will continue to respond to those recommendations in a number of ways. As an example, for the Alaska OCS Region, the report recommended that it work more closely with communities on some issues that could not be resolved by science alone and recommended a better link with physical oceanography, modelers, and field measurements. A workshop sponsored by the Alaska OCS Region this past winter addressed this recommendation, and the most recent NAS report on cumulative effects in Alaska has just been received and there may be some specific studies to address those concerns. The Regions are continuing to respond to those earlier NAS reports in different ways and there is more to review and consider. Dr. Pat Roscigno added that the Gulf of Mexico OCS Region was encouraged by the NAS to do more process-oriented studies and more integrated studies and reported that the Region has moved in that direction very strongly over the last several years.

OCS Policy Committee Report

Presentation by Mr. Larry Schmidt

Mr. Schmidt explained that he represents the New Jersey Department of Environmental Protection and that he has been on the OCS Policy Committee for almost 20 years. One goal of the Committee is to have as much cross pollination between the activities of the Policy Committee and the SC. The Policy Committee meets twice a year. One of the meetings is usually held in the Washington, D.C. area. The members of the Policy Committee represent the governors of the coastal states, the oil industry, and the environmental community. There is also representation, on an ex-officio basis, from other federal agencies that interact on offshore activities, including Department of Commerce, Department of Energy (DOE), and the Environmental Protection Agency (EPA).

Mr. George Banino is the Chairman of the Policy Committee and represents marine mining interests. Mr. Gaylen Cobb, from Chevron representing large oil, is the Vice Chairman.

The Policy Committee met in November 2002 in New Orleans, Louisiana. A pre-meeting field trip was made to the tip of the Mississippi Delta to Port of Fourchon, a port dedicated to supporting OCS activities in the Gulf of Mexico. There was also a tour of the Louisiana Offshore Oil Port (LOOP) facility. LOOP is an offshore oil port where tankers offload and send crude oil via a pipeline to a site that is 20 miles inshore where it is stored in underground caverns and, subsequently, shipped to refineries not only in the Louisiana area but as far north as Illinois. It was very informative for the Committee to see the socioeconomic issues associated with Port Fourchon and the coast of Louisiana. The Committee is concerned about the coastal land loss and how some of those impacts were tied to OCS activities.

Summary of the Policy Committee Meeting, November 2002

- *Global energy.* MMS made it very clear that natural gas is very important to the U.S. for power facilities, existing power plants, and proposed power plants. The demand continues to grow and the supplies continue to diminish.

- *Methane hydrates.* A presentation was given on the research that is currently going to make methane hydrates commercial.
- *Oil in the Sea.* This is an updated report produced by the NRC. This report is the third iteration. To summarize that report, OCS activities make up a very, very small percentage of the oil that gets into the sea. Most of the opposition, in terms of getting access to the OCS, comes from public fear and concern that the oil and gas industry will pollute coastal areas, destroy the fisheries, and adversely impact coastal tourism. He said that it is apparent in New Jersey and New York that the largest contribution of coastal pollution comes from oil runoff and transportation risks associated with bringing oil to the refineries and is greater than anything that historically has occurred from OCS activity. An Education and Outreach Subcommittee, which is comprised of nine members from the coastal states, the environmental community, fishing industry, the oil and gas industry, DOE, and an environmental science and education consultant, is addressing the public education and public perception issue.
- *Energy, the Environment and Public Opinion.* Mr. Schmidt introduced this book written by Dr. Eric Smith of California and funded by MMS and said that it details California cultural lead on OCS opposition and support. He commented that it has been very helpful to the Policy Committee.
- *Mercury Studies.* The Policy Committee was given an update by Dr. Schroeder and Dr. Mary Boatman of the Gulf of Mexico OCS Region. He said that it was enlightening to be able to receive this information, report back to the decision-makers at the state level, and to try and get through some of the issues that were widely reported in the media.
- *Legislative issues and regional updates.*

Summary of the Policy Committee Meeting, May 2002

- *Sand and gravel issues.* Presentations were made by representatives from the U.S. Army Corps Engineers Waterways Experiment Station and the New York District of the Corps of Engineers. The Corps of Engineers initiated a major project to provide beach nourishment to New Jersey's coastal beaches in Monmouth County. This project placed about 15 to 20 million cubic yards of sand pumped from offshore onto the beaches. The offshore borrow area was in state waters. The Corps completed an \$8.5 million dollar monitoring effort to look at the environmental conditions prior to the dredging activity, during dredging, and post-dredging for 2-3 years in order to get some idea of recovery of the environmental systems, the biological systems, and the benthos from that activity.
- *National Ocean Observing System.* Dr. Kendall addressed the Policy Committee regarding this issue. He said that there are visions to bring together the federal, academic, states, and industry in a coordinated system of monitoring U.S. marine waters. Dr. Fred Grassle, a former member of the SC, is one of the leaders in terms of an ocean observation system offshore New Jersey. The Policy Committee learned what those activities could potentially yield in terms of getting a better understanding of ocean issues.
- *Oil and gas technology.* Presentations were made on ultra deepwater development in the Gulf of Mexico and Floating Production Storage and Offloading Systems. These presentations enabled the Committee to understand how technology is evolving and how the industry is much better suited today to develop the offshore resources in environmentally sound ways.

Mr. Schmidt announced that the next meeting of the Policy Committee is May 13-14, 2003, in Alexandria, Virginia. At this meeting, the Committee will be considering a resolution regarding long-term management of geo-science data. This proposed resolution is the result of an NRC study tied to preserve existing data. Mr. Schmidt provided a draft of the resolution to the SC members and asked for comments.

Open Discussion

Mr. Rex stated that in national and international studies of conserving biodiversity, particularly in terrestrial environments, there has been a long understanding that these are essentially political problems and if they are to be solved, one needs to bring together ecologists, people in the regulatory agencies, economists, social scientists, and political scientists. Although there are liaisons between the committees, it appears less is being done. At the meeting in New Orleans in May, the Deepwater Workshop, where the social scientists seemed to be a completely independent, freestanding unit from the scientists, it occurred to him that one area of common interest was risk assessment and the use of Government Information Systems (GIS), both of which interest the scientific group and

the policy group, and are tools that can be used. Dr. Rex asked Mr. Schmidt to comment. Mr. Schmidt replied that Mr. Don Oltz, former Chair and a state geologist from Alabama, brought his associate director, Mr. Bob Mink, to a Policy Committee meeting to array GIS technology and what it could do in terms of doing data management and helping to develop the dialogue and the integration between the physical sciences and the social sciences. He added that Mr. Mink's PowerPoint presentation should be available to the SC.

Report From the OCS SC Mercury Subcommittee

Presentation by Dr. William Schroeder

Dr. Schroeder presented background information on the Mercury Subcommittee and asked the SC, at the end of the open discussion period, to vote whether or not it accepts the Subcommittee report, as required.

Dr. Schroeder explained that at the end of 2001 and into 2002, the Mobile Register began a series of articles on mercury based on analysis of mercury and fish and then mercury and humans and immediately began to try to assign blame without having any basis. One of the targets, and unfortunately becoming a principal target, was the oil and gas industry and the use of barium in drilling muds for lubrication during exploration. As a result of this, Senator Shelby from Alabama and Senator Sessions, as well as many others, posed questions to MMS. The issue became a hot item very, very quickly and the SC was asked whether or not it would investigate this issue which is how the Mercury Subcommittee came into being.

The Subcommittee was formed in March and its members are, aside from Dr. Schroeder, Drs. Stephenson-Hawk, Marshall, and recently-retired SC member, Dr. Crecelius, a chemist who has experience working with mercury.

Mr. James Cimato of the headquarters office took the lead and supplied as much information as available at the time in order for the Subcommittee to begin its review. He explained that at the same time, industry had jumped into the fray as well and the API contracted with Dr. Jerry Neff from Battelle to do a review of fate and effects of mercury in the oil and gas exploration and production operations. Although that report took a bit longer than anticipated, it was an essential part of the review. Also, at the same time, the Mississippi/ Alabama Sea Grant Program became interested and created a forum that was held in Mobile in May of 2002.

The regular meeting of the SC was held in April 2002, and was the first opportunity the Subcommittee could meet. At the SC meeting, presentations were made by Dr. Neff and Dr. Paul Montagna, a Professor of Marine Science at the University of Texas at Austin, Marine Science Institute. He is a marine ecologist with a focus on benthic processes and is an expert in statistical design and analysis. After the SC meeting, the Subcommittee met with MMS and Drs. Neff and Montagne in order to determine how to proceed. Basically, it was decided that all of the available information needs to be reviewed and once Dr. Neff's report was finalized, that would be reviewed, too.

A study was designed and tagged onto an ongoing study in order to be coordinated with ships already scheduled to go out to collect data. Dr. John Trefry and his colleagues were contracted to that study and a report has been published regarding methyl mercury specific. This study provided the first information on methyl mercury in association with sites associated with oil and gas activities.

The Subcommittee, in the meantime, created a series of issues of concerns. As additional information became available, the Subcommittee produced its report, *Mercury in the Gulf of Mexico: The Role of Outer Continental Shelf Oil and Gas Activities* ([Attachment 1](#)). This report was presented in draft form at the Policy Committee meeting.

At the Policy Committee meeting, three presentations were made: Dr. Gene Whitney from the Office of Science and Technology Policy, representing the Interagency Working Group on Methyl Mercury in the Gulf of Mexico; Dr. Trefry gave a report on his findings from the study that had recently been completed; and Dr. Schroeder presented the findings of the Subcommittee.

Open Discussion

Dr. Diaz asked Dr. Trefry whether he felt the far field sites were far enough away from the near field sites to do the comparison for the methyl mercury concentrations. Dr. Trefry responded absolutely and positively, yes. There were no traces of any drilling residues at any of those sites and the team worked real hard to identify sites that were not close to some other site farther away.

Dr. Trefry added that he wanted to applaud the Subcommittee for stalling until real data had become available. This was a rather strange event that went on for almost a year with intense discussion with little data and the Subcommittee held firm that nothing could be done until more data became available.

Dr. Shapiro asked Mr. LaBelle if this report contains what is needed in order to protect the interests of MMS. Mr. LaBelle replied that it was just what MMS needed, and there is an ongoing experiment that is collecting data directly pertaining to mercury. He thanked the Subcommittee and reiterated that the information was very much what was needed.

Dr. Schroeder asked the status of the barite study and whether or not it is looking at the solubility of mercury that is in barite. Dr. Boatman replied that a contractor has been selected and the final award is waiting for procurement. She went on to explain that there is very little information on exactly how mercury is incorporated in the lattice structure of barite and there are no studies in the open literature. Also, there is a concern about whether mercury can be released from the barite, too. Several questions were raised during the process of reviewing the literature to address the recent concerns about mercury. The barite study funded by MMS will repeat some of the research that was done in the 1980s, but is not in the literature and will hopefully more fully address the issue of the chemical form of mercury and other trace metals in barite. Dr. Schroeder explained that the Subcommittee depends on that study since it would aid MMS in building the foundation upon which future decisions will be made.

Dr. Shapiro noted that there was one aspect that was not addressed in the report pertaining to public relations and whether or not the information would be made public. Dr. Kendall replied one of the priorities of the Associate Director is to put together an education and outreach plan to resolve outreach problems; therefore, there is a plan, it is at the highest levels of MMS, and it involves everything from education, outreach, posters, and meetings.

Dr. Gill stated that he had asked at the previous SC meeting whether or not it was believed that the decommissioning of rigs using explosives assist to increase the risk of mercury entering into the food chain. He also asked if there is any kind of inner governmental agency cooperation to work together to get this kind of information into an education program. Dr. Kendall responded that there is coordination with other agencies, especially regarding mercury. Mr. LaBelle responded, in regards to decommissioning of rigs using explosives, that the rigs are stripped of contaminants and that the top sides are usually removed, if toppled in place. Dr. Roscigno added that the platform is removed up to 15 feet below the mud line and, in terms of piling, studies indicate that the contaminant issue is not a problem.

Dr. Rex stated that he had read in Dr. Neff's report, the EPA is already regulating barite and asked if there is feedback to that regulatory process in another agency. Mr. LaBelle replied that the EPA is in charge of regulating the discharges from offshore platforms and there are EPA representatives on the larger committee that meets regularly on this issue; therefore, the feedback loop is there.

Dr. Joe Smith commented that mercury and drilling discharges are not new issues and environmental effects from these discharges have been studied since the earliest days in the 1970s. He said that it is important to keep track of the information with efforts being aimed at making annotated bibliographies because the issue will come up again sometime in the future.

Dr. Shapiro asked for a motion to approve the Subcommittee report by the SC and it was approved unanimously.

MMS Coastal Marine Institute CMI Initiative Overview

Presentation by Dr. James Kendall

Dr. Kendall explained that Mr. Cimato works very closely with the Gulf of Mexico, Pacific, and Alaska OCS Regions coordinating the CMI reviews, the awards of the Cooperative Agreements, etc.

Dr. Kendall stated that the goals of the CMI are to:

- strengthen relationships with States where OCS oil and gas activities take place,
- facilitate a cost-sharing partnership,
- address MMS and state information needs,
- improve information flow to local communities and the state, and
- provide for a way of training new students in oil and gas issues.

The program was started in 1989 and some of the graduate students involved then with the CMI are now either post docs or faculty members. Therefore, they were brought up with a very basic understanding of the oil and gas program, how it worked, and our information needs.

Participants. The participants of the CMI are Louisiana State University (LSU), University of California at Santa Barbara (UCSB), and the University of Alaska Fairbanks (UAF).

Budget Allocations. Over the last few years, MMS has devoted \$2 million each year to the Gulf of Mexico CMI for research and the State of Louisiana has matched that \$2 million. In Alaska, the amount is up to \$1 million a year, and in California, it is down to about \$150,000 per year since research in California is winding down. However, in California, there are some pressing needs regarding decommissioning and rigs to reefs so there may be a very valuable role for the CMI to play.

Program Direction. The Universities are sent an annual guidance letter that indicates some of MMS's hottest topics. The Universities also have access to the Annual Studies Plans to assist them in what the MMS is trying to achieve. Since these are Cooperative Agreements, there can be a free flow of information between MMS and the state researches. The Universities submit Letters of Intent (LOI) which are proposals that indicate what the researchers would like to do. A meeting is scheduled between MMS and Technical Steering Committees (TSC). Once the LOIs are selected, the Universities are asked to submit full proposals for each LOI selected and these proposals are reviewed by both the state and the MMS.

Project Stats. To date, the Gulf of Mexico CMI has 91 completed or ongoing projects at a cost of \$21.4 million; the Alaska CMI has 44 completed or ongoing projects at a cost of \$13.5 million; and in California, there are 36 projects ongoing or completed at a cost of \$6.4 million.

Highlights. Highlights of the CMIs are:

- close working relationship with the respective Universities,
- responsive to MMS needs, and
- building a capability for the future.

Dr. Fred Piltz, Pacific OCS Region, pointed out that the agreement with UCSB includes all nine campuses of the University of California and the Cal State University system, and, according to his calculations, approximately 80 projects have been completed or are ongoing.

[The Alaska Coastal Marine Institute, Research, and Education](#)

Presentation by Dr. Vera Alexander

Dr. Alexander explained that she is the Director of the CMI and Dean of the School of Fisheries and Ocean Sciences at the UAF. She is a biological oceanographer, has been in Alaska since 1962, and her specialty is lower trophic level biology and nitrogen cycling in ice dominated polar ecosystems.

The CMI has been a wonderful association at the University. One of the important points is that it has provided an opportunity for the University to work with MMS in designing a program to address its needs while at the same time engaging UAF's faculty in this very important work; the way that it has been operated has been particularly good. She said that because of the proposal phase, the UAF has developed wonderful associations with the members of the TSC, which includes representatives from the governor's office and the Alaska Department of Fish and Game. She added that although neither has contributed monies to the CMI, they have brought a lot of insight, have been very supportive, have been very interactive, have participated in the meetings, and it has been an education process for them. The Alaska Science and Technology Foundation (ASTF) has provided an unofficial observer to the TSC, with the aim of coordinating or providing match for projects where appropriate, and to provide additional expertise.

Framework Issues. The TSC begins by formulating framework issues which have changed slightly but not very substantially over the years of the CMI. These are:

- scientific studies for better understanding marine, coastal, or human environments affected or potentially affected by offshore oil and gas or other mineral exploration and extraction on the outer continental shelf,
- modeling studies of environmental, social, economic, or cultural processes related to OCS gas and oil activities in order to improve scientific predictive capabilities,
- experimental studies for better understanding of environmental processes or the causes and effects of OCS activities,
- projects which design or establish mechanisms or protocols for sharing of data or scientific information regarding marine or coastal resources or human activities to support prudent management of oil and gas and marine mineral resources, and
- synthesis studies of scientific environmental or socioeconomic information relevant to the OCS gas and oil program.

The one area in which the CMI has not been very effective is the socioeconomics field, although there are some good economics projects. These have not been limited to UAF, but have involved faculty from the University of Alaska Anchorage. She explained that one of the reasons for the lack of success in socioeconomics has been the low number and poor quality of most of the proposals. It also is difficult to gather unbiased, statistically valid data when dealing with highly sensitive issues in Alaska.

The MMS provides \$1 million annually, to be matched one-for-one with non-federal dollars. Currently active project expenditures include \$2,173,841 for physical oceanography, \$1,320,950 for biological studies, \$268,171 for chemical oceanography, and \$125,168 for administrative support costs.

The Alaska CMI uses non-federal match from a number of sources, including state agencies, Native organizations, the oil industry, and the University. One particular, the Japanese Science and Technology Center, has supported extensive ship time in the Chukchi and Beaufort Seas, and is particularly interested in circulation and transport problems.

Most of the research currently being conducted is in the Beaufort Sea since that is where most of the offshore oil development activity is taking place; other areas include Cook Inlet area, the Chukchi Sea, and several other projects that are less field oriented are based in Fairbanks. She added that research topics include seabird habitat, ocean circulation, whale migration, sediment chemistry, sea ice, and hydrocarbon degradation. In regards to the seabird habitat, one of the eider projects that is being conducted looks at the migration patterns of the endangered species of king and common eiders.

Fifty-percent of the current CMI projects have student participation. Not only is their research being funded, but it enables them to gain a lot experience, helps prepare their theses, and, since they are required to make presentations at the annual meeting, exposes them to develop their professionalism for the future. She added that undergraduates are involved as well as high school students.

Open Discussion

Dr. Diaz asked if there is a compilation of the student thesis' and dissertations that have been produced.

Dr. Alexander replied that there is and that she would get it to the SC. Dr. Diaz added that it would be interesting to possibly add a student section to the publication list and Dr. Alexander agreed with that idea.

Overview of the Coastal Marine Institute, Louisiana State University

Presentation by Dr. Larry Rouse

Dr. Rouse informed the SC that LSU is in the last year of its second Cooperative Agreement with MMS and it is hoped that the third Cooperative Agreement will begin this fall. For the first Cooperative Agreement, there were 62 projects funded; the second one has had 37 projects funded for a total of about \$17 million worth of research for scientists at LSU and other institutions in the Gulf of Mexico such as Texas A&M University and the Louisiana University Marine Consortium (LUMCON).

Studies being conducted range from the social sciences, sociology and economics, to biological and physical processes.

The sociology studies include such topics as labor migration and environmental justice in Louisiana. Many of these studies, as some fisheries projects, are associated with graduate student research. Some of the proposals have actually been written by graduate students for masters and PhD dissertation research topics.

Economics studies currently being conducted deal with, for example, what happens with changes in the economic environment in terms of the number of companies involved and the leasing process.

Dr. Rouse explained research is being done on platform ecology and one particularly interesting study is the interaction between migrating birds and the offshore oil and gas platforms. The study is coming to a close, but an incredible amount of information has been found regarding migratory patterns across the Gulf of Mexico. In the Gulf, there are approximately 4,000 total offshore platforms. Scientists were able to visit some of these platforms and observe the migrating birds and how they interact with the platforms.

There have also been several studies on the interaction between recreational and commercial fisheries with oil and gas platforms as well. One study looked at encrusting organisms on platforms that might have biotechnology potential. The bacteriologist on this study found an incredible array of new and potentially interesting organisms on these platforms. The chemo-synthetic communities and deepwater circulation modeling have also been subjects of investigation through the CMI. CMI is now expanding to the area of the environmental impacts of OCS sand mining.

The State of Louisiana has a very significant land loss problem and one of the ways to revamp at least the barrier islands is to mine offshore sand. Most of the sand presently being used is in state waters, but there are some incredible reserves in federal waters.

Dr. Rouse announced the Gulf of Mexico OCS Region sponsors ITMs and the latest one was held in January 2003. At that meeting, approximately one-fourth of the presentations consisted of projects funded through the CMI at LSU.

He explained the LSU CMI does not use a TSC, but rather discusses with the Environmental Sciences Section of the Gulf of Mexico OCS Region what is of interest in terms of research and scientific information needs. This year, 29 LOIs were submitted through the CMI. Full proposals were requested for 11 of these. Two others were encouraged to submit proposals that would be passed on to other sections of MMS. MMS and Dr. Rouse are now in discussions as to which of these proposals will be funded.

Regional Priorities and Environmental Information Needs

Dr. Shapiro explained that the purpose of these presentations is to give background information on studies that have taken place over the past several years and set the stage for the proposals that will be described in the Discipline Breakout Groups meetings.

Sand and Gravel

Presentation by Mr. Barry Drucker

Mr. Drucker gave an update on the Sand and Gravel Strategic Plan which had been recently completed and furnished to the SC ([Attachment 2](#)). He mentioned that the Sand and Gravel Program is now within the MMS Leasing Division at Headquarters, the rationale being that the Program is essentially a leasing function. The Strategic Plan was developed with guidance from the SC Sand and Gravel Subcommittee, particularly Dr. Diaz. He explained the document had been provided to the OCS Policy Committee's Hard Minerals Subcommittee and comments have been received.

Mr. Drucker mentioned that Mr. Will Waskes who is a biological oceanographer within the Sand and Gravel Unit and Mr. Roger Amato who is a geologist, along with other resources within MMS, including the sand team in the Gulf of Mexico OCS Region, were instrumental in compiling information for the Strategic Plan.

The overall purpose of the Strategic Plan is to integrate MMS's process relative to decision-making for sand and gravel leases and the negotiated agreement process that MMS works under with the environmental issues which need to be addressed. With the Program's limited budget, one of the main purposes is to direct the limited research dollars towards decisions that need to be made. In that sense, similarities among the different regions needed to be identified and at the same time, significant differences in site-specific areas also needed to be recognized. Once that information was determined, the Strategic Plan was developed to determine which direction MMS needs to go in relation to studies and the studies framework that is going to be used.

The Sand and Gravel Strategic Plan focuses on:

- only activities that occur on the OCS within the jurisdiction of the MMS (open-ocean dredging) and
- does not consider navigational or channel-dredging operations.

The major differences between the Oil and Gas Program and the Sand and Gravel Program are the schedules or lack thereof, leasing systems, site-intensive scope of dredging activities, and NEPA considerations.

He continued that the document describes in detail:

- sand and gravel negotiated agreement and competitive leasing systems,
- State/Federal cooperative program to identify potential sand borrow areas,
- dredging process and associated impacts, and
- NEPA process for proposed sand and gravel activities.

Research considerations include:

- *Location Considerations.* Through State/Federal program, MMS has and will continue to identify potential sand borrow areas and anticipate requests for leases in these areas. In many cases, little or no environmental information is available for impact analysis.
- *Operational/Logistical.* Dredging operations are very focused, site-intensive operations and dredging scenarios for impact analysis are very well defined (dredge type, depth of cut, coordinates of borrow area).
- *Borrow Site/Environmental Considerations.* Primary target for sand investigations/leasing are the submerged shoals within the resident ridge and shoal features. Some have already been used and are being considered as long-term sources of sand. There are many questions regarding long-term biological and physical effects of using these areas.

He described the implications for sand and gravel environmental studies for Fiscal Years 2004 and 2005 as:

- continue to develop site-specific multi-disciplinary studies in potential sand borrow areas identified through coops; compile and synthesize existing data/literature and collect baseline information and other information when necessary for use by MMS/NEPA analysts,
- develop field studies to evaluate long-term cumulative biological and physical effects of dredging in areas which are expected to serve as long-term sources of material,
- regulatory mandate essential fish habitat (EFH) information; use of areas by fishes is sketchy, therefore, continue to pursue relevant information to assist in impact analysis and required consultation,
- continue to use numerical wave modeling to evaluate physical effects of dredging, both short-term and long-term; continue to refine and develop wave models,
- establish background to assess dredging effects on commercial and recreational fishing and identify possible mitigation to avoid impacts/conflicts,

- pursue collection of benthic biological data and information with ridge and shoal features targeted for use,
- continue to explore and pursue environmental monitoring for long-term borrow areas (in tandem with Regional Management Strategy/Initiative),
- explore use of environmental windows,
- pursue study efforts in areas not associated with submerged shoals such as sheet sands and paleochannel deposits,
- further aggregate effects efforts if warranted,
- continue to keep abreast of new advances in offshore dredging technologies, and
- continue to evaluate current MMS practices/procedures relative to survey requirements regarding protection of pipelines, historic artifacts, etc.

Presentation by Dr. Diaz

Dr. Diaz commented that the document is very complete in terms of being a starter for sand and gravel issues which discusses laws, the actual dredging, and summarizes recently-funded work. He continued that the appendices provide details on all of the laws and regulations which apply to sand and gravel.

He said limiting the scope of the document to the OCS sites is warranted since the primary responsibility of the locality states and the U.S. Army Corps of Engineers deal with the beach side of the sand and gravel issue and that currently all the leasing and mineral requests that have been received have been for beach nourishment; however, aggregate is coming.

Overall, the program is a good combination of physical oceanography and biology. A good attempt has been made to look at the situation from an international perspective and to reach for data sets that apply to North America from all around the world. Eventually, some way of tracking this information and keeping an inventory will be developed as the amount of information on sand and gravel effects starts to increase.

He pointed out that one unusual aspect of the document is the attempt to develop a set standard for sampling protocols of sand and gravel sites. This may seem odd, but unlike the oil and gas sites which are very different, the deposits are underground; therefore, whatever is over the site can be anything from a live bottom to bare mud. To collect the information for evaluating EFH and other benthic impacts, a set of guidelines can be created to allow those doing this work some format or framework in which to start.

The emphasis on EFH, which has become a very big issue with federal projects, is well placed. While collecting information on the fish, one can get needed information from an ecosystem side and an idea of how the entire system will respond.

Dr. Chuck Marek agreed with Dr. Diaz's position saying that it is a good starting point and it needs to be looked at, refined, and carried forward.

Presentation by Mr. Schmidt

Mr. Schmidt stated that, at the state level, the recipients depend on these sand resources since coastal economy is a major contributor to the state's overall economic well being.

He thanked MMS, especially the ESP, for providing the resources in order to accomplish this work not only in the coop programs with the states, but also in the studies that Mr. Drucker described. Although the political system precludes MMS from collecting revenue and the Sand and Gravel Program is competing against the need for research on oil and gas related activities which produce revenue for the federal treasury, a lot of good will is being built both with cooperative programs and the environmental studies. The amount of work associated with the negotiated agreement and the commitments to putting environmental inspectors on the dredges costs the agency money and it gets nothing in return other than the gratitude of the states and the people who use the beaches.

He mentioned should there be a catastrophic storm leaving no sand on beaches, the environmental work being done by MMS would be absolutely critical. What MMS is doing through this Program is being preemptive to gather the data so that it can respond very quickly in the event of a catastrophic storm to provide sand for the coastal communities.

After reviewing the Strategic Plan and preparing comments made by the Hard Minerals Subcommittee, Mr. Schmidt said the document looks very good and believes it can be used as a strategic framework for many years in terms of determining where the funding priorities should be directed in environmental work.

Finally, he said, long-term monitoring will allow a baseline of fisheries resources in target areas. In New Jersey, surf clam is a very commercially valuable species that has been reduced drastically over the last 4 or 5 years. It is believed that this is the cyclical nature of the species for unexplained reasons. However, when doing biological studies, not only should the presence or absence of a fisheries and shellfish species be studied, but also the potential for the habitat by a species as being the governing factor in whether or not an area would be suitable for sand mining. He added that during a cycle when the species is very low, one may think that is normal so therefore the area is not environmentally important and the sand is removed only to find out that that particular area could have been critical to the species.

Open Discussion

Dr. Marshall said he noticed a lot of discussion on socioeconomic research within the document and asked about returns to the community once the replenishments have occurred and whether or not the Subcommittee had given any thought to revealing to the reader the billions of dollars that are being realized in return for sand that is coming into these various areas. Mr. Drucker replied there is information contained in the document that specifies why costs have not been disclosed. However, in the appendix, a study completed by the NAS, references a book entitled, *Beach Nourishment and Protection*, and social costs and benefits of beach nourishment is a major chapter. In terms of money to the local economies, that is not within MMS's regulatory purview. Mr. Schmidt added that there is another dynamic of beach nourishment that goes beyond recreation. New Jersey, for instance, partners with the U.S. Army Corps of Engineers and has a dedicated fund of \$25 million a year which yields about \$65 to \$70 million work of beach nourishment each year. Although that does have a significant impact on coastal tourism and the economy, the primary reason that the U.S. Army Corps of Engineers is involved is to do beach management for the purposes of reducing potential storm damage associated with hurricanes which then translates into less flood loss and less payout by the Federal Emergency Management Agency. Mr. LaBelle suggested that if there were samples about the incredible savings that result from beach nourishment, that information would make the document stronger. Mr. Drucker agreed and said the information would be added to the document.

Dr. Rex asked, when discussing environmental assessment and the regulatory structure, since this is a relatively new and growing environmental issue and probably has a lot of unanticipated environmental effects, does MMS have to follow NEPA guidelines or does it have the regulatory authority to change it appropriately? Mr. Drucker responded that the regulatory structure is going through the NEPA process to identify any changes in the proposed scenario. As an example, the MMS had an agreement with Maryland for a project on one of its shores using some of the work that had been done in the site-specific Maryland/Delaware study where certain areas had been identified that should be off-limits to dredging. Using that information and the assessment, MMS worked with the U.S. Army Corps of Engineers to reorient where the sand was going to be taken. The NEPA process was used to identify appropriate mitigation and stipulations. Dr. Rex asked whether or not something could be done to possibly modify the considerations in NEPA guidelines to make them more appropriate for this new problem. Mr. Wildermann answered that environmental assessments are completed for proposed projects and NEPA regulations are followed. MMS has not adopted any additional procedures or guidelines for the Oil and Gas Program which basically follows the NEPA regulations. Mr. Drucker added that the NEPA document for sand and gravel tends to be very focused on the operation and it precisely identifies MMS's assessment of what, if any, the impacts might be and what mitigation is needed. Mr. Schmidt said that in addition to NEPA, all of the coastal states have a coastal zone management program which is a federal activity that is covered under the requirement for a consistency determination. Therefore, in addition to the NEPA process which may result in an environmental assessment and a finding of no significant environmental effect, there has to be an independent sign-off by the state's coastal zone management program stating the activity is consistent with all of the policies and the state's coastal zone management program.

Dr. Mary Scranton, being newly appointed to the SC, asked what is included in the NEPA review and how much interaction there is between MMS's experience of what problems are likely to be experienced and NEPA's requirements. Mr. Wildermann replied that a NEPA analysis is done prior to any activity. Alternatives in terms of how the operation is conducted, what type of dredge is used, the location, and/or what kind of mitigation measures are applied during the analysis to determine potential impacts, allow some mitigation measures to be identified prior to the operations.

Dr. Marshall asked if he owned a dredge operation, is there sufficient incentive contained in the document to persuade him to undertake such an operation. Mr. Schmidt explained that beach nourishment takes place on a rather routine basis on the coastal states but is usually done with sand deposits within three miles of the shore. MMS is now opening the OCS area beyond three miles for beach nourishment purposes. The reason for not expanding the area previously is because it becomes more expensive to transport sand to the shore when it is four, five, or six miles from the beach due to additional costs of pumping and transport. However, it has been determined that there are less environmental impacts to valuable sources when dredging is done beyond three mile sites. Mr. Drucker added that environmental stipulations are a condition of the lease and the lessee has to apply and follow the stipulations, not the dredger. As an example, Mr. Drucker stated that for the Holly Beach project, MMS identified four areas that had to be avoided within the confines of the borrow site. The lessee developed the dredging plan to avoid those areas which was a condition given to the dredger.

Dr. Kendall commented that the Strategic Plan has gone beyond what had been expected. This document has forced MMS's studies staff and others to become involved with the Program because the ramifications of not having physical oceanographers, social scientists, geologists, and biologists involved are now understood.

Dr. Marek commented that the Sand and Gravel Program is specific in the sense that it is known where the materials are going and how it is going to effect the environment, such as the ocean floor. However, not all of the material is always going to be used on a specific project. The ITM presentations showed about 10 to 20 percent recovery, 80 percent back into the ocean. He stated that a way needs to be found to capture 100 percent and use the 80 percent that is not project-specific for commercial application. Once that is accomplished, then economics come into the use of that material and damage is minimized to the environment that MMS is trying to protect.

Overview of the Alaska OCS Region

Presentation by Dr. Cleve Cowles

Dr. Cowles explained some of the unique characteristics of Alaska:

- the OCS is a very large area, i.e., the proposed Beaufort Program Area covers more than 9.8 million acres and a coast of approximately 400 miles from Barrow to the Canadian border,
- the climate is complex and variable with meteorological characteristics,
- extremes of temperatures and day length much of the year causes seas to be dominated by ice; therefore, the open water periods are fairly short,
- extremes of weather,
- extensive glaciation,
- volcanic and seismic events, and
- biological productivity is high with a wide range of diversity, i.e., 26 endemic marine mammal species have been found in Cook Inlet/Gulf of Alaska versus roughly four major species in the Beaufort Sea.

Another interesting challenge the Alaska OCS Region faces is taking into consideration the needs and uniqueness of Alaska's indigenous people who seek a traditional subsistence lifestyle in coast and interior villages.

The 5-year leasing program for the Alaska OCS Region is defined through FY 2007 and identifies 15 planning areas. The timing of studies in relation to products getting into major activities or decisions is one of the important dimensions of how the studies program is managed in Alaska. This creates a challenge to scientists since reports need to be timely submitted in order for key decisions to be made and there is not a lot of luxury for science to dictate the schedule or for scientist interest.

There are 14 existing oil wells in the Cook Inlet region as well as about 2,000 square miles of ice fields in the Kenai Peninsula and about 8,000 square miles of ice fields in the Chugach Range.

Dr. Cowles described the post sale activities which include Northstar, Liberty Prospect, and McCovey. Northstar is a gravel island near the Barrier Islands, is in shallow water, and has been in production for the last couple years. The Liberty Prospect is still being analyzed and MMS is awaiting further information from bp; McCovey was recently explored by ConocoPhillips. He also mentioned Cross Island which is part of the Barrier Islands and a very important subsistence whaling location. The whale hunters from Nuiqsut spend several weeks in the fall hunting whales and are interested in what the OCS program has planned and underway.

Current technical issues include at least 16 different discreet issues ranging from pollutant monitoring to how traditional knowledge is integrated into the planning, conduct, and reporting of studies.

Dr. Cowles described the ramifications of offshore oil and gas activity planning and development in the Beaufort Sea of which oil spills and discharges are a key concern as well as the effects of cumulative development on sociocultural systems. The North Slope around Prudhoe Bay has a lot of onshore activity and there is concern about the summation of the onshore plus offshore activities and noise from industry operations on protected species. MMS has completed numerous studies on the effects of noise on bowhead whales over the years and there has been close to \$37 million spent on bowhead studies. Industry has also spent a large sum on not just bowheads but also on other marine mammals such as ringed seals. Issues have also been raised relating to causeways and how their influence on oceanography may then influence nearshore fish.

Cook Inlet issues include:

- trace metals and hydrocarbon pollution,
- refinements to knowledge of major oceanographic processes,
- long-term changes to marine food webs,
- effects of commercial fishing and existing community infrastructure,
- effects on other key economic activities such as recreational fishing,
- effects of on subsistence harvest, and
- integration of traditional knowledge into scientific processes and decisionmaking.

These issues lead to some general planning trends that include coverage of both meso-scale and regional context, possibly longer range needs in Chukchi and Norton Basin, continued monitoring, and maximization of cooperative and integrative opportunities.

He reported that there have been a total of 237 studies completed in Norton Basin at a cost of approximately \$112 million since 1992. In order to avoid initiating new field studies, a study is in process for procuring updated information on the northern Bering Sea using information from other programs in that region. Similarly, since 1992, there have been at least 240 studies applicable to the Chukchi Sea that are valued at roughly \$139 million and, since industry interests in all of these areas are expected to be very focused, MMS studies planning remains similarly focused.

There are currently more than 50 ongoing studies in Alaska:

- 12 Physical Oceanography studies,
- 8 Fates and Effects of Pollutants studies,
- 18 Protected Species studies,
- 7 Biological studies,
- 8 Socioeconomic studies, and
- 6 Multidisciplinary studies.

A final EIS was recently released for a multi-sale in the Beaufort Sea that lists stipulations to industry in order to compete for leases in that area. These stipulations provide protective mechanisms to keep the environment sound and to make sure that MMS has provided for an environmentally sound and safe program as possible.

Dr. Cowles gave an update on the following studies:

- Arctic Nearshore Impact Monitoring in Development Areas (ANIMIDA). This project is close to its final phases and is in analysis reporting. Since there are peer review meetings that expect a product from

ANIMIDA over the next few months, MMS needs to define what ANIMIDA will do in the next few years. This study has had a very good initial 4-5 years and MMS will be focusing on what needs to be done when the final guidance and results from the SRB are received.

- Bowhead Whale Feeding. This study involves coordinating efforts with whaling captains at Kaktovik to learn more about bowheads feeding east of Barter Island. This study, in conjunction with the results from MMS's Bowhead Whale Aerial Survey Project (BWASP), has provided EIS analysts new information on bowhead feeding.
- Social and Economic. The purpose is to anticipate impacts of OCS development on bowhead whale hunting and the culture of bowhead whale hunting and has proceeded through its pre-testing phase. This is going to be a survey project and the next step is the OMB review.
- Social and Economic Book Project. Most of the chapters are completed. This is a product which is in direct response to advice received from the SC to do improved peer review syntheses.
- Physical Oceanography Workshops. There have been two key workshops conducted this past summer and winter and are close to completion. One pertains to planning physical oceanography studies and the other deals with sea ice modeling.
- Arctic Cisco Fish Abundance in Colville River. In planning for this study, indications of declining trends in the last few years were discovered not only for the Arctic Cisco, but for other species that are important in the subsistence use in the coastal villages in the Beaufort Sea. There have been discussions with scientists in the North Slope Borough and within the Native villages and a workshop is being planned to bring scientists, local people, and MMS staff together to decide where research on Arctic Cisco and the Colville River should hit in a follow up effort.

Dr. Cowles listed topical themes for FY 2004 and beyond:

- Physical Oceanography and Modeling – finer scale circulation models, nearshore modeling, ice modeling, surface circulation radar mapping,
- Fate and Effects – meso-scale monitoring for trace metals, hydrocarbons, oil-spill risk, weathering of oil in snow and ice,
- Endangered/Protected Species – monitoring bowhead whale migration, bowhead feeding areas, polar bears, waterfowl, surveys of endangered Steller's eiders in Cook Inlet, presence of endangered whales in Cook Inlet,
- Potential Effects on Marine Mammals, Seabirds, and Other Marine Life – seabird and mammal deterrence from oil spills, harbor seal habitat use, increasing artificial light in Arctic offshore,
- Arctic Fish Migrations – dynamics and effects on arctic subsistence species and subsistence harvest trends,
- Effects on Unique Benthic Communities – "Boulder Patch", optical measurements and kelp productivity, community composition, diversity, and monitoring,
- Effects on Social Systems – subsistence lifestyle, cumulative effects of development on subsistence and sociocultural systems, hunting/fishing access, communications; space/use conflicts with industrial operations, and
- Environmental Monitoring – Arctic and Lower Cook Inlet.

Dr. Cowles stated that the Alaska studies program is unique in that over the years it is one of the few federal agencies in Alaska that has had a sustained social and economic program. Part of the reason for relatively few socioeconomic studies through the CMI may be because most of the social scientists in the state are aware of MMS's direct contracting of socioeconomic studies and it may also be due to the lack of match in funds for that particular discipline. He added that although MMS does not get a lot of socioeconomic projects through the CMI, a very healthy social and economic component to the ESP is being sustained.

Open Discussion

Dr. Michael Castellini commented that, given the fact that most of the meetings attended in Alaska consists of half scientists and half lawyers, the more complex the situation, the greater MMS opens itself up to the problem of not knowing the answers to problems. Such as when a lease or sale is approved and there does not seem there are going to be impacts, it is easy for someone to argue that it is too complex and that information cannot be known. He asked if this point is argued, how will MMS respond? Dr. Cowles replied that the EIS would be provided which contains the regional analysis and the environmental assessment area, explain that the SC's assistance is extremely valuable in helping MMS select projects that have good science, and explain that MMS works closely with other agencies not just in research but also in understanding what each agency is doing. As an example, for the coordination on the Arctic fish study, MMS is going to be talking to people from the communities in the North Slope Borough, people from Canada, the North Pacific Fisheries Research Board, and the Alaska Department of Fish and Game. MMS also works through an interagency Arctic research coordination committee that, under the Arctic Research and Planning Act, requires interagency coordination and collaboration in research planning. The NEPA process, which is a science and an art, would be followed. Dr. Cowles suggested that if the SC reviewed the recent Beaufort EIS, they would recognize that the staff had been very thorough and "done their homework" in its preparation. In applying scientific information in the NEPA process, there also is application of intuition, there is subjective decisionmaking, and there are judgments made.

Dr. Shapiro asked about long-term data storage and if other agencies working with MMS have a comparable long-term data storage program. Dr. Cowles replied that when the ESP began, NOAA helped MMS considerably and as part of the NOAA program, MMS had a major data management component. Under that component, procedures were developed and a standard system set to have information go to the National Oceanic Data Center (NODC), not just oceanographic data but also marine mammal, seabird information, etc. For Interagency Agreements, it is being assumed that these federal agencies are also required to maintain data in response to current federal requirements and MMS trusts that is being done. MMS also has its own corporate database used when doing GIS analyses and applications of GIS to the EIS process.

Overview of the Pacific OCS Region

Presentation by Dr. Fred Piltz

Dr. Piltz mentioned the book, *Energy, the Environment and Public Opinion*, and informed the SC that the Pacific OCS Region funded Dr. Smith's research. He added that Dr. Smith predicts conditions will exist for future leasing in California.

Dr. Piltz reported that there are 43 active producing leases coming from 23 platforms in federal waters and that the average daily oil production is a bit below 100,000 barrels per day with an average daily gas production of slightly under 212 million cubic feet per day.

There are 36 undeveloped leases under directed suspension. In 1999, operators were prepared to go forward to develop some of the 36 leases. MMS had previously issued a directed suspension of operations for the duration of the California Offshore Oil and Gas Energy Resources (COOGER) study. The affected companies asked for a suspension of operations at the completion of COOGER and MMS proceeded to grant suspensions. Shortly after, the State of California sued the DOI stating that the suspension of operations had to go through a consistency determination. The DOI lost in the Ninth Circuit court, it appealed to the Ninth Circuit Court of Appeals and lost again. The deadline for an appeal to the Supreme Court was April 1, 2003, and the Justice Department decided not to pursue an appeal. Therefore, those 36 leases remain under a directed suspension and their future is uncertain except that the operators and owners of those leases have filed a breach of contract lawsuit which remains in court and has not yet been decided.

Dr. Piltz reported there will be activity and drilling with wells being reworked on those 43 leases; however, the level of activity is going to be fairly minor, but the future will be fairly long. As an example, it is estimated that the Santa Ynez unit that Exxon Mobil operates will remain in the federal waters 15 to 20 years.

The Pacific OCS Region's downsizing has proceeded according to schedule. Most of the staff on the surplus list have either found other employment or opted for retirement. The deadline for remaining staff cuts is September 30, 2003.

Dr. Piltz briefed the SC on other events currently taking place in California:

A company has signed an LNG contract for Platform Grace to be a receiving station for LNG and will deliver it by pipeline to shore. Given the complex permitting process, it is going to be a long road for this company as with any operation offshore in California. Dr. Piltz added that there are one or two other LNG projects that may be in the conceptual phase, not necessarily with offshore oil and gas platforms, but other facilities along the coast.

Dr. Piltz said the newspapers reported the local government in Mexico has decided to cease aggregate sand and gravel deliveries to the U.S. Mexico is a major source of construction aggregates in southern California which still continues to have a tremendous building boom. A Memorandum of Understanding has or will be signed between the DOI and the State of California with regard to possibly using federal offshore sand and gravel deposits. Dr. Piltz feels that at some point in the future, California and the DOI will have something in common and can truly be partners.

Tranquillon Ridge, a project in state waters that a company wants to develop from platform Irene which is in federal waters, is a field with an estimated 200 million barrels of recoverable oil. The state has not issued a lease there, so the company went through a series of permitting processes at the county level since the County of Santa Barbara was involved. The county planning commission was deadlocked which means that it was denied at the planning commission level. The company appealed to the Santa Barbara County Board of Supervisors where it was turned down. Currently the company is now in court with the Santa Barbara County and the State Lands Commission which is the lead agency.

Recently, the California Department of Fish and Game voted to establish Marine Protected Areas (MPA) where there is to be no take of marine organisms around and extending three miles beyond the shore of selected sites on the Channel Islands National Park in southern California in the Santa Barbara Channel. This is very controversial and the fishermen are in court with the state since the state's jurisdiction is three miles. The Channel Islands National Park is going through the NEPA process, however, to expand the MPAs to six miles into federal waters. In the near future, the state, under the Marine Life Projection Act, will consider establishing MPAs along the entire California coast.

Scope and Direction. The ESP in the Pacific OCS Region continues to focus on scope and direction on three areas:

- production, site-related and site-specific, safety and activities,
- focused monitoring, and
- decommissioning.

Ongoing Studies Update

- **Environmental Mitigation and Monitoring.** This is a time and materials contract which enables the contractor to perform small, quick studies on an as-needed basis. As an example, the contractor was asked to assemble a team to go offshore and test night vision equipment that might be used to monitor seismic activity.
- **MMS Intertidal (MINT).** This effort uses in-house scientists and began 1991. It is a cost-effective way of doing environmental research that used to cost \$100,000 to \$200,000 per year. Currently, the yearly budget is \$30,000.
- **Multi-Agency Rocky Intertidal Network (MARINe).** The MARINe is a consortium consisting of MINT and MARINe teams working with almost 20 federal agencies, private agencies, and academic institutions that are monitoring the entire Pacific coast from Canada to the Mexican border and into Mexico.
- **Beach Recreation and Tourism Model.** This is a socioeconomic study partnered with NOAA and several agencies in southern California. Dr. Piltz explained that the tourism part of this study is really a misnomer since the study has evolved and the tourism aspect has not been captured for southern California's beach use. A draft was recently received containing descriptions of the various models that are intended to be used based on the survey data which have been completed.
- **Physical Oceanography.** There has been a lot of time, effort, and money spent on the Physical Oceanography program which is expected to wind down in FY 2004 and the equipment will be removed.
- **Synthesis of Existing Data and Information.** This is an outreach program headed by Ms. Mary Elaine

Dunaway. Dr. Piltz explained that Ms. Dunaway forms lesson plans from material that has been generated by the ESP and provides that material to the schools. Ms. Dunaway works with other MMS staff and interns from the Pacific CMI and has recently, at the National Science Teachers Association, debuted tide pool math. Besides the public relations aspect of this for MMS, it also shows the nexus of real marine research to application to kids in school and gives them a useful tool from which to learn.

- **Tar Seep Study.** This is a coordinated effort with USGS to provide information on where oil or tar on the beach originated. Oil and tar are being fingerprinted from natural seeps which will enable scientists to determine whether it came from a platform or from a tar seep.
- **Decommissioning.** Future decommissioning is a major focus in the Pacific OCS Region. Dr. Piltz predicts that submission of the first decommissioning plans will be made within 2-5 years.

The most recent experience with platform decommissioning was Chevron's 4H platforms that were decommissioned in California from 1992-1997 and were in state waters. Once Chevron began the process with the state of applying for the permits, some of the local recreational fishermen suggested the platforms would make great natural reefs and would enhance fishing. MMS, in conjunction with the California State Lands Commission, held a workshop in 1994 to discuss this and, ultimately, Chevron made the decision to continue decommissioning as planned. Another decommissioning workshop was held in 1997. This workshop, as the workshop held in 1994, had very wide participation from agencies, the public, and the industry and both generated a number of information needs.

Senator Dede Albert proposed legislation approximately 3 years ago which would have permitted the state to accept the liability for reefs. After 2 years of negotiations, this legislation passed both houses of the state legislature. Unfortunately, when presented to the governor last year, it was vetoed.

An Interagency Decommissioning Working Group was created a few years ago and MMS recently partnered with NOAA to look at possible decommissioning in the future.

Due to the controversies involved with a Rigs-to-Reefs program, Senator Albert asked the University of California to study the available information with regards to platforms being used as artificial reefs. The University of California issued a science report and suggested a variety of information needs and possible future studies.

Listed below are ongoing studies associated with platform decommissioning. Dr. Piltz split these, the Pacific OCS Region's Information Needs and Planned Studies into two groups – Reefing and Removal.

Reefing

- **Habitat Value.** This study began in 2003 and looks at available information USGS has generated through its fish studies.

Removal

- **Mound Surveys Mapping.** Some mapping has been done along with some surveys around shell mounds in most of the platforms in southern California. These platforms have not yet been sampled to see whether there are toxic materials in the mounds.
- **Platform Invertebrate Surveys.** These continue to be funded mostly through USGS, and there are ongoing surveys of platform invertebrates in an attempt to calculate the habitat value of platforms. Differences have been detected due to the differences in the geographic distribution and depth of invertebrates.
- **Technology Assessment and Research Program.** A study of costs to remove these deepwater platforms has been completed and a human safety study with regard to removing platforms is in process and should be completed in about a year. Estimates for some of the platforms range from \$20 to \$120 million to remove from deeper water.

Information Needs. Dr. Piltz informed the SC that information needs in the Pacific OCS Region are related to decommissioning, ongoing oil and gas production, and focus on monitoring areas adjacent to production, such as MARINE and MINT. The following are information needs/questions that the Region believes it needs to address.

Reefing

Fish Studies, i.e., efficient habitat design when creating an artificial reef – can the platform be left in place entirely, toppled, or moved. As to the longevity of these structures and maintenance, are they required to be maintained?

Removal

- **Shell Mounds.** After Chevron's 4H platforms were removed, tremendous mounds of shell debris from mussels were found in addition to other sediment matrices. Those shell mounds were investigated and some toxic materials were discovered.
- **EFH.** There was no concept of EFH when the subject of decommissioning first emerged. However, questions are being asked as to whether or not platforms form EFH for some species of fish that have been drastically depleted, such as the picacho which is a rockfish.
- **Deepwater Removal Technology.** The ESP and TARP have completed one study and have one ongoing study that looks at the technology, costs, new techniques, and evolving technology to remove platforms in water depths of greater than 400 feet up to 1,000 feet.

Planned FY 2004 Studies

Potential oil spills are a concern due to production. Both the MINT and MARINE projects are intended to be funded in FY 2004 because both are long-term monitoring programs. Although MINT is more site-specific, MARINE is a broad regional program and regional changes may be made. A new study being proposed in FY 2004 is Inner Shelf Surface Current. This study attempts to address very nearshore currents and would be 1 year of instrumentation.

Reefing

- **Fate of Juvenile Rockfish.** This study will look at whether or not artificial reefs enhance the fisheries or merely attract fish. Information that has been generated suggests these are enhancing, not merely attracting, fisheries.
- **San Pedro Shelf.** This is south of the Channel Islands and simple, easy surveys need to be done to determine whether or not the biological communities have changed around the bay.
- **Benthic Invertebrates Studies.** Will look specifically at the shell mounds. If shell mounds are removed, are critical habitat for benthic invertebrates also being removed?

Removal

- **Summary of Knowledge.** MMS is proposing a Summary of Knowledge in regards to decommissioning since there is experience throughout the world which would be valuable for summarizing lessons learned and environmental impacts.
- **CMI Decommissioning Studies Initiative.** MMS seems to have support from industry to help fund this using the model of the CMI. This study would look at relatively small dollar studies, but it is a way to involve industry and other agencies and form a stronger partnership.

Open Discussion

Dr. Smith asked if there will be legislation at the state level in order to accept the idea of creating artificial reefs when decommissioning platforms. Dr. Piltz replied that was the focus of the legislation that Senator Albert had that was vetoed. In partnering with NOAA, the MMS is trying to be creative and think of ways to do this and having someone other than the state accept liability.

Dr. Shapiro mentioned a pilot program in the Pacific region that was looking at the feasibility of harvesting or mining natural products that were produced by organisms that had colonized on the rigs and asked if there was new information since it could weigh in on the question of reefing. Dr. Piltz responded that is one of the task orders that is currently being funded under the CMI. Unfortunately because MMS has scaled back the CMI, support will not be able to continue although this research is going to be continued. At this point, symbiotic algae in anemones that colonize the legs of platforms have been found to contain a very powerful anticancer type compound that, in comparison to Taxol, is five times more powerful. This compound has not yet been identified or purified.

[Overview of the Gulf of Mexico OCS Region](#)

Presentation by Dr. Pat Roscigno

Dr. Roscigno explained the mission of the ESP as providing information needed to predict, assess, and manage impacts from offshore exploration, development, and production activities on human, marine, and coastal environments.

He stated the Gulf of Mexico has over 20,000 miles of pipelines and over 4,000 structures and, because of these, the Gulf of Mexico is depicted as the steel archipelago in terms of oil and gas industry. There have been major changes to the environment and a lot of those changes have to do with the introduction of hard substrate into the Gulf of Mexico.

Gulf of Mexico Study Needs are:

- **Platform Removal.** Unlike the Pacific, the Gulf of Mexico has an artificial reef system already in place. One of the major concerns is what the consequences of removing this reef system will be when these structures are removed as they age, since they are valuable in terms of refugia, for corals, and for recreational fishing and there is a great deal of pressure to leave them in place or put them into an artificial reef program. What is the value of artificial versus natural reef? Some would argue that artificial reef could be a vector for introduced species so exotic species can use the artificial reef to colonize in the Gulf of Mexico ecosystem and then spread itself throughout the system. There are others who would argue that artificial reef and the very presence of artificial reef puts pressure on natural reef in terms of being able to remove artificial reef without any consequence to the ecosystem. The MMS supports the artificial reef program and platforms are donated to the program every year. One of the criteria for being accepted into the program is to ensure that the State Artificial Reef Plan is followed. Within a year of a platform's decommissioning, it has to be removed at 15 feet below mud line and either it is accepted into the artificial reef program, removed, recycled, or it could be reefed in place. Related to this issue is the explosive removal of platforms. MMS is currently following interim rules and is in the process of developing a petition package to NOAA for new rules about explosive removals. There are new technologies using diamond cutting saws in the Gulf that can remove platforms fairly well at the mud line. This and other new technologies as alternatives to using explosives to remove platforms are being explored. At the same time, MMS needs to remain aware of its responsibilities under the Endangered Species Act and MMPA as these structures are removed.
- **Hydrates.** Dr. Roscigno explained that MMS always has information needs for hydrates, which is two-fold. One is to understand sea floor stability and how hydrates can destabilize a sea floor and the other side of the issue is hydrates have become closely associated with a specialized team of synthetic communities. Currently, there is a joint industry project with DOE that looks at hydrates on a long-term basis.
- **Accelerated OCS Activities in Deepwater.** The Gulf of Mexico OCS Region is focused on many issues: locating deepwater corals to learn about their sensitivity to OCS activity, deepwater chemosynthetic communities are being examined, and protecting endangered species in deepwater.
- **Deepwater Corals: Planned Study FY 2003.** A *Lophelia* study has been approved and is planned to be awarded this year which will look at deepwater corals sensitivity to OCS activities and their role as foundation species for deepwater communities.
- **Chemosynthetic Communities in Deepwater of the Gulf: Proposed FY 2005.** This is a proposed study for 2005, and will look at chemosynthetic communities in deeper part of the slope in order to understand their interrelationship with the upper slope and see if these are quantitatively or qualitatively different communities. This is a major information gap that MMS will be addressing the next several years to understand the growth of deepwater chemo communities.
- **Protected and Endangered Species.** This study is ongoing and has been one of MMS's major efforts for the last 18 months. Dr. Roscigno explained that at the 1,000 meter isobath, there are sperm whales congregating in particular areas off the Florida Keys, Mississippi Canyon, and off the coast of Texas. On the regulatory side, MMS has applied for rulemaking for Geological and Geophysical (G&G) activity with NOAA. NOAA will create a set of rules in cooperation with industry and MMS to deal with the acoustic G&G issues relative to sperm whales. With these series of biological opinions, NOAA has specified certain terms and conditions that MMS has to abide by; therefore, for the last 8 months, MMS has been developing a regulatory environment that can be presented to industry and will be in place while going forward with the G&G process. MMS has published a series of Notice to Lessees which are notices that explain the marine mammal observer program now in place and the G&G program in terms of impact zones and how they should ramp up during G&G activities. At the same time, platform removal using explosives has been an

issue. With the move into deepwater, so is the move into sperm whale habitat. In the interim, there are regulations with NOAA, good for about a year, which allow platform removal following the old regulations. Those old regulations are only good for 55 pound charges in less than 200 meters of water; therefore, rules and regulations are needed for explosive removals in deepwater. MMS also has a Sperm Whale Seismic Survey program that has been ongoing for 3 years and includes about \$6 million worth of research. Dr. Roscigno said that d tags adhere to the surface of the sperm whale's skin and is a very powerful tool in helping to understand sperm whale behavior. Due to an incident in California involving seismic activity and specialized sonar, there is a very good chance the research permit will not be received in time to conduct the research this field season which will delay the d tag research and understanding of how sperm whales interact with G&G seismic activity. Two-thirds of the research will go forward and one-third of it will have to be held in abeyance until the permit is received, maybe next year.

FY 2004 Proposed NSL Studies are:

- **Literature Search and Data Synthesis of Biological Information for use in Management Decisions Concerning Decommissioning.** Every year about 100 structures are removed from the Gulf using explosives and other devices and 100 structures are erected. The point has been reached where decommissioning is going to be accelerated; therefore, MMS needs to start getting a handle on the value of these platforms.
- **Year 2005 Gulfwide Emissions Inventory Study.** MMS has a responsibility in air quality. The Gulf of Mexico and essential western Gulf is responsible for air quality regulations and this study will total the amount of emissions occurring on the OCS and how they might impact with onshore emissions.
- **Synthesis of Physical and Geological Oceanography Knowledge from 1970 to Present.** This study proposes to reanalyze and re-synthesize the physical and geological data that has been collected over the years.
- **Information Transfer Meetings and other Workshops: Proposed FY 2004.** It has been decided that ITMs will be held biannually and during the off years, workshops will be held.
- **Reanalysis of Available MMS Databases for New Insights.** This study entails reevaluating some of the Older studies to see if there are some new trends and new information that might be useful.
- **Exploratory Integrated Modeling of a Coastal Ecosystem.** This study will produce an integrated model of the Gulf of Mexico.
- **Petroleum-Involved Ports and Port Communities: An Assessment of Ports, Their Activities, and Their Economic and Social Effects on Related Communities.** This study will deal with ports and the impact of the OCS activities on selected ports. Each port seems to respond differently to the OCS activity depending on the community existing around that port.

Open Discussion

There were no questions for Dr. Roscigno.

Public Comment

Ms. Pam Miller, Arctic Connections.

“Hello, my name is Pam Miller. I'm with Arctic Connections. I've been watching the offshore oil and gas issues for over 10 years. I was on the Beaufort Sea Public Advisory Group for lease sale 176, the last Beaufort Sea lease sale. We do not have any kind of public involvement in the planned lease sale at this time for the Beaufort Sea. But I wanted the Committee to know that the proposed lease sale right now that's being considered by Minerals Management Service is 10 times bigger than the last one, that the kind of public involvement from the environmental communities and from the North Slope entities is being completely disregarded in this lease sale.

“And many of those concerns do have a scientific basis. They were reflected in the recent National Research Council study on cumulative impacts, cumulative environmental effects of oil and gas activities in Alaska's North Slope. I urge you to read that document, to consider it section by section. In the kinds of studies that you're reviewing there are big research needs that aren't being addressed by the Minerals Management Service that were identified by this quite influential and well regarded body.

“I think the critical thing to think about is how are these many, many separate studies coming together to influence a very important public decision that has real consequences to people in Alaska along Alaska’s coastlines, whether they be on the North Slope, the western part of Alaska up in the region where lease sales are proposed in the Chukchi Sea, highly dangerous places to operate machinery where you can’t respond to oil spills and where we know very little in the scheme of our country about the way the ecosystem functions, what’s there, what would be affected by oil and gas development. Your work is important and I think most importantly to me is putting a lens through which you look that says how do these all add up and how do these all add up with the public policies that are being made, the environmental impact statements that are coming out of this work and supposedly taking it into account.

“And I’ll just mention one small thing about the Beaufort Sea lease sale. There were a number of alternatives considered. Every alternative to the proposed action, which is 10 million acres, 9.8 million acres of Beaufort Sea to be leased, said there’s not a difference in environmental impact whether we lease what’s proposed or the alternatives. It doesn’t matter with respect to consequences of oil spills, to the impacts on bowhead whales, to the impacts on the people. How can this be? I think it’s because they didn’t look at true alternatives. But the kind of analysis that was done just doesn’t add up. And I think a better scientific look at what’s going into those sort of products is necessary. It may not be the exact mandate of your group, but, you know, go on the internet, get -- download the National Research Council’s study, take the sections on animals -- you know, the different sections and look at what did they say about what’s needed up here. And we did have a NRC study back in 1994 looking at the adequacy of information for these offshore lease sales that found huge gaping holes and many of those holes are still the same today with respect to social science, cultural kinds of information that’s needed as well as the biological impact needed.

“And, you know, we’re talking about an area that has very important biological and cultural resources. Oil spill in the Beaufort Sea in the fall migration area pathway of the bowhead whale could have devastating consequences to this endangered species, to the people that depend on it. And Minerals Management Service has concluded that, you know, none of their alternatives would make a difference and that because the risk of an oil spill is so low there’d be no impact. And that’s not what the Research Council said about these kinds of risks and it did find that the kind of spill risk information that has been done to date isn’t adequate to reflect the kind of risk that the people face.

“And I think if you think about the lower 48, California, you know, off the east coast, off Florida, people care about these resources and they’re being heard. The people up here aren’t being heard. The North Slope Borough has found that the proposed lease sale in the Beaufort Sea is inconsistent with the Coastal Zone Management Act of the State of Alaska with their plan. This is all sitting in the governor’s office right now. I don’t have high hopes that our governor is going to find this Beaufort Sea lease sale inconsistent. But I think you can take a much harder look at the science and come up with some ways that the Minerals Management Service can put their information together better and really figure out what studies are needed and what aren’t.

“One other thing I’ll mention is there’s an interface between what happens in the ocean and what happens on land. And we’re hearing from the Bureau of Land Management that they have to put an area that’s very important for goose molting, Teshekpuk Lake within the National Petroleum Reserve, that right now is off limits from leasing. It has very strict surface standards. That those have to be relaxed because we need that potentially as an offshore oil site to do staging, to bring the pipelines across and so on. Well, that’s not analyzed by the Minerals Management Service documents, but those kind of relationships of onshore and offshore, how do they connect together, what sort of impacts they’re going to have on land, whether it be the Arctic National Wildlife Refuge, this Teshekpuk Lake area, key shorelines that are really important for wildlife. How is that happening? And I can assure you that there’s very little look at those sort of broader relationships. So thank you for your time, I appreciate this opportunity to comment. Good luck with your work.”

Dr. Shapiro thanked Ms. Miller and called recess for the day.

Wednesday, April 23, 2003

This day was spent reviewing regional draft Studies Development Plans. Following a brief charge from the Chair to the Discipline Breakout Groups, the groups went into their sessions (Ecology/Biology, Physical Oceanography, and Social Sciences) to consider proposed regional priorities and information needs. Each Discipline Breakout Group met with staff members from each MMS OCS Region and Headquarters. In each breakout session, a Committee member was designated as a discussion leader and an MMS staff member was assigned to take notes. The Regional MMS Studies Chiefs and staff members were asked to identify, justify, and discuss priorities for future environmental studies.

Thursday, April 24, 2003

Dr. Shapiro welcomed everyone to the meeting and introduced Dr. Cowles who gave highlights from the Alaska ITM.

[Alaska Information Transfer Meeting Highlights](#)

Presentation by Dr. Cleve Cowles

Dr. Cowles gave background information on the activities of the Alaska ESP:

- study planning, coordination, and implementation,
- procurement/contracting,
- contract administration,
- logistics coordination,
- data ,
- MMS Internal Support and Interagency Coordination,
- information Requests, and
- information Transfer, Update, and Synthesis.

He explained that information is transferred through reports, journal articles, special synthesis such as peer review books, workshops, meetings, annual CMI review, seminars, and the Environmental Studies Program Information System.

The 9th ITM had been held in Anchorage, Alaska, on March 10-12, 2003, and hosted 38 technical presentations of various disciplines. It was attended by broad representation of MMS staff, arctic and south central stakeholders, and one member of the SC. The second IUM was held in Barrow, Alaska, on March 14, 2003, and one of the topics discussed was the concern over the Arctic Cisco and other Arctic fish in the Holgate River Drain. Both meetings were oriented to provide public dissemination of results and investigators were given the opportunity to discuss the program, its planning, and its activities.

Dr. Cowles said that the topics of the ITM included:

- trace metals/hydrocarbons Elson Lagoon,
- ANIMIDA ,
- polar bear habitat ,
- seabird samples,
- Arctic Cisco (Qaaktaq),
- bowhead hunting,
- subsistence mapping,
- Cross Island bowhead hunting,
- BWASP, and
- bowhead feeding.

Open Discussion

Dr. Shapiro asked if the speakers were funded by MMS or was information shared with scientists who are funded on other programs. Dr. Cowles responded that, from time to time, speakers from other programs are invited. At the IUM, one of the presenters was a scientist who works primarily with Cisco; cooperators were invited, and presentations were given by USGS and the Fish and Wildlife Service. However, one of the major goals was to bring MMS staff up-to-date with the studies that are the most pertinent to ongoing environmental assessments.

Dr. Shapiro asked if there has ever been a meeting that called together joint programs. Dr. Cowles replied that occasionally MMS does have that opportunity; however, there is a trade-off in terms of the complexities of managing and conducting meetings as far as MMS's budget and scheduling are concerned. Plus, the meetings are scheduled to fit in with the lease sale schedule and that sometimes constrains the opportunities for that kind of collaboration. Dr. Castellini added that it is characteristic in Alaska to have many joint meetings from different agencies. Last June, for example, a meeting was held in Anchorage that may have been represented by every agency and university involved in ocean policy and these types of meetings occur quite often.

The Minerals Management Service Arctic Nearshore Impact Monitoring in the Development Area (ANIMIDA) Program: Introduction to a Multi-Year Monitoring Program in the Nearshore Beaufort Sea

Presentation by Mr. John Brown

Mr. Brown explained that this is a team study being done by multiple contractors, subcontractors, and independent contractors and acknowledged the team members:

- Program Manager & Principal Investigator (PI) (Tasks 1,2) – Mr. John Brown, Battelle
- Senior Technical Advisor – Dr. Paul Boehm, Battelle
- PI Metals & Suspended Matter (Tasks 2, 5,7) – Dr. John Trefry, Florida Institute of Technology
- PI Cross Island Whaling (Task 4) – Dr. Michael Galginaitis, Alaska Socioeconomic Research
- PI Boulder Patch (Task 6) – Dr. Ken Dunton, University of Texas, Austin
- PI Bioaccumulation (Task 8) – Drs. Bob Spies and Jordan Gold, Applied Marine Sciences
- Scientific Review Board
 - Arctic Organic Geochemist - Dr. David Shaw
 - Bioacoustics - Dr. Christopher Clark
 - Socioeconomics - Mr. Stephen Braund
 - North Slope Borough Biologist - Dr. Todd O'Hara
 - Industry Scientist - Dr. Ray Jakubczak

The study area is essentially characterized as the Nearshore Beaufort Sea from the Colville River Delta to the Stockton Islands. Northstar Island, which is currently the main focus of the study, is located about eight miles offshore. This area is characterized by sizable riverine inputs from the Colville River and also from the Kuparuk and the Sagavanirktok Rivers within the study area. This is very important for the overall active sediment dynamics of the Nearshore Beaufort Sea.

He described Northstar Island which is a man-made gravel-constructed island in about 35 feet of water built through the ice and includes an eight-mile buried pipeline to shore. The construction was completed in October 2000 and the first development went online in 2001.

The study team was tasked to determine what potential disturbances could be caused by different development and these are:

- changes to the physical environment (e.g., circulation and sedimentation from construction - gravel island, causeways, pipeline trenching),
- affects of changes in sediment inputs on the biota,
- inputs of contaminants – to the water and particles, primarily metals and hydrocarbons/ polycyclic aromatic hydrocarbons (PAHs),
- increased bioavailability of chemicals to fish and prey,

- changes in local whaling or fishing, and

- acoustical changes (bowhead whale migration).

The main objective of the study is to monitor impacts that may be associated with development activities of Northstar and Liberty Projects (the Liberty Project is currently on hold and has not been constructed) and undertakes two phases:

- Phase I: Establish baselines and measurement methods for key parameters that could indicate development impacts (1999 - 2000) and
- Phase II: Build on the methods and data from Phase I and develop/revise new monitoring strategies (2000-2004).

Phase I established baselines and methods to monitor the key early warning parameters that could suggest impacts to the biota. This study was undertaken during the fall of 1999 prior to construction and also during the winter/spring of 2000 during construction. The program was designed based on testable hypothesis and both physical and environmental parameters were monitored focusing primarily on sediment quality. An acoustic baseline was also established during construction in early 2000.

Phase II has taken place from 2000 to present and the revising and expanding of the design from Phase I is continuing. Communication and coordination with the stakeholders is very important to this phase, and public meetings and ITMs, as well as scientific meetings with the SRB and MMS, as well as with the Alaska subcommittee of the SC, guide the program. Annual data and reports have been provided and Phase II tasks are reevaluated annually to determine if there are any necessary additions.

The table below depicts the tasks involved and their results:

TASKS	RESULTS
Task 2: Organic and inorganic chemistry monitoring (Years 2 , 3, & 4)	Baseline data for pre-Northstar and Liberty development established; the post-Northstar construction levels of hydrocarbons and metals are within historical range for the region and reflect natural background from regional sources – there are no indications of petroleum exploration and production related contamination; Contaminant concentrations in sediments are generally well below the range where adverse biological effects would be expected; Geochronology data support previous studies indicating that the Nearshore Beaufort Sea is a net-erosional area. (Deferred)
Task 3: Acoustic measurements and monitoring	
Task 4: Cross Island Whaling Study (Years 3 & 4)	Socio-economic baseline data gathering has been initiated for Cross Island whaling activities; A Global Positioning System (GPS) mapping of Cross Island whaling has been implemented.
Task 5: Sources of suspended sediment loadings to the region (Years 2, 3, & 4)	Rivers are a major source of sediment to the ANIMIDA study area with >50% of annual input in 2-3 weeks; River-borne sediment is carried well offshore with the under (and over) ice express; Ambient concentrations of suspended sediment in ANIMIDA study during open-water are wind dependent (resuspension).
Task 6: Monitoring in the Boulder Patch Area (Years 3 & 4)	Boulder Patch data indicate annual variations in biota growth linked to suspended sediment levels and are in the range of past years.
Task 7: Potential partitioning of contaminants - dissolved and particulate phases	Concentrations of dissolved metals in waters of the coastal Beaufort Sea were not above values identified for acute and chronic State and Federal guidelines; Dissolved and particulate levels of several metals in the coastal Beaufort Sea follow predictable distribution coefficients

Task 8: Monitoring biological effects in area biota (Years 2 & 3)

thereby allowing modeling of dissolved and particulate behavior.

Low levels of combustion related PAH were detected in fish; Low levels of Polychlorinated Biphenyls (PCB) and pesticides were found, with several fish having moderate PCB concentrations.

Mr. Brown stated that the current ANIMIDA Program is expected to finish at the end of 2003; however, depending on some close-out activities, it may run into 2004.

He added that there are plans to reactivate a new Liberty Project in 2004, possibly 2005, but he was unaware of the exact plans.

Open Discussion

Dr. Smith asked where the broad metals in the snow come from and are they being washed out of the atmosphere.

Dr. Trefry responded that concentrations are extremely low and that the snow is filtered, so it is not the particles. He believes it is due to some exchange that occurs from particle to water either during transport or in the melting process.

Dr. Steve Okkonen asked how big the fresh water plume was under the ice. Dr. Trefry replied 1.6 to 2 meters.

Dr. Tom Weingartner asked how far offshore the whalers were going from Cross Island. Mr. Brown stated that they were roughly 50 to 60 miles offshore.

Mr. Paul Stang asked if there is any value in continuing monitoring at Northstar in an ongoing fashion. Mr. Brown said that he believes there is a need for annual monitoring, but perhaps not at the same intense level. The team is looking at annual variations around Northstar which indicates some trends have not been monitored at the level originally planned.

Mr. Wildermann mentioned the sites used for establishing a baseline and asked if the Liberty Project starts up at a different location, what does that mean for the baseline. Mr. Brown replied that the baseline would not be obsolete but it would not provide the same source from contaminant distance trend. He added that once the Liberty Project was deferred, the stations were no longer visited and only three or four of those stations have been sampled annually.

[A Description of Potential Impacts of OCS Activities on Bowhead Whale Hunting Activities in the Beaufort Sea](#)

Presentation by Dr. John Russell

Dr. Russell said that this project began in the fall of 2000 and is scheduled to end in 2004. It has a study team of three groups: EDAW, Inc., Circumpolar Research Associates, and Applied Sociocultural Research.

Using multiple data sources, this project examines Iñupiat assessments of the influences of development on participation in traditional activities, especially whale hunting and its related sociocultural components. A focus is to identify Iñupiat assessments on OCS activities as a particular type of development threat or opportunity and the perceived affects of OCS activities on whale hunting and related traditional activities. In addition to observational (ethnographic) and secondary source data, three surveys are being administered (whaling captains, randomly selected households, and high school juniors and seniors) to examine variation in these assessments among and within three North Slope communities (Barrow, Kaktovik, and Nuiqsut) and one "control" community in western Alaska. The data should assist communities to identify and plan for sociocultural problems related to ongoing development in the Arctic.

He reported that the most time-consuming part of the surveys has been extensive consultation with communities about the content of the surveys. The surveys were initially drafted, distributed to communities for their input, returned, and revised. After revision, the communities were consulted again and then pre-tested. The team tried to construct instruments that have as much meaning for local people as possible and still meet the scientific requirements that will give it what it needs. After completion of the OMB process, it is anticipated that the surveys will be implemented in January 2004. The observational work will start in June 2003 in Kaktovik and Barrow and then in August and another in the fall. He explained that whaling is at least 600 to 800 years old in the North Slope communities and is probably 1,000 years older in Saint Lawrence Island and among the Siberian Eskimos. Whaling, then and now, is an important activity that is expressed in materials, cultures, social organizations, religious beliefs, cultural symbols, and diet preferences. Traditionally, whaling has been a distinctive adaptive pattern that has linked society, culture, and environment.

Dr. Russell said that there are about 150 whaling captains in 10 or so communities on the North Slope and in the west who hunt currently whales; about 44 crews in Barrow who practice both spring and fall whaling; and about 10 to 15 crews each in Kaktovik and Nuiqsut who primarily conduct fall whaling. Whether or not a community practices spring or fall whaling depends on the migration path of whales and the access of hunters from each of those villages to the whales.

He continued that whaling is also an important context for transmitting culture. It is where young people learn about the values of subsistence and are exposed to the issues of cooperation and community responsibility that comes with distribution of whale products. Whaling also expresses the connection of the present with the past and the social ties that link people into families, kin groups, and communities. Through the sharing of whale products among the crew, kinsmen, and other community members, ties are both created and reinforced.

When European and American whalers entered the Arctic, they employed Natives as whalers and exposed them to new whaling technologies. Whaling has remained essential to modern Iñupiat values and lifestyles: the Barrow High School mascot is the "Whalers;" employers allow time off for whaling crew members to hunt; Nalukataq and related whaling ceremonies are important cultural events; and muktuk and other whale products have cultural, economic, and health-values for community members.

Oil development activities in the late 1960s and early 1970s resulted in new change agents affecting Iñupiat communities: new sociopolitical institutions emerged; settlement and residence patterns began to change; transportation technologies such as snow machines became more available as did wage employment with the newly formed North Slope Borough. Modernization of Iñupiat communities accelerated exposure to these and other change agents. OCS oil activities were perceived to present unique threats and consequences, including ones specific to whaling. Iñupiats expressed concern that OCS oil development activities could deflect whale migration farther off-shore, contribute to whale skittishness, and otherwise adversely affect whale behavior. These types of concerns are perceived to have negative influences on whale hunting and any threats to whale hunting also affect other aspects of community and personal life connected to whaling.

Open Discussion

Dr. Stephenson-Hawk asked if there are local people who are intricately involved in day-to-day research activity. Dr. Russell answered no, but that Natives are regularly involved in every important decision that is made about the content of the information that is going to be collected and added that the team has made substantial efforts to coordinate with the mayors of each of the villages, the North Slope Borough mayor, the Division of Wildlife at the North Slope Borough, and the village corporations. Natives from each community will also be hired to help administer the survey instruments.

Dr. Edella Schlager asked if any problems such as increasing levels of conflicts or degrading the environment, have resulted from the increase in Native participation in whaling activities as household income increases. Dr. Russell responded that he did not know about degrading the environment, but as the numbers of crews have increased, people do report social tensions which are related to the regulatory environment since there are only a certain number of strikes and a certain number of whales that can be taken.

Dr. Richard Hildreth asked if there is formal or informal allocation of the strikes among the crew. Dr. Russell said the Alaska Eskimo Whaling Commission (AEWC) is composed of whaling captains from each of the communities and it collectively decides which communities get strikes. If weather conditions prevent some from whaling, they will sometimes pass their strikes onto another community which results in the sharing of the products from the whale hunt.

Dr. Hildreth asked if, within the community, there is a further sub-allocation of whale strike permits. Dr. Russell answered no.

Measurements of Temperature, Salinity, and Circulation in Cook Inlet, Alaska

Presentation by Dr. Steve Okkonen

Dr. Okkonen described the purpose of this study which was to improve understanding of the density-driven flow in Cook Inlet, Alaska, and use the information regarding the temperature and salinity fields to improve and validate numerical oil spill trajectory models. Presently, barotropic models are being used which operate as if Cook Inlet is an entirely fresh water system without temperature or salinity variations.

This project mapped temperature and salinity fields in central and lower Cook Inlet with the idea of improving the next generation of models. Density-driven effects are effects associated with temperature and salinity variations, a very important component that needs to be incorporated in the next generation of models. Salinity is, amazingly, an even stronger current driver than the extreme tide range in Cook Inlet. Saline water from the ocean moves up the east side of the inlet. During the 3 summer months, the freshwater entering from the rivers strengthens the salinity gradient and thus the three opposing rip-tides running down the inlet. These tide rips can be strong enough to submerge full trees and so are significant in modeling of oilspills. Significant freshening of the Cook Inlet occurs during these 3 months. The large observed changes in salinity between the north and south ends of lower Cook Inlet suggest the need for additional hydrographic surveys to better understand movement of oil in a potential oil spill.

He explained that a CTD (measures conductivity, temperature, and depth) was used to take temperature and salinity measurements and was lowered from surface to bottom. This was done during spring 2002 at the onset of the fresh water inflow into the inlet and then again in the fall when fresh water volume in the inlet was roughly at a maximum.

He presented numerous graphs which depicted temperature and salinity variations which are summarized in the table below:

	Average temperature		Average Salinity (psu)		Cross sectional area (km ²)	
	Spring	Fall	Spring	Fall	Spring	Fall
Forelands	9.02	11.15	25.69	22.64	0.59	0.62
Drift River	8.33	10.81	29.49	27.06	0.28	0.31
Kenai	6.65	10.6	28.76	27.3	0.83	0.87
Humpy Point	6.37	9.57	29.13	26.76	0.96	0.97
Ninilchik	7.85	9.27	30.6	28.97	1.78	1.77
Anchor Point.	7.53	8.37	31.26	29.57	2.04	2.12
Homer	4.56	8.71	31.82	30.35	1.05	1.02
Chinitna Point	7.09	-	31.46	-	2.49	-
Nanwalek	7.31	-	31.82	-	2.42	-

Dr. Okkonen explained that there was also an educational component to this project. A number of students from Kenai Peninsula Borough schools made drift cards from plywood that indicated contact information for the University of Alaska and Cook Inlet Regional Assistance Advisory Council. Eight schools, starting in Port Graham, English Bay, Homer, Ninilchik, Kenai/ Soldotna, Skyview and Tyonek, deployed well over 7,000 drift cards. A little more than 600 of those cards were recovered, most of which were at the base of the Spit in Homer, almost 500 of them. Of the remaining cards, about 80 were recovered on Kalgin Island. The farthest cards that were recovered were in Shelikof Strait.

Dr. Okkonen encouraged consideration of educational components and also the importance of considering time constraints of a full day of school time and the liability insurance requirements when transporting students, especially on a boat.

There were no questions asked of Dr. Okkonen.

Beaufort Sea Nearshore Under-Ice Currents & Summary of Workshop on Physical Oceanography in the Beaufort Sea

Presentation by Dr. Tom Weingartner

Under-Ice Current Study. Dr. Weingartner explained that the purpose of this measurement program was to provide MMS with the first year-round under-ice current measurements in the Nearshore zone of the Beaufort Sea for evaluation of regional numerical oil spill trajectory models and to assess the magnitude of under-ice currents.

Since the Nearshore zones are extremely important in the Arctic for a variety of reasons and have important climate implications, this study had much broader applications than just the immediate interests of MMS. He added that landfast sea ice decouples the ocean from direct wind forcing which reduces under-ice currents, reduces (vertical) mixing, influences the fate of river discharge to inner shelf, and it is a relatively unstudied region.

He explained the study area and said there were four moorings deployed over the period of measurement. For the first 2 years, however, there were only three: Argo, Dinkum, and McClure inside the Barrier Islands. In the third year funding, an extra mooring was placed at Northstar Island.

The instrument used to take measurements was an acoustic Doppler current profiler which could be set very close to the bottom in order to keep it away from ice that could strip out moorings. Over 3 years, only one mooring was lost and, although the equipment was returned, there was no data. These instruments were then put on a mooring frame with a transmissometer, temperature, and conductivity or salinity measuring device.

He presented a record from one of the moorings in the Beaufort Sea and explained that the Doppler was able to get an approximate record of the sea ice thickness as a function of time. This showed an increase in thickness to about one and a half to two meters throughout the year and then rapid melting. The bottom tracking capability of the device records when the sea ice actually sets in and remains fast which simplifies a way to discriminate between the open water period and the landfast ice period. It has been determined that the landfast ice period extends from about mid-October through June each year with a relatively brief open water period ending early October. In July and August, the currents are largely governed by the wind and there is a very strong correlation between the winds and the currents. The currents are typically 15 centimeters per second and can exceed 100 centimeters per second. During the landfast ice period, the currents are much smaller with typical speeds of three centimeters per second with maximum speeds up to 20 centimeters per second.

He summarized by saying that the currents are temporally and spatially coherent throughout the year. Currents and winds are strong and correlated during the open water period, but not so in the landfast ice period.

Summary of Workshop on Physical Oceanography in the Beaufort Sea. The workshop was held in Fairbanks, Alaska, in February 2003 and was attended by over 20 physical oceanographers.

Discussions were driven by issues that would lead to rapid advances in the predicted skill of regional circulation models, the type that MMS would want to use to understand impacts in this region. It was felt that the recommended studies should guide model development by improving models of important physical processes in this region, enhance the model skill by improving the boundary conditions needed to drive these models, and to provide necessary data sets for model evaluations.

There are fundamental unknowns in the understanding of the ocean and ice circulation, ocean density field, and of the forcing mechanisms influencing the sea ice and oceanography. The study recommendations consist of a mix of field (observational) and idealized model studies to improve understanding of poorly understood physical processes and boundary conditions and to provide data sets necessary for the proper evaluation of regional pollutant transport models.

Critical issues requiring study are the:

- wind and surface stress fields established by mesoscale variations in the regional meteorology and sea ice distribution and deformation fields,
- effects of freshwater discharge and freezing (convective) processes on the shelf circulation,
- controls exerted on the circulation and water property fields by the lateral ocean boundaries of the Alaskan Beaufort Sea: the Chukchi shelf (western boundary), the Canadian Beaufort shelf (eastern boundary), and the shelfbreak and continental slope (offshore boundary), and
- shelf /slope bathymetry.

These topics affect the time and space scales of the ice and ocean circulation which have not been well-resolved in the Beaufort Sea. Consequently, the recommended studies are also designed to delineate the major scales of variability.

Open Discussion

Dr. Scranton commented that Dr. Weingartner mentioned that the large transmissivity minimum in the spring was associated with river runoff. She asked what he thought causes the 50 percent transmission in the middle of winter. Dr. Weingartner said it is not clear that it is related to particular events. He added that when he looks at that record with respect to flow events, he doesn't necessarily see it, so he does not know what it is. He said that it did suggest to him that there is an annual cycle where in the early summer sediment is dumped and the ice goes away, is resuspended, and carried away. Therefore, there is a distinct seasonality in the sediment transport characteristics of the shelf. Dr. Trefry added that no spikes in concentrations of suspended sediments had been observed during the winter of 2000, but total suspended solids under the ice had been measured and, typically, concentrations of suspended sediment to be less than 1 milligram per liter had been found. More commonly, the levels of suspended sediment under the ice are about 0.05 milligrams per liter or less, relative to tens of milligrams per liter during the open water (no ice cover) period during July and August.

Dr. Greg Boland said he had dived in the Sag in the ice one winter and asked Dr. Weingartner whether or not he believes there is a subsurface breakup of the solid nature of the frozen river before the surface breaks up allowing flow into the Beaufort. Dr. Weingartner replied that he does not think the Sag is running at all in the wintertime but to be able to get an acoustic record of the plume while the surface of the river is still frozen, the ice must be in the throws of being broken up.

Bowhead Whale Feeding in the Eastern Alaskan Beaufort Sea: Update of Scientific and Traditional Knowledge

Presentation by Dr. W. John Richardson

Dr. Cowles stated that some of the MMS decision-making in the Beaufort Sea has been focused on whether or not certain portions of the shelf area should be included in the Beaufort sales, particularly the area from Barter Island east. There has been discussion on bowhead whales feeding in that eastern Beaufort Sea area. MMS has questioned the importance of this area to the bowhead whale population. He introduced Dr. John Richardson who has been studying bowhead whale feeding habits and has also been involved in studying the effects of industrial noise on bowhead whale behavior.

Dr. Richardson explained that the bowhead whale is a large baleen whale closely related to the white whale and feeds on zooplankton, primarily copepods and amphipods in the Beaufort Sea area. The markings on the back of these whales distinguish them from other species and when in the Bering Sea, they migrate in the spring around western and northern Alaska and in the Canadian Beaufort Sea during the summer. In late summer, they start to move west across the Alaskan North Slope through the eastern Alaska Beaufort Sea area towards Barrow and the Russian posts.

The overall objective of this study, based both on traditional knowledge and scientific studies, was to assess the importance of the eastern part of the Alaskan Beaufort Sea as a feeding area for bowhead whales, including its importance both to the population of whales and for any individual whales that forage that area. Dr. Richardson said the study had been conducted most recently in 1998, 1999 and 2000. Before 1985, it was known that bowheads fed in the area around Kaktovik in the eastern part of the Alaska Beaufort Sea based on stomach contents, harvest, animals, and observations of feeding behavior. In 1985 and 1986, MMS sponsored a complicated bowhead whale feeding study in that area which was criticized by the North Slope Borough because of its short two-field-seasons duration in relation to the wide annual variation expected, various other limitations, and because the North Slope Borough did not agree with the results. A follow-up study was conducted in 1998 through 2000 which involved full collaboration with the Borough, the AEW, and the individual whalers in Kaktovik on the planning and conduct of the study, as well as for the more traditional scientific approaches.

Questions which this study would answer were:

- in an average year, what percentage of the bowheads' annual food requirements are obtained in the eastern Alaska Beaufort Sea,
- how much of its annual food requirements is from the overall eastern part of the Beaufort Sea,
- what is the average stay of the bowhead,
- how long do some individuals stay,
- what attracts the animals to go through that area to feed,
- how much of the area in the eastern Alaskan Beaufort Sea has enough zooplankton in the water to be worthwhile for bowhead feeding, and
- how much time was spent on feeding?

Dr. Richardson pointed out that the prime contractor was LGL which was responsible for a number of the major components of the study; however, there were numerous other groups that helped with various aspects. He reiterated that the study was done in close cooperation and consultation with the hunters along the coast of the eastern Alaska Beaufort, the AEW, the North Slope Borough, and an SRB that included both science representatives and representatives of local stakeholders. A variety of meetings had been held before, during, and after the project with local people participating in the fieldwork and meetings regarding the draft report. Once completed, the draft report was reviewed and revisions were made to include comments from the hunters, the AEW, the North Slope Borough, and the SRB.

Another aspect of the study was the use of local and traditional knowledge which was important in the planning of the project. Informal interviews were conducted and summarized in a chapter in the final report on local and traditional knowledge.

Food availability was another major component of the study and hydroacoustic techniques and net sampling with supplementary physical measures were conducted in two different ways:

- broad scale surveys of the study area and
- sampling concentrated around places where bowheads were observed to be feeding to see what made a particular area useful to a bowhead as a feeding area.

Another component of the study was BWASP which entailed watching bowheads from aircraft. Under the BWASP project, numbers, locations, and behavior of bowheads were observed and correction factors for the portion of the bowheads that were being detected during the aerial surveys based on how long or below the surface versus at the surface as well as how often they were feeding and the nature of their feeding were received.

Through this project, it was determined that bowheads spend forty-seven percent of the time feeding, although these results vary. In contrast, in the summer in the Canadian Beaufort Sea, the average is around 73 percent.

It was also discovered that bowheads stay in the eastern Alaskan Beaufort Sea on an average of 3.8 days which is short considering an average bowhead would take about 2.5 days just to swim across that study area without stopping.

The results also show that bowhead whales do feed commonly in the eastern Alaskan Beaufort Sea, but are not there long enough to get a really large amount of food or a large amount of their annual requirements for food. It was concluded that the annual food intake for the eastern Alaskan Beaufort Sea is about 2.4 percent of their annual requirement.

Dr. Richardson said that the results of the study have been used in a Beaufort Sea EIS recently released by MMS and the results should be of value in future deliberations.

Open Discussion

Dr. Marek asked what the population of bowhead whales is, how many are harvested in each season, and how productive they are. Dr. Richardson responded that the latest estimate of population is right around 10,000 animals for the Chukchi/Beaufort, estimated harvest is to be in the high 40s which is less than the quota authorized by the AEWC, and the population is increasing at a rate of around 3.2 percent a year.

Behavior of Ringed Seals and Re-Interpretation of Aerial Surveys

Presentation by Dr. Brendan Kelly

Dr. Cowles stated that since the 1980s, there has been concern of how ice seismic exploration would affect ringed seals, which is a species having layers and breathing holes, in the shore fast ice. At times, industry would request permits to use vibroseis equipment, which is heavy equipment for geophysical surveys. A number of studies were completed, not only on the behavior of seals, but also on their distribution and abundance using aerial surveys. MMS did another monitoring survey a few years ago and Dr. Kelly's presentation has been very helpful in allowing MMS to better understand those aerial surveys, because there are so many sources of potential interpretational questions and bias in aerial survey data.

Dr. Kelly described ring seals as being perhaps the most numerous pinnipeds in the northern hemisphere, however, knowing how many there actually are has not proven possible because not enough is known about the behavior and ecology of the species. A lot of what is known about this species actually derives from traditional knowledge from Eskimo hunters. The original human occupation of the high Arctic depended on ringed seals, which in turn depended on its ability to maintain breathing holes through the ice. These holes are scratched through the ice and maintained all winter and it was the presence of this mammal that allowed humans to move into and occupy the Arctic. He said that this study focused on the behavior of ringed seals, particularly during the birthing and nursing periods, and then relating that behavior to their availability to be counted, particularly by aerial surveys.

He explained that shore fast ice in the Arctic is a prime habitat for ringed seals and is also an excellent stable platform for industrial activities. MMS and bpExploration have sponsored a number of aerial surveys of ringed seals to estimate the effects of activities on its populations.

It is difficult to interpret those survey results since for much of the year ringed seals are hidden from view either under the ice or snow. The pups are born inside snow caves, primarily in April, and they spend the first couple months of their lives there being nursed by their mothers who are alternating between nursing their pups and feeding under the ice below.

In the late spring, the seals begin to come outside to rest in the open where they are visible and it is possible to count some unknown fraction of the seals resting on the surface of the ice.

Since 1988, the behavior of seals has been studied telemetrically, determining the amount of time being spent on the ice and the amount of time they are visible as opposed to inside the snow caves.

Typically, a hut is set up on the ice to the east of Northstar. Fieldwork is being continued this year and it began in early April. Although the breathing holes and lairs are under the snow, trained Labrador Retrievers are used to locate them by smell. Once the dogs have located a hole, a net is pushed down through the ice. This net is designed with two flexible steel hoops that enable it to be compressed in order for it to be pushed down through the ice and then pulled back up through the breathing hole when the seal has surfaced. The sound of the seal breathing can be heard via microphone that has been planted in the snow and is transmitted to the hut by radio. A coded radio signal is sent back to a box next to the hole which severs the line holding this lead weight and as the weight falls, it purses the net shut beneath the seal. The seal is then pulled from the hole and radio transmitters are attached to its back hair and a second transmitter is attached to a hind flipper. The seal is then released through the same hole and each time the seal subsequently comes out of the water, a radio signal is received at the camp on the ice and a tracker is sent. The tracker goes out with a directional antenna array and a GPS and locates precisely where the seal is and determines whether it is inside the snow cave or resting on the surface of the ice.

Dr. Kelly described home ranges from the 2002 study. It has been discovered that the seals have been found within a kilometer or two of their capture site which may mean there is some year-to-year fidelity. The fidelity of these home ranges has implications for the interpretation of aerial surveys. It suggests that surveys conducted in late spring had represented wintertime distribution whereas surveys conducted in late May and June were often used to interpret the effects of industrial activities that take place earlier in the spring when ice conditions are sufficient for travel.

The studies have shown that through the end of May, none of the seals are available because they are under the snow. Late May is when they start coming out of the snow caves and are available to be counted and there is an abrupt increase beginning of June.

Dr. Kelly described previous years' findings of when seals emerged from the snow caves and it was concluded that each year the seals are emerging earlier than previously and it is sensed there may be a climate effect taking place. He summarized by stating that even though the surveys were flown in very similar date ranges in 2000 and 2002, the proportion of the populations that is visible and available to be counted varies tremendously.

The question which needs to be answered is when do seals abandon their lairs? Environmental covariates are going to be modeled, particularly those having to do with snow conditions that may be affecting this to try to develop a model that will assist in the prediction of what proportion of the seals are available to be counted. This modeling is going to be conducted using scatterometer data. Scatterometer data is sensitive to snow deterioration and can indicate the timing of lair abandonment. The satellite makes two passes a day over the study area – one in the morning and one in the evening. The difference between amplitudes of those two signals is very sensitive to the amount of liquid moisture in the snow. The scatterometer is detecting very wet snow in the evening because it has been melting all day and in the morning pass, it is detecting dry snow because it has re-frozen.

He again mentioned that there may be a climate change occurring since data recorded indicates, particularly in this area of Alaska, there has been a very strong increase in temperatures. Snow is melting earlier and changes in ice cover are taking place. The ice cover in the Arctic is a very important feature for many pinnipeds. He suggested that the ecology of individual species needs to be studied in order to make reasonable predictions about what the effect of changes in climate will be. As an example, he said there is very good evidence that when these warming trends occur and there are early rains, the seals' lairs collapse. The lairs are next to the breathing holes and normally pups are safe. However, when the lair collapses early relative to the life cycle of pups, the pups are exposed and are vulnerable to not just polar bears and foxes, but also to birds.

There were no questions.

Recommendations of the U.S. Commission on Ocean Policy

Presentation by Mr. Edward Rasmuson

Dr. Shapiro introduced Mr. Rasmuson who is a member of the U.S. Commission on Ocean Policy. He is a Native Alaskan, was president and chairman of the National Bank of Alaska, and is currently chairman of the Statewide Advisory Board for Wells Fargo Bank.

Mr. Rasmuson explained that the Commission is composed of 16 members from across the United States. A few members are former heads of departments and cabinet levels as well as a few scientists. Its members were confirmed and appointed by the President, but six were selected by the House of Representatives, six by the Senate, and four by the President.

The Commission has been charged with reviewing Federal ocean-related programs and laws and making recommendations to the President and Congress for a coordinated and comprehensive National Ocean Policy. The Commission has been taking testimony across the country from Maine to Washington to Alaska and Puerto Rico. It is now in the process of formulating suggestions and recommendation to Congress. Recommendations will be submitted the middle of August for final review and will then be submitted to Congress and the President. Due to the magnitude of this task, the Commission's Report to Congress and the President has been delayed for an additional 3 months. The draft report for Governors review is scheduled to be submitted in August 2003. Since every state is affected, each state has to review the draft report. The new delivery date for the final report is later summer 2003.

The Draft Table of Contents Chapter Headings of the report are:

- Our Oceans: A National Asset,
- Enhancing Ocean Value and Vitality,
- Improving Ocean Health,
- Advancing our Understanding of the Ocean,
- Promoting Ocean Awareness and a Stewardship Ethic,
- Tying it all Together, and
- Sustaining a National Ocean Policy: The Future.

The draft recommendations are not official or approved and the Commission has concurred that these should be developed in more detail for further consideration.

Draft Recommendation 1. Setting a New Course for Ocean Governance: *The Straw Governance Model.*

Congress and the President should act to create a National Ocean Policy Framework, composed of an Executive Office of Ocean Policy, a National Ocean Council, and an Advisory Committee. There should be an office within the west wing of the presidency that coordinates ocean policy along with NOAA and the other various agencies. Eventually, there will be a National Ocean Council made up of the various states who, in turn, will have various advisory committees.

Draft Recommendation 2. Resource Management needs to employ an *Ecosystem Based Management Approach.*

Rather than a single species approach, this approach would take into consideration effects on single species based on sound science.

Draft Recommendation 3. The U.S. Government needs to work with all Stakeholders to focus resources on ocean education – informal and formal. The Commission agrees on the need for more education on oceans and waterways, especially K through 12 and beyond. Another big issue is EFH which is going to affect all of the states.

Draft Recommendation 4. Develop an integrated and sustained ocean and coastal observing prediction system. It must be truly integrated and provide data and information products for real operational activities as well as research.

Draft Recommendation 5. Increase federal funding for oceanographic/marine research. The Commission is recommending that funding be doubled for ocean research.

Draft Recommendation 6. Marine transportation. The international marine transportation is expected to double by 2020. The Nation needs to ensure that its ports and intermodal connections can handle this increase.

Draft Recommendation 7. A national watershed monitoring strategy is needed, i.e. the Dead Zone in the Gulf of Mexico.

Draft Recommendation 8. The Federal Government needs to establish and coordinate an ocean and human health connection that would require strong interagency cooperation, new effort needs to emphasize partnerships, and would/could include harmful algal blooms, toxins, pathogens, biotech, etc.

Also being considered, are the following offshore oil and gas recommendations:

- establish a program under which some portion of the federal revenues from the leasing and extraction of non-renewable offshore energy resources is invested in the conservation of renewable ocean and coastal resources, i.e., through grants to all coastal states and an allocation at the national level for the advancement of marine science efforts to support such conservation,
- OCS producing states should receive a larger share to address the environmental and socioeconomic impacts of energy activities in adjacent waters,
- increase and coordinate funding for environmental studies related to offshore oil and gas development,
- work with state and environmental agencies and industry to evaluate the risk to the marine environment posed by the aging offshore and onshore infrastructure in the Gulf of Mexico as recommended by the NAS (i.e., *Oil in the Sea III*),
- increase the research and development investment in the science and engineering needed to determine whether methane hydrates can be part of the solution for the Nation's long-term energy needs, and
- establish an ocean observing system through a governmental cooperative partnership with the oil and gas industry that uses the industry's existing research activities and infrastructure of pipelines, platforms, and vessels in a way that allows the transfer of non-proprietary data to research and academic institutions while protecting the security of proprietary data and meeting other safety, environmental, and economic concerns.

Existing and Emerging Issues. Federal offshore waters are held in public trust. These areas and their resources should be managed for multiple use and public benefit including appropriate environmental protection. The following are issues identified by the Commission that need to be addressed by Congress and the National Ocean Council in developing a formal regime:

- bioprospecting,
- offshore aquaculture,
- offshore renewable energy,
- undersea telecommunication cables,
- desalination,
- submerged cultural resources, and
- other marine minerals.

He added that until Congress establishes a formal regime for these new uses or uses for which there is no current management regime, the National Ocean Council will designate an interim lead agency to undertake preliminary research to assess and monitor these uses.

Congress should insure that all new uses of the ocean areas or uses for which there is either no or inadequate management regime are assigned to, and overseen by, a public agency to ensure full consideration of public values and benefits in their use. Special consideration should be given to issues of the proper siting, leasing, and environmental consideration.

Open Discussion

Ms. Lynette Vesco said that she has heard that regional approaches or regional management councils are being considered and asked Mr. Rasmuson for more information. He replied that it is in the formative stage, but the Commission is going to recommend regional councils in the ecosystem areas. These regional councils will not take the place of the regional fish councils, but will bring various interested parties together to see where they agree with some of the issues and where they don't agree. Through good science and regional political action, it is hoped that they can come to an agreement and approach their Congressional Delegation.

Dr. Marshall asked, in regards to the policy, are there any considerations by the Commission for international collaborations or partnerships? Mr. Rasmuson responded that the Commission has been charged with taking care of oceans and waterways that are contiguous to the U.S. and to the North American continent. He did agree that something does need to be done and added that the Commission has recommended that the Law of the Seas be ratified.

Mr. Stang said he was curious as to why the Commission did not tackle the moratorium issue for oil and gas. Since 1982, Congress has been putting areas off limits and always with the rationale that more studies need to be done; however, no funds are appropriated for additional studies. Mr. Rasmuson agreed and said that if it were up to him, there would be no moratorium and that there are a number of others who feel the same way. He explained, however, that if one talks to the floor or delegation, not one will recommend that the moratorium be lifted. He also said that until the Nation believes there is an energy crisis, no decisions will be made to lift the moratorium.

Dr. Roscigno asked if the Commission has addressed states such as Louisiana and Texas regarding the issue of who is paying the price for OCS development and whether or not any relief along this line is foreseen. Mr. Rasmuson replied that is why the Commission is making a recommendation that more money should go to the states that allow exploration.

Dr. Stephenson-Hawk asked, in regards to the Draft Recommendation 1, if there has been any discussion surrounding whether or not NOPP, NOAA, ONR – how these agencies will fit together in order to set a new course for ocean governance. Mr. Rasmuson explained that if the Commission had a choice, it would wrap up a lot of the various agencies together. However, Homeland Security is now taking over some of these agencies.

Discipline Breakout Groups Reports

Ecology/Biology Discipline Breakout Group

Drs. Castellini, Diaz, Marshall, Shapiro, Rex, and Trefry are members of the Ecology/Biology Discipline Breakout Group. Dr. Rex presented the report to the SC.

He explained that the group focused its attention on FY 2004, but mentioned some studies being considered for FY 2005.

Alaska OCS Region

Since more drilling is expected in the Cook Inlet planning area, there are three related proposals to collect baseline data on the distribution and abundance of nine species of marine mammals and birds which are vulnerable to drilling activity and which do have protected status. The group supports these biotic surveys on:

- **The habitat of Harbor Seals.** This study has good continuity and builds on an ongoing study. The group feels this is a very logical place to explore the potential environmental effects of drilling activity on the fauna of Cook Inlet.
- **A bird hazing project.** This project consists of two phases: 1) collect and synthesize existing data and 2) conduct a workshop in which to plan and carry out fieldwork. Bird hazing is scaring away birds before they come in contact with oil spills.
- **A review of ambient light intensity.** The ambient light intensity involves artificial illumination and its effect on terrestrial and marine organisms. The group also recommends that a literature search be separate from the plan of implementation.

Pacific OCS Region

The group supports the continuation of the MARINE and MINT studies. There are very few long-term studies for either applied or basic ecological work, and documenting long-term natural cycles is essential to the detection and evaluation of anthropogenic disturbance and for remediation.

Recommends decommissioning studies be connected with sea floor mapping. The proposed studies are clearly going to be required and the Regional Office has chosen a list of topics which seem to be a logical starting place. These are:

- accumulated mounds of shells that develop communities at the base of rigs,

- a literature search for the effects of decommissioning,
- fish population dynamics, and
- sea floor mapping that deals with hard substrates.

Recommendation. There is also a Gulf OCS Region proposal that is somewhat related to this on decommissioning, and the group recommends that there be coordination between the two Regional Offices on biological effects of decommissioning. Since hard substrates are shared between rigs and natural hard substrates, the group feels these two studies should be connected with one another since it might tell a lot about the organization of hard substrate communities in the neighborhood of those rigs.

Sand and Gravel

The group supports the following FY 2004 proposed studies:

- **Ship Shoal.** This study proposes to collect information to evaluate the impact of excavating sand on Ship Shoal off Louisiana which will be used to restore coastal areas. This study is clearly necessary because not much is known about the communities on these shoals. Since this is a new study, the group recommends that, because of the complexity of this study and the huge uncertainties involved, MMS consider placing MMS Gulf OCS Region staff who are very experienced in this region on the TPEC. This committee needs to be comprised of individuals with broad backgrounds and wide expertise in both physical and biological oceanography and should integrate with ongoing CMI studies on shrimp and other fisheries which would add additional information about the ecosystems affected.
- **Utilization of Benthic Communities by Fish.** This is a proposal to use stable isotopes of carbon and nitrogen to identify trophic pathways in the benthic community and the energy transfer to fish as a way of assessing the environmental effects of mining sand. The group feels that using carbon and nitrogen isotope ratios by themselves could be very ambiguous and difficult to interpret and recommends that it be connected with more direct studies of fish community structure and organization, including their diets as a way of ground truthing the ratios. The group recommends this study be conducted on Ship Shoal since this is an entirely new area of environmental exploitation and environmental effects and feels that if it is centered there, it might add more information to understanding this very important initial study.
- **World-wide survey of dredging impacts that have previously been done.** The group believes this study should be started immediately to garner more information about the potential effects of mining sand and is supportive of the notion that it includes site visits to industry fishers.

For FY 2005, future directions involve numerical wave modeling and studies of the benthos of shoals and that seemed very appropriate.

National

For FY 2004, the compilation of a comprehensive annotated bibliography is proposed and the group enthusiastically endorses it.

For FY 2005, a study on methods and protocols to test for PAHs and associated stress is being contemplated. In light of the mercury issue, this information synthesis would benefit MMS as well other agencies involved with environmental effects and the group suggests interagency support be sought and the study be expanded to look for other indicators of PAH stress.

Gulf of Mexico OCS Region

For FY 2004, the group supports the following proposed studies:

- **Integrated Modeling of Coastal Ecosystems.** This is a very complex problem and the group recommends that a workshop be conducted to determine exactly what kind of model should be used to identify the relevant scales of time and space and to determine what variables to use.
- **A Reanalysis of MMS Databases.** The purpose of this study is to primarily gain new insights and has to do with physical parameters. The group suggests that a biological component be added and that a link between this database and other existing databases be created.
- **A Literature Search for Data Synthesis of Biological Information Concerning Decommissioning.** The group, again, suggests there be close coordination between the Pacific and Gulf OCS Regions since both have an interest in decommissioning problems at this point.

- **Long-Term Effects of Oil and Gas Exploration in Mississippi and Alabama.** The group suggests a workshop be conducted to evaluate earlier data, particularly the kinds of reanalysis, data compilations, and databases that are also proposed for FY 2004.

For FY 2005, the group supports these studies:

- **Chemo III.** This study builds on the very successful Chemo I and Chemo II studies. Because of the depth limitations of the submersibles used in those studies, Chemo I and Chemo II focused on chemosynthetic communities below 1,000 meters; however, these communities extend far below 1,000 meters. In order to understand how the whole ecosystem works will require exploring those deeper seep systems as well.
- **Evaluation of sub-sea processing.** This is going on now and the environmental effect is unknown. The group feels this needs to be done.
- **Evaluation of noise from platforms.** This has been an ongoing concern and the group feels this should be made a priority and moved to FY 2004 or at least have an option to do so.
- **Monitoring of Development Sites.** This was recommended during the Deepwater Workshop and the group strongly suggests it be made a high priority in order to forge a direct connection between drilling studies and the environmental effects by a sampling design that would be effective in detecting those.
- **A study on Natural Seeps.** The seep study is strongly recommended by the group.

General Comments

- The group admired what the Pacific OCS Region has accomplished with outreach and education and believes it has been tremendously successful. It strongly encourages other Regional Offices to pursue similar outreach for education.
- An enhanced description of products for all regions. The group realizes there are final reports to studies; however, it would like to see more of what the products are, such as databases and how the new results will fit into synthetic databases that are being discussed.
- The group was very impressed by the presentation made by the Gulf of Mexico OCS Region which was extremely helpful since it very clearly showed the continuity between what is intended in FY 2005, what is being done now, and what had been accomplished in the past. The group suggests this form of presenting studies to the Discipline Breakout Groups be used as a model in the future by the other regions.

Physical Oceanography Discipline Breakout Group

Drs. Stephenson-Hawk, Marek, Scranton and Smith are members of the Physical Oceanography Discipline Breakout Group. Dr. Smith presented the report to the SC.

Gulf of Mexico OCS Region

He explained that the physical oceanography studies are aimed at understanding the currents and movement of water in the Gulf of Mexico and are clearly tied to the needs of the EIS process. These studies are critical to the point of MMS's overall mission which is safe and environmentally sound development of offshore resources.

The group discussed the proposal to conduct an exploratory study of integrated modeling of physical, chemical, and biological processes in the Gulf of Mexico. The objectives of this program are appropriate since it would allow MMS to evaluate the overall impacts on the Gulf of Mexico ecosystem of any proposed development scheme. However, the group feels that the chances of technical success in this area would be improved if more preliminary work is conducted to determine the desired end point and what the desired modeling product would be before an RFP is issued.

He made a personal observation that was mentioned during the work group session but not discussed in detail that, with respect to the proposed FY 2005 study of hydrate formation, MMS staff needs to reconsider whether or not this study truly is the highest priority and stated that there is a technical need for upgrading blowout modeling. For instance, there could be other phenomena that have a greater impact on the ability to accurately model what occurs in sub-sea blowouts, i.e., the mechanism of creating oil droplets and the distribution of oil droplet size seems to be a critical data need.

Pacific OCS Region

The group feels that the education initiatives are very successful efforts and be sustained. It suggests leveraging these efforts with funds from the National Science Foundation or industry and extending the monitoring programs to the Alaska OCS Region to cover the whole west coast to maximize the benefits.

The group supports the pursuit of the drifter study in the Nearshore zone and stated that this study needs to be implemented in FY 2004 in order to take advantage of some measurement systems already in place.

The decommissioning studies are essential to the region, particularly the studies of shell mounds which are a region-specific decommissioning issue.

Alaska OCS Region

The group discussed three physical oceanography studies closely tied to mission objectives.

- Upgrading the fall tree approach is essential to understanding the relative risks of different oil spill scenarios. The group feels this is essential for oil spill response planning and EIS's due to the high consequences that would ensue from a large spill.
- The Region's specific data on the weathering properties of oil is essential for credible fate predictions.
- Labs and test tanks should be utilized as much as possible to study the behavior of oil and ice due to some of the practical and administrative difficulties associated with releasing oil into real offshore waters.

Sand and Gravel

The group agrees with the Ecology/Biology Discipline Breakout Group that the Ship Shoal study is appropriate and timely due to the need for the material and the large extent of the proposed removal.

For FY 2005, the proposed numerical wave model analysis and comparison is appropriate for comparing which types of wave models makes best use of available data from that site and could result in overall improvements in the abilities to use these models in the EIS process.

National

The sponsorship of the proposed International Marine Environment Modeling Seminar (IMEMS) needs to reach out to include the end users of modeling data as opposed to the model practitioners.

The Lagrangian data assimilation study is needed to make the best use of drifter data to include circulation models.

The group feels the proposed study of oil spill volume statistics and the statistical properties of the distribution of release volumes are essential to improve the technical basis of risk assessment. Fortunately, there is not much data on large oil spills, but from the point of view of getting statistics; this study could contribute in this area.

Open Discussion

Dr. Stephenson-Hawk stressed that MMS needs to take advantage of the international contacts with Canada and Norway where field studies could be done since there are some things that cannot be tested in tanks for oil and ice interaction. Mr. LaBelle stated that MMS does have a very successful program off the coast of Norway with deep experimental spills. He said that he has also been on the board for IMEMS for some time. This Seminar is sponsored by SINTEF Applied Chemistry in Norway and he feels that it has made a concerted effort in inviting some of the users, especially within EPA, and was unsuccessful in engaging them. He commented that should MMS host the next IMEMS, that other U.S. agencies involved do a better job of trying to generate some interest in the other

groups. Dr. Smith agreed and said that although he had failed at his attempt to have someone from EPA Headquarters attend, some modeling techies from EPA did participate. He suggested that the next IMEMS be held in the Washington, DC, area in order to give EPA Headquarters staff more of an opportunity to attend.

Dr. Diaz commented that, while looking through the physical oceanography proposals, he realized that a lot of them could benefit by some cross fertilization of methods, particularly in the modeling realm either between regions or within a region, and that some of the separate projects could use coordination.

Dr. Smith replied that although this was not discussed within the group, he agrees. Mr. LaBelle explained that the main users of most of these physical oceanographic studies, besides the EIS writers, is an in-house group from headquarters that does oil spill risk analysis and trajectory analysis modeling and it does coordinate and work very closely with the regional physical oceanographers to design the studies in a way that supports the national program.

Dr. Shapiro asked whether or not there are biological oceanographers in the different regions. Mr. LaBelle answered there are and there have been great strides in moving towards integrating physical, biological, and chemical oceanography.

Socioeconomics Discipline Breakout Group

Drs. Gill, Hildreth, and Schlager are members of the Socioeconomics Discipline Breakout Group. Dr. Gill presented the report to the SC.

He stated that this has been the first time he has experienced public participation, which was both very interesting and also very insightful, during the group's deliberations.

Sand and Gravel

- **Worldwide Survey of Dredging Impacts on Commercial and Recreational Fisheries and Analysis of Mitigation Measures.** The objectives of this study are to conduct worldwide literature survey, assess the impacts of beach nourishment on commercial and recreational fisheries, and to provide a comprehensive list of detailed mitigation. In deliberating and trying to make recommendations on this particular project, the group feels it is important to include reviews of other OCS activities relative to user-group studies, particularly looking at user-group conflicts which may give insight to different mitigation strategies. There is a concern to try to expand the literature review to include primary data through ethnographic interviews which go back to observations made by the Biology/Ecology Discipline Breakout Group in trying to get input from industry and fishing. Therefore, the Socioeconomics Discipline Breakout Group recommends that the scope and funding level of this study be expanded to include this ethnographic interview component. It also feels that the project will benefit by considering an addition of conflict resolution processes.

Pacific OCS Region

No new socioeconomic studies were presented; however, the group did agree with the Biology/ Ecology Discipline Breakout Group that there is a need to coordinate decommissioning studies between the Gulf and Pacific OCS Regions, and it supports the education initiative that is currently ongoing in the Pacific OCS Region.

Gulf of Mexico OCS Region

- **Petroleum Involved Ports and Port Communities – An Assessment of Ports, Their Activities, and Their Economic and Social Effects on Related Communities.** The objectives of this study are to describe OCS-involved ports/communities and analyze their causal associations. The group feels this is an appropriate study.
- Other issues examined were part of the programmatic context for socioeconomic studies in the Gulf of Mexico. A great deal of information was provided that looked at the number of studies being completed and ongoing in the last few years. This information is used to assist MMS in completing Impact Assessments and preparing the EIS.
- The group suggested assimilation of significant new material, increase staff, improve assessments (since traditional social impact assessment methods do not apply to Gulf region), and make an effort to replace boom-bust model and track cumulative effects.

Recommendation. A workshop needs to be held to outline socioeconomic research for the Gulf of Mexico for the next 5 years which will provide a great deal of information that the Region can use to select and develop a more effective research agenda and program. It also feels there is a need to develop an SC member-lead steering committee to provide focus on how the workshop would operate, whom to invite, and to create a workable agenda. Part of the idea is to perhaps solicit pre-proposals, explore new approaches to impact analysis, and take advantage of the local expertise, particularly considering the legal aspects of new approaches in impact analysis that can be drawn from the Alabama-Mississippi Sea-Grant as well as the Louisiana Sea-Grant Legal Program.

Alaska OCS Region

FY 2004 proposed study.

- **Communicating Agency Goals and Processes with Alaskan Coastal Communities.** The basic goal is to improve MMS communication with local stakeholders. This particular proposal is in response to the SC's recommendations from its 2002 meeting. This study should focus on assessment of existing communication processes, allow researchers to creatively address objectives, and consider opportunities for creating two-way communication.

FY 2005 potential study.

- **Visual Documentation of Bowhead Whale Hunting.** The basic goals are to form a baseline for impact analysis and develop a type of possible orientation for OCS workers as they move into the area to conduct work. This study should focus on cultural components, document regulatory process for engaging in the hunt, and document social processes of organizing whaling crews.

Open Discussion

Dr. Smith asked who would be the audience for the visual documentation of the bowhead whale hunting process. Dr. Gill replied that OCS workers or people going to work in the area in order to better understand the indigenous people. Dr. Cowles added that although the EIS analyst is also an intended user, the thought is that since whaling changes over time, by capturing the essence of it, some of these changes can be later seen in order to make better assessments of how that may or may not relate to OCS development.

General Discussion

Dr. Shapiro asked if there were any questions, clarifications, or expansions pertaining to the Discipline Breakout Groups reports.

Ms. Vesco asked Dr. Rex, in regards to his remark that it would be helpful for Regions to present the past, present, and future similar to that of the Gulf of Mexico OCS Region, how theirs was presented. Dr. Rex explained that they began with planned future studies and how those followed the proposals presented for FY 2004, and how those had continuity with the past. When SC members come into these situations, they do not know what has been going on in the past and where things are going in the future; the group appreciated that and found it tremendously helpful. Dr. Smith said that he had noted in his group that the bar chart graphs the Gulf of Mexico OCS Region provided showed the level of funding commitment and the duration of each ongoing project and this was particularly effective in quickly giving members an orientation about what was going on and suggested the possibility of that approach be extended to list proposed projects, the duration, and the total funding. Dr. Shapiro explained that a few years ago, the SC asked the Regions to concentrate on the future because it was that aspect where it could be most constructive in giving advice. It is rather difficult to give advice about studies that are already under way. However, last year it was realized that hearing presentations of what was being planned makes more sense if the studies are put in context of what is going on now.

Mr. Drucker, in regards to the Ship Shoal study, commented that he has had problems in the past getting the biology departments at LSU interested in doing benzoic work and other biological work on Ship Shoal and wondered if there might be some utility towards pursuing the Ship Shoal integrated study through the CMI. He realizes that a lot of the biological expertise was within the LUMCON and that there is no possible way for LUMCON to become involved in doing work through the CMI. Dr. Diaz explained that the group's intent was to try and strengthen the Ship Shoal studies; however, if the expertise is not within the CMI, then clearly LSU should not be forced into doing

the biology. Mr. Rouse disagreed with Mr. Drucker and said LSU is able to do the work and said, since match money may be part of the problem, he would try to work things out. Dr. Shapiro asked Mr. Drucker if he has the authority to issue a broader request for proposals. Mr. Drucker stated that there is that ability within MMS.

Dr. Schroeder said that other avenues should be explored to find the researchers who can undertake the work and not to depend on the CMI. He added that there are scientists not only in the Gulf of Mexico but also on the east coast who share a common environmental setting and MMS should not limit itself to thinking that it can only draw from a pool that is under the CMI since it is tremendously restrictive. Mr. Drucker commented that for the physical side, probably the best expertise in the world for Ship Shoal is at LSU. Mr. Rouse pointed out that in order to do an integrated project, the only requirement from the CMI is that essentially the PI has to be from LSU and the biologists can be from anywhere.

Mr. Steve Treacy commented that there were a lot of good recommendations made during the breakout sessions and wondered whether or not these recommendations will be presented to the Director.

Dr. Shapiro explained that previously, recommendations were made available as an addendum to the Letter to the Director as a series of PowerPoint presentations and asked for other suggestions on how these recommendations can best be provided to MMS. Dr. Kendall agreed that last year's process did work well and was well received. After the Director reviewed it, she communicated her comments. An outline was presented to her regarding how recommendations from the SC were going to be presented and that they would be worked on throughout the year.

Dr. Shapiro explained, however, that the Letter to the Director itself did not contain much of the detail and recommendations to specific regions; they were simply handled by mentioning in the letter that the PowerPoint presentations were available and could be accessed. She asked if that is sufficient or does an addendum need to be added directly to the letter with an outline of what was in the presentations. After further discussion, it was decided that, as previously done, the PowerPoint presentations from the Discipline Breakout Groups reports would be referenced in the Letter to the Director and would contain explanation notes edited by the Environmental Sciences Branch staff.

Dr. Stephenson-Hawk suggested the need to have a map or a table delineating the future releases for different areas and added that it may assist the SC in guiding its deliberations regarding the proposals. Dr. Kendall agreed and said it would be done.

Dr. Roscigno asked, in light of emerging issues, that one member of the SC have expertise in air quality. He added that this issue is becoming a high priority for Alaska and the Gulf of Mexico. The Regions have more responsibility and need to deal with specific issues of conformity and a lot of air quality studies are emerging. MMS can, therefore, benefit from air quality overviews. Dr. Shapiro asked if there are other disciplines that need to be considered. Dr. Roscigno said that a member with marine mammal background would be helpful.

Dr. Diaz said that looking at the presentations of projects in the Gulf, Pacific and Alaska, there have been heavy data reanalysis or analysis components and he thinks that for future studies, the SC needs to make sure that there is sufficient funding within the project to allow for data analysis and possible integration of that study with past studies. Dr. Roscigno agreed and said MMS has always tried to balance the field work with the time allowed for analysis. However, at this point, field efforts have produced more data than can possibly be analyzed during the duration of the contract. One solution would be to extend the contract so there would be several more years of data analysis; however, MMS has information needs that are needed for EISs.

Dr. Kendall said that an agenda item for the Studies Chiefs meeting being held later is for future efforts and whether or not to follow a similar procedure as that as the Ocean Commission which is, although its draft report is due in August, the final report is due in September, the Commission is funded to operate to the end of the year. It is going to be discussed whether or not this procedure or one similar to it can be built into MMS studies contracts.

Dr. Shapiro asked if breaking into the three Discipline Breakout Groups works well or is there a need to consider those proposals that bridge several disciplines in some other way, such as biophysical or biosociological.

Dr. Roscigno replied that, from his perspective, it does work fairly well. He added that it is remarkable that the Physical Oceanography Discipline Breakout Group arrived at the same general conclusion for the “data mining efforts” independently. These efforts would re-exam and re-analyze historical and archival database with the goal of extracting new information. Rather than having a separate breakout group, insure that there is more coordination between the three breakout groups that are looking at a particular subject. For a specific study, it might be worthwhile to have everybody convene at the same time and listen to an integrated field effort, but it should probably be done on an as-needed basis.

Dr. Castellini commented on the data analysis and suggested the last year of the study be devoted to producing the final product. As an example, for a 3-year contract, the contractor would support the field work for 2 years and the third year would be for completion of the analysis. Dr. Scranton suggested having a pre-program synthesis of others’ data pre-modeling, and pre-evaluation – steps similar to workshop. Essentially, in the initial year or 2 years of planning, that data can be used to develop the field programs. Dr. Rex agreed and added that it is important to reanalyze databases since the questions change and suggested, in terms of scheduling SC meetings, more time be allocated to the discussion and compilation of PowerPoint presentations. Discussions ensued regarding the time spent in Discipline Breakout Groups during the SC meeting and it was concluded that the first day of the meeting would consist of presentations from the Director and/or the Associate Director and others in the morning. The Discipline Breakout Groups would meet in the afternoon and morning of day two. That afternoon would be devoted to the SC convening to discuss and record the Discipline Breakout Group’s proceedings. It was also noted that this procedure could change again depending on whether or not there are new SC members.

Mr. Schmidt said that the biological work being proposed for Ship Shoal is very commendable. However, he had been asked to review DOI’s Strategic Plan which is a performance tool and one of DOI’s goals is to be able to award a negotiated agreement within 30 days of a request for sand and beach nourishment purposes. He commented that there may be tremendous political and local pressure to get the sand resources upon the beach to prevent further loss of sand in Louisiana. Mr. LaBelle said that within all of DOI’s agencies, implementation of the presidential direction to put performance measures in with its budget is a very difficult process and MMS is constantly fine-tuning the wording along those lines.

A suggestion was made to Dr. Shapiro to assign proposals to SC members according to discipline who would serve as the point person for those particular proposals. He/she would then be responsible to have more in-depth knowledge of those proposals. After debating, Dr. Shapiro said when proposals are sent out next year, the SC would agree or disagree on this suggestion at that time.

Dr. Kendall mentioned that the ESP’s ongoing studies can be found on MMS’s Website. These studies are updated to reflect its award, the contractor/researcher, the award costs, and any publications that have been published. These are updated two to three times per year.

Committee Business

Items for the Letter to the Director

- Data and knowledge obtained through MMS efforts are valuable resources for current and future studies, both internal and external to MMS. To insure public accessibility of MMS-sponsored information, a comprehensive plan for archiving and accessing should be developed. An expert on database development and use should address the next SC meeting on strategies for structuring and accessing large diverse databases.
- Given the common missions of the Regions and similarity of many current studies and proposed study profiles, it is important that the Regions closely coordinate future studies to maximize applicability of products. A high level of coordination would also prevent unnecessary duplication of effort and maximize information gain for available resources.
- The SC recognizes MMS’s long-standing, uninterrupted archiving program with the Smithsonian Institution and encourages its continuation. Additionally, it recommends that MMS expedite discussions with the Smithsonian regarding the development of its Web Accessible System for querying such archived materials. The application of such new technologies to archived material would add a new dimension to MMS studies on par with an archival database. Museum collections are also essential to documenting and understanding biodiversity, a major international priority.

- Given the recent national emergence of programs to bring science into the classroom, MMS should investigate additional ways of turning its research products into educational and outreach materials. The SC is aware of the efforts underway by all of the MMS OCS Regions and recommends that these continue. Additionally, the recent education packages developed by the Pacific OCS Region should be used as models for the other OCS Regional Offices.
- CMIs should highlight student participation in projects and programs by providing citations for all theses and dissertations or other student products on their respective Websites. It would also be relevant to include information on current student projects.

Emerging Issues

- MMS should continually monitor the environmental data it collects, as well as advances in sampling technology and data analysis, in order to continuously refine procedures for assigning (or modifying) appropriate distances of separation between OCS activities and resources designated for protection.
- Decommissioning will likely become a major focus of MMS interest and research. In preparation for an expected research initiative, relevant literature should be summarized and the Western and Gulf of Mexico Regions should determine areas of commonality in order to avoid duplicative research programs.
- The rise of MPAs as a management strategy necessitates that MMS start to consider the relationship between OCS activities and MPAs.
- Given the shifting emphasis in contaminant risk assessment from body burden effects and the difficulties of interpreting body burden data, MMS in future studies should emphasize an effects based approach (such as P-450 induction or other biomarkers).
- Possible oil and gas development off the Canadian west coast near the U.S. boundary suggests the need for an MMS Pacific OCS Region liaison to U.S. and Canadian marine researchers in that area.

Subcommittee Actions

The report from the Subcommittee on Mercury was unanimously accepted by the SC. The subcommittee on mercury was dissolved after members were praised for their outstanding work on the recent mercury issue.

Memberships on existing subcommittees was reassigned as follows:

- Deepwater Subcommittee – Drs. James Coleman, Michael Rex, William Schroeder, and Joe Smith
- Beaufort Sea Monitoring Issues Subcommittee – Drs. Michael Castellini, Scott Goldsmith, William Schroeder, and Lynda Shapiro
- Sand and Gravel Subcommittee – Drs. James Coleman, Duane Gill, Robert Diaz, Charles Marek, and Livingston Marshall

New subcommittees were formed in three areas to deal proactively with emerging issues and provide specialized assistance to the Gulf of Mexico OCS Region:

- Chemical Contaminants in the Gulf of Mexico – Drs. Mary Scranton, Denise Stephenson-Hawk, Joe Smith, and John Trefry
- Decommissioning Subcommittee – Drs. Richard Hildreth, Michael Kosro, Livingston Marshall, and Mary Scranton
- Gulf of Mexico Social Economic Workshop – Drs. Duane Gill, Scott Goldsmith, Richard Hildreth, and Edella Schlager

Other Business

Dr. Marek requested that each SC members' bio be updated to reflect when he/she was appointed to the SC along with their reappointments and retirement dates.

Dr. Schroeder announced that he would be attending the OCS Policy Committee meeting May 13-14, 2004, and that he would be giving the SC presentation.

Dr. Kendall mentioned the CD provided to the SC members that contains almost all of the presentations, the studies, and development plans and asked if there was any objection to moving towards a more digital format. Everyone agreed it was fine and four suggestions were made:

- provide everything digitally; SC members could print out they want,

- indicate which proposals are to be reviewed by which Discipline Breakout Group,
- proposals that are multi-disciplined need to be identified, and
- if agreed, provide assigned proposals to SC members.

It was also recommended that SC recommendations be compiled in table format stating the outcome of each recommendation.

Dates and Locations for Next SC Meeting

Since the 2002 meeting had been held in the Washington, D.C., area, the next meeting will take place in New Orleans, Louisiana. Neither the month (March or April) nor dates were confirmed for the next meeting. It was decided this would be handled via e-mail in order to give members time to review their schedules. Once a consensus is decided, members will be notified via e-mail the dates of the next meeting.

Dr. Shapiro adjourned the meeting.

AGENDA

Tuesday, April 22, 2003

8:30 a.m. - 8:50 a.m.	Welcome and Introductions and the Passing of the Gavel	Dr. William Schroeder , Outgoing Chair, OCS SC to Dr. Lynda Shapiro, Incoming Chair, OCS SC
8:50 a.m. - 9:15 a.m.	Director's Presentation	Mr. Robert LaBelle , Deputy Associate Director for Offshore Minerals Management and Acting Executive Director of the OCS SC
9:15 a.m. - 9:45 a.m.	Alaska OCS Regional Overview	Mr. John Goll , Director, MMS Alaska OCS Region
9:45 a.m. - 10:15 a.m.	Overview of the MMS Environmental Studies Program	Dr. James Kendall , Chief, Environmental Sciences Branch
10:15 a.m. - 10:30 a.m.	Break	
10:30 a.m. - 10:50 a.m.	OCS Policy Committee Report	Mr. Larry C. Schmidt , OCS Policy Committee
10:50 a.m. - 11:15 a.m.	Report from the OCS SC Mercury Subcommittee	Dr. Will Schroeder , Subcommittee Chair
11:15 a.m. - 11:30 a.m.	MMS Coastal Marine Institute (CMI) Initiative Overview	Dr. James Kendall for Mr. Jim Cimato, MMS Environmental Sciences Branch
11:30 a.m. - 12:00 noon	The Alaska Coastal Marine Institute, <i>Research and Education</i>	Dr. Vera Alexander , Director
12:00 noon - 12:30 p.m.	Overview of the Coastal Marine Institute, Louisiana State University	Mr. Larry Rouse , Director
12:30 noon - 1:50 p.m.	Lunch	
1:50 p.m. - 4:45 p.m.	Regional Priorities and Environmental Information Needs	
(1:50 - 2:40)	MMS Sand & Gravel Environmental Studies	Mr. Barry Drucker , MMS Leasing Division
	Comments on the Process for the Sand & Gravel Studies Program	Dr. Robert Diaz , Chair, OCS SC Sand & Gravel Subcommittee and Mr. Larry C. Schmidt , Chair, OCS Policy Committee Hard Minerals Subcommittee
(2:40 - 3:10)	Alaska OCS Region	Dr. Cleve Cowles , Chief, Environmental Studies Section
(3:10 - 3:30)	Break	
(3:30 - 4:00)	Pacific OCS Region	Dr. Fred Piltz , Senior Scientist, Office of Environmental Evaluation, Pacific OCS Region

(4:00 - 4:45)	Gulf of Mexico OCS Region	Dr. Pat Roscigno , Chief, Environmental Sciences Section
4:45 p.m. - 5:00 p.m.	Public Comment	
5:00 p.m. - 5:15 p.m.	Committee Business	Dr. Lynda Shapiro, Chair, OCS SC
5:15 p.m.	Recess	

Wednesday, April 23, 2003

7:45 a.m. - 8:00 a.m. Charge to the Discipline Subcommittees
 Dr. Lynda Shapiro, Chair, OCS Scientific Committee

Physical Sciences, Biology, and Socioeconomic Disciplines meet separately to discuss national and regional studies plans.

	Ecology/Biology Spruce Room	Physical Oceanography Aspen Room	Socioeconomics Lupine Room
8:00 - 9:15	Alaska Region	Gulf of Mexico Region	Sand & Gravel, HQ
9:15 - 10:00		Pacific Region*	
10:00 - 10:30	Break	Break	Break
10:30 - 11:45	Sand & Gravel, HQ	Alaska Region	Gulf of Mexico Region
11:45 - 1:30	Lunch	Lunch	Lunch
1:30 - 2:45	Gulf of Mexico Region	Sand & Gravel, HQ	Alaska Region
2:45 - 3:15	Break	Break	Break
3:15 - 4:00	Chairs and MMS Recorder Finalize Recommendations	Chairs and MMS Recorder Finalize Recommendations	Chairs and MMS Recorder Finalize Recommendations
4:00 - 7:00	Local Interests	Local Interests	Local Interests

***Pacific Region representatives will be available in one room to discuss Studies issues as appropriate**

Thursday, April 24, 2003

8:30 a.m. - 8:45 a.m.	Welcome and Introductions Dr. Lynda Shapiro, Chair, OCS SC	
8:45 a.m. - 12:00 noon	Alaska Information Transfer Meeting (ITM) Highlights	Host, Dr. Cleve Cowles , Chief, Environmental Studies Section, Alaska OCS Region
(8:45 - 9:00)	Six Selected Presentation Summaries from the March 2003 ITM	
(9:00 - 9:25)	The Minerals Management Service Arctic Nearshore Impact Monitoring in the Development Area (ANIMIDA) Program: Introduction to a Multi-Year Monitoring Program in the Nearshore Beaufort Sea	Mr. John Brown
(9:25 - 9:50)	A Description of Potential Impacts of OCS Activities on Bowhead Whale Hunting Activities in the Beaufort Sea	Dr. John C. Russell
(9:50 - 10:15)	Measurements of Temperature, Salinity and Circulation in Cook Inlet, Alaska	Dr. Steve Okkonen
(10:15 - 10:30)	Break	
(10:30 - 10:55)	Beaufort Sea Nearshore Under-Ice Currents & Summary of Workshop on Physical Oceanography in the Beaufort Sea	Dr. Tom Weingartner
(10:55 - 11:20)	Bowhead Whale Feeding in the Eastern Alaskan Beaufort Sea: Update of Scientific and Traditional Knowledge	Dr. W. John Richardson
(11:20 - 11:45)	Behavior of Ringed Seals and Re-Interpretation of Aerial Surveys	Dr. Brendan Kelly
(11:45 - 12:00)	Open Discussion/Q&A's	
12:00 noon - 1:30 p.m.	Lunch	
1:30 p.m. - 1:35 p.m.	Plenary Session Dr. Lynda Shapiro, Chair, OCS SC	
1:35 p.m. - 2:00 p.m.	Recommendations of the U.S. Commission on Ocean Policy	Mr. Edward Rasmuson Member, U.S. Commission on Ocean Policy
2:00 p.m. - 3:00 p.m.	Discipline Breakout Group Reports (20 minutes each) Biology Physical Oceanography Socioeconomics	
3:00 p.m. - 3:30 p.m.	Open Discussion	
3:30 p.m. - 3:45 p.m.	Break	
3:45 p.m. - 4:00 p.m.	Public Comment	

3:45 p.m. - 5:00 p.m.

[Committee Business](#)

- Discussion of Subcommittee Reports
- Items for Letter to the Director
- Emerging Issues/Topics of Interest
- Other Business
- Dates and locations for the next meeting

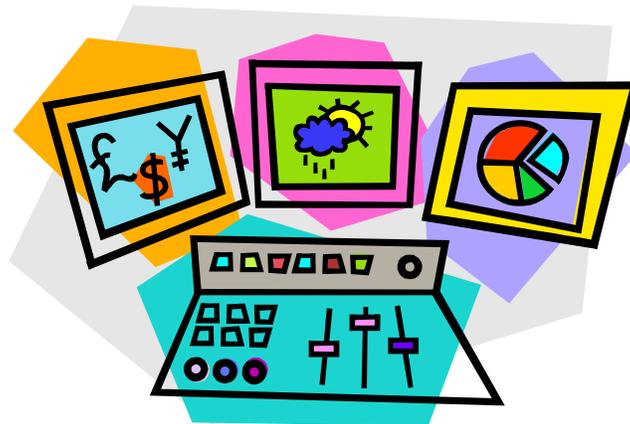
5:00 p.m.

Adjourn the meeting

MINERALS MANAGEMENT ADVISORY BOARD

OCS Scientific Committee

MEMBERSHIP INFORMATION



ANCHORAGE, ALASKA

APRIL 22 - 24, 2003

Michael Angelo Castellini

Dr. Castellini is the Director of the Institute of Marine Science, University of Alaska Fairbanks. Projects focus on many different aspects of marine mammal biology. Some of these include nutritional physiology of harbor seals and Steller sea lions in Alaska as related to their population declines and to the survival of seal and sea lion pups. Other projects include studies on lipid metabolism in marine mammals, the biochemistry of contaminants, metal chemistry, anti-oxident chemistry and immune function. These programs are both field based from the Arctic to the Antarctic and conducted in collaboration with marine laboratories throughout North America.

James M. Coleman

James M. Coleman is the discretionary member to the OCS SC and is a Boyd Professor for the Coastal Studies Institute and recently served as Interim Vice-Chancellor for Research and Graduate Studies at Louisiana State University. He started his professional career as a graduate student at Coastal Studies Institute, LSU, and eventually serving as director of CSI, chairman of Geology and Geophysics, head of the School of Geoscience, and interim dean of Basic Sciences before being named Executive Vice-Chancellor in 1989. He has conducted worldwide research on deltaic sedimentation, riverine processes, marine geology, shallow structure of shelf sediments, and muddy coasts. He serves on numerous local, state, and national committees and is presently a member of the Ocean Studies Board, National Research Council, and has recently been appointed to the U.S. Commission on Ocean Policy.

Robert J. Diaz

Dr. Diaz's research interests center around understanding trophic dynamics and the functional importance of production in ecosystems, benthic boundary layer processes, and organism-habitat interactions, and how perturbations of these processes influence energy flow and population dynamics. Recently he has focused on organism-habitat interaction on the inner continental shelf to predict how sand dredging will affect fish and invertebrate communities. He is striving to estimate the relative resource value of various estuarine and marine benthic habitat types for the dual purpose of quantifying energy flow between habitats and for developing environmentally sound management strategies. This research has led him to consider a landscape ecological approach to looking within and between systems around the U.S. for how the physical and biological processes interact. In addition, he is also interested in the application of the statistical and numerical methods to biological data and in the ecology and taxonomy of estuarine and marine invertebrates with specialization in oligochaetes.

Duane A. Gill

Dr. Gill is Professor of Sociology in the Social Science Research Center and Department of Sociology, Anthropology and Social Work at Mississippi State University. He has conducted research on the *Exxon Valdez* oil spill, Gulf of Mexico fisheries, and

various environmental issues in Mississippi. His research interests include the study of technological disasters, natural resource management, and community.

Oliver Scott Goldsmith

Dr. Goldsmith is the Director of the Institute of Social and Economic Research and a Professor of Economics at the University of Alaska Anchorage. During his 28 years at the Institute,

Dr. Goldsmith has concentrated his research on the structure of the Alaska economy, Alaska fiscal policy, and energy supply and demand.

Richard Hildreth

Dr. Hildreth is the author of three casebooks and many other publications on ocean and coastal law. He has consulted frequently with federal and state coastal management agencies in the U.S. and Australia and with Pacific Island governments on environmental legal matters. Dr. Hildreth served as the University of Queensland Law Faculty's 50th Anniversary Visiting Fellow. He has served on the National Research Council's Non-mature Oysters and Coastal Ocean Committees, the Pacific Northwest Regional Marine Research Board, and the editorial advisory boards of the journals Coastal Management and Ocean Development and International Law. Dr. Hildreth practiced business law with Steinhart & Falconer in San Francisco before teaching law.

P. Michael Kosro

Dr. Kosro is an Associate Professor of Oceanography at Oregon State University. His research focus is coastal physical oceanography. Since 1997, his group has employed a growing array of HF radiowave systems for time-series mapping of the surface circulation over the Oregon shelf and slope, for a region presently 400x150 km. He also makes conventional moored and shipborne measurements. Recent studies include the circulation changes off Oregon associated with the 1997-98 El Nino, the mesoscale features of the upwelling circulation, California Current and undercurrent, and spatial mapping of tidal flows.

Charles R. Marek

Dr. Marek has been employed by Vulcan Materials Company (VMC) since October, 1972. He began his career with VMC as a Construction Materials Engineer, became a Senior Materials Engineer, and in 1986 was promoted to Technical Director, a position he held for 10 years. As Technical Director, he was responsible for the technical and administrative activities of the corporation's research and development department. Since 1996, Dr. Marek has been the Principal Materials Engineer for the Company, and

works at the VMC Technical Services Center located in Birmingham, Alabama. He actively participates in and promotes research by industry, universities, public funded agencies, and trade associations on select projects and problems/ opportunities of interest and importance to Vulcan and to the aggregate and construction industry in general. He provides liaison and representation with numerous technical organizations, research programs, and committees for the purpose of developing sound technical information on crushed stone/aggregates and promoting improved/more suitable specifications and test methods for these materials and for end-use products made with the materials. Dr Marek was on the academic and research staff of the Civil Engineering Department of the University of Illinois at Champaign-Urbana, Illinois, from 1963 until joining VMC in 1972.

Livingston S. Marshall, Jr.

Dr. Marshall received his B.S. in Marine Science from Hampton University (1985), and a Ph. D. in Marine Science from the School of Marine Science, Virginia Institute of Marine Sciences, The College of William and Mary (1992). He has 12+ years of research experience working in sub-tropical marine and estuarine systems. His current research activities are focused on food web dynamics, applied fishery ecology and conservation biology, with research support from several funding agencies including NOAA, EPA, and Maryland Department of Natural Resources. In 1998, Dr. Marshall was appointed Associate Professor in the Biology Department, Morgan State University, Baltimore, Maryland. This appointment followed a similar appointment at Clark Atlanta University, Atlanta, Georgia, and a previous appointment as Assistant Professor and Director, the Combined BS/MS Program in Marine, Estuarine and Environmental Sciences, Department of Natural Sciences, University of Maryland at Eastern Shore. In 1998, he was also appointed Research Associate at the Smithsonian Environmental Research Center. In addition to his research, teaching, and outreach responsibilities at Morgan State University, he maintains a very active program involving undergraduate and graduate student training with a focus on expanding opportunities for underrepresented individuals in Marine and Environmental Sciences.

Michael A. Rex

Dr. Rex's research is centered on the ecology and evolution of deep-sea benthic communities. It includes analyses of bathymetric and global-scale patterns of biodiversity and their causes. We are using satellite imagery to examine the relationship of surface production to community structure in the deep sea at different temporal and spatial scales. Geographic variation in body size of mollusks is being explored to study adaptation to the deep-sea environment. Multivariate analyses of shell architecture and mitochondrial DNA are being employed to study patterns of population differentiation in deep-sea mollusks. Adaptive radiation and taxon cycles are being investigated by documenting patterns of taxonomic diversity. A major long-term research goal is to synthesize patterns of distribution, geographic variation, taxonomic composition and life histories to formulate a model of evolution in deep-sea invertebrates.

Edella C. Schlager

Dr. Schlager is an Associate Professor in the School of Public Administration and Policy at the University of Arizona. She holds a Ph.D. in Political Science from Indiana University. Her research centers on local community management of natural resources, such as watersheds in the western United States and coastal fisheries.

Mary I. Scranton

Dr. Scranton is interested in the factors controlling the cycling of organic compounds in sediments and in the water column. Since fatty acids and methane are important in the anaerobic decomposition of organic macromolecules, she has been studying the processes controlling the cycling of these compounds in both water column and sediment environments. She and Dr. Gordon Taylor are collaborating with Drs. Frank Muller-Karger of the University of South Florida and Robert Thunell of the University of South Carolina, along with scientists from the Fundación la Salle and the Universidad de Oriente in Venezuela, on CARIACO (Carbon Retention in a Colored Ocean) program, a study of carbon cycling in the Cariaco Basin, Venezuela. The Marine Sciences Research Center component of the study is using a variety of techniques (including measurements of fatty acid concentrations and turnover rates (Scranton), and measurements of bacterial abundance and production and chemosynthesis (Taylor) to determine how bacterial activity is influenced by carbon supply (primary production, particle flux, chemoautotrophic production under suboxic conditions), and oxygen content. She also has a long-standing interest in methane geochemistry and is investigating the role of seeps and vents, and possibly of destabilizing gas hydrates, in controlling water-column methane concentrations near the US North-East continental shelf.

Lynda P. Shapiro

After completing her Ph.D. at Duke University, Dr. Shapiro worked at the Woods Hole Oceanographic Institution, the Bigelow Laboratory for Ocean Sciences, and the University of Oregon. She directed the University's marine laboratory, the Oregon Institute of Marine Biology, from 1990 to 2001, and continues there as a Professor of Biology. Dr. Shapiro's research centers on the biology of pelagic marine phytoplankton. In recent years, she has focused on the distributions and abundances of the eukaryotic ultraplankton, on incorporation of these minute cells into the microbial food web, and on the role of associated bacteria on the nutrition of phytoplankton. She also is interested in harmful algal blooms and in the sustainable harvesting of marine macroalgae.

Joseph Patrick Smith

Dr. Smith is group leader for environmental technology research at ExxonMobil Upstream Research Company. He holds a Ph.D. in physical chemistry from the University of California at Berkeley (1978) and a B.S. in chemistry from the University of Rochester (1972). He joined Exxon Production Research Company in 1981 and has been active in research on the environmental aspects of offshore oil and gas operations since 1990. Recognized as an expert on the modeling of offshore discharges and on the environmental fate and effects of drilling and production discharges, he is currently involved in research on the environmental fate of synthetic based drilling fluids, the fate of mercury in drilling wastes, and oil spill response techniques for deepwater and arctic environments. He has also chaired or served on the steering groups for many joint industry environmental studies sponsored by organizations such as the American Petroleum Institute, the Offshore Operators Committee, the International Association of Oil and Gas Producers and the Petroleum Industry Operators Environment, Health, and Safety Committee (Angola).

Denise M. Stephenson-Hawk

Dr. Stephenson-Hawk chairs a consulting group assisting organizations with the application and use of science for purpose of strategically influencing policy and organizational and resource allocation decisions. She has served as an ocean systems analyst at AT&T Bell Laboratories, an atmospheric scientist at the National Aeronautics and Space Administration's (NASA) Langley Research Center, and as professor, chair and provost within academia. She has served as a principal investigator for research funded by the National Science Foundation (NSF), NASA, U. S. Department of Energy and the U.S. Department of Education. She has also been appointed to national committees that include the NSF's Geosciences Advisory Committee, NASA's Earth Systems Science Applications Advisory Committee, the Ocean Research Advisory Panel of the National Ocean Partnership Program and the National Oceanic and Atmospheric Administration's Science Advisory Board. She has worked with educators at the K-12 level, serving as co-chair for statewide (Georgia) workshops for K-12 teachers of mathematics and science and as co-principal investigator for an NSF-funded Urban Systemic Initiative in Atlanta, Georgia.

John H. Trefry

Dr. Trefry is a Professor of Chemical Oceanography at Florida Institute of Technology. His research activities focus on the concentrations and cycling of trace metals in rivers, estuaries, oceans and deep-sea hydrothermal vents. Trace metals are studied for their natural value and for their potential as pollutants. Dr. Trefry's research activities are carried out in a wide variety of geographical settings including the Pacific and Atlantic Oceans, the Alaskan Arctic, the Gulf of Mexico and the Indian River Lagoon, Florida.

MINERALS MANAGEMENT SERVICE



***Personnel Who Interact with
the OCS Scientific Committee***

***Anchorage, Alaska
April 22 - 24, 2003***

Rejane “Johnnie” Burton

Ms. Burton's appointment as Director, Minerals Management Service, became effective on March 15, 2002.

Ms. Burton's background provides a solid mix of experience in state government, the oil and gas industry, and education. Since 1995, she served on the governor of Wyoming's cabinet as director of the Department of Revenue. Before that, she served (1989-92) as vice-president of TCF Inc., an oil and gas exploration company based in Casper, Wyoming.

Prior to that, she was vice president of Dwights Energydata Inc., an information company specializing in oil and gas databases. Ms. Burton was also president and founder of Hotline Energy Reports Inc., which later merged with Dwights Energydata Inc. Under her leadership, Hotline Energy Reports Inc. built a historical database of all wells drilled for oil and gas in the 11 Rocky Mountain States. Ms. Burton began her career in the oil and gas industry as an oil scout in Casper, Wyoming, for Rinehart Oil News of San Antonio, Texas.

From 1982 through 1988, Ms. Burton was a member of the Wyoming State House of Representatives. She served as a member of the Wyoming State Advisory Council of Education Grants (1986-88), and also as director of the First Wyoming Bank in Casper from 1981 through 1984. She served as a member of the Independent Petroleum Association of Mountain States Speaker's Bureau from 1977 through 1979.

Her career highlights also include positions as a lecturer and teacher of French at the university and high school levels and as a translator and interpreter for the J. F. Pritchard Company in Paris, France, and Kansas City, Kansas. In 1987, she was honored as a “Friend of Education” by the Wyoming School Boards Association.

Ms. Burton is a member of the National Order of Women Legislators and the American Association of Translators. She is also a member of the National Alcohol Beverage Control Association and served as its president, representing Wyoming from 2000 to 2001.

Born in French Algeria, Ms. Burton immigrated to the United States in 1963 and became an American citizen in 1968. In 1958, she completed the Baccalaureat de l'Enseignement Secondaire (option Philosophie) from the Lycee Fromentin in Algiers, Algeria. She completed the Licence-es-Lettres, English, Diplome d'Enseignement from the Universities of Algiers in Algeria and in Paris, France, in 1962. She holds a master's degree (1974) from the University of Wyoming. She studied at the University of Arkansas and has completed management training by The Presidents Association and Duke University.

Thomas Readinger

Mr. Readinger is the Associate Director of the Offshore Minerals Management Program. Prior to this new appointment, Mr. Readinger was the Deputy Associate Director of OMM and was responsible for managing Outer Continental Shelf resources to ensure environmental protection, safe operations and receipt of fair market value for OCS resources. In that capacity, he also served as the chairman of the OMM Information Management Committee and led the OMM effort to develop the new e-Government Transformation proposal to increase the efficient and effective delivery of services to agency stakeholders.

Mr. Readinger has been involved with the OCS program for 26 years. He joined the Federal Government in 1976 as an economist with the Bureau of Land Management where he was responsible for developing bidding systems and bid adequacy procedures to ensure fair market value for OCS resources. From 1987 to 1997, he served as Program Director for the Office of OCS Program Development and Coordination, where he developed and implemented the OCS 5-year Oil and Gas Leasing Program for MMS.

In 1995, Mr. Readinger was awarded the Department of the Interior's Meritorious Service Award for career-long contributions to the development of procedures to ensure fair market value for public resources. Since being promoted to the Senior Executive Service in 1987, he has received numerous performance awards for contributions to program management and information technology advancements.

Mr. Readinger received a B.S. degree in Business Management from the Indiana University of Pennsylvania in 1972 and an M.A. degree in Economics from American University in 1974. He received his Senior Executive Certification in Public Administration from George Washington University in 1987.

Robert P. LaBelle

Mr. LaBelle, as the Deputy Associate Director for Offshore Minerals Management, serves as Chief Operating Officer for the management of all facets of the Offshore Program, including policy development, policy implementation, and program planning. He is responsible for directing the implementation of Offshore's Strategic Plan and serves as Executive Secretary for the Offshore Steering Committee, as well as Chairman of the Offshore Information Management Committee.

Previously, as Chief of the MMS Environmental Division, Mr. LaBelle was responsible for offshore oil and gas industry compliance with all environmental requirements, including water and air quality, endangered species, oil spill risk analysis, and archaeology, in all U.S. Federal waters. He oversaw a large environmental research program and the preparation of Environmental Impact Assessments and other decision documents used for both offshore energy and mining activities.

In prior positions, Mr. LaBelle was Chief of the MMS Technology Assessment and Research Branch, where he led research on engineering and technical aspects of offshore production and development. Previous positions at MMS and USGS include Chief of the Environmental Operations and Analysis Branch, and Chief of the Branch of Environmental Modeling. Prior to joining Interior, Mr. LaBelle worked for Martin Marietta Corp. as an environmental analyst on the siting of electrical power plants and on assessing the effects of nuclear power stations on aquatic species. Mr. LaBelle is a graduate of the University of Massachusetts (BS), the University of Maryland (MS), and Loyola College (MBA).

Thomas E. Ahlfeld

Dr. Ahlfeld is a Biological Oceanographer in the MMS Environmental Sciences Branch. He has over 25 years experience in marine environmental research with emphasis on benthic ecology, marine environmental monitoring, and biological effects of offshore oil and gas development. He holds a B.S. degree in biology from Loyola University (New Orleans) and M.S. and Ph.D. degrees in biological oceanography from Florida State University. Dr. Ahlfeld serves on several U.S. interagency panels dealing with diverse marine environmental issues including invasive species, coral reef protection, and ecosystem management and served on the science advisory panel for Mote Marine Laboratory of Sarasota, Florida. Dr. Ahlfeld recently published on resource management applications of environmental research on chemosynthetic communities associated with hydrocarbon seeps in the Gulf of Mexico and is currently serving as Team Leader for the MMS Environmental Monitoring Working Group.

Colleen (Lee) S. Benner

Ms. Benner is an Oceanographer in the Environmental Sciences Branch, Herndon, Virginia. She is the office specialist for efforts and studies dealing with endangered marine species as well as non-endangered or threatened marine mammals, birds, and fish. Her responsibilities include formulating and recommending environmental studies that support the MMS environmental program and oversees projects as MMS Contracting Officer's Technical Representative or Contract Inspector. In addition to her responsibilities in developing and supporting studies, she also serves as the Branch representative on several interagency working groups addressing various marine environment related issues.

Mary Boatman

Dr. Boatman is the supervisor of the Studies Coordination Unit in the Leasing and Environment Division of the Gulf of Mexico OCS Region. She serves as a Contracting Officer's Technical Representative for a number of Environmental Studies Program contracts related to fates and effects and chemical issues in the Gulf. She co-authored the white paper "Ocean Gas Hydrates Research and Activities Review." She has a Ph.D. in chemical Oceanography from Texas A&M University.

Gregory S. Boland

Mr. Boland is a Biological Oceanographer/Fishery Biologist in the Environmental Sciences Section, MMS New Orleans. He came to MMS in 1998 with an M.S. in biological oceanography from Texas A&M University. His areas of interest include deep-sea biology, coral reef ecology, artificial reef ecology, and fishery biology. His professional career includes 10 years with the consulting firm LGL Ecological Research Associates where he was involved as Principal Investigator for many of the major MMS-funded Gulf studies in the 1980's, and 10 years with the Texas A&M Department of Oceanography where he worked with Dr. Gil Rowe in a variety of benthic ecology studies worldwide. He is also an active member of the MMS Dive Team using diving as an additional facet of studies management as well as for environmental compliance monitoring.

Elizabeth Burkhard

Ms. Burkhard is a Marine Biologist in the MMS Environmental Sciences Branch. She holds a B.S. degree in Biology from the College of William and Mary and an M.S. degree in Marine Science from the University of South Florida, St. Petersburg. Ms. Burkhard serves on the interagency committee to implement the Executive Order on Marine Protected Areas. She is also responsible for the management of contractual and financial information for the Studies Program and is involved in program policy.

Jane Carlson

Ms. Carlson is the Team Lead for Minerals Management Service. She is a contracting Officer with 30 years of government contracting experience. Her procurement background covers a wide range of complex contracts, grants, and cooperative agreements including research and development, statistical surveys and analyses, vessel and aircraft charters, environmental, oceanographic and atmospheric surveys, transportation studies, and major electronic system programs for the acquisition of advanced automation systems.

Cleve Cowles

Dr. Cowles is Chief, Environmental Studies Section, Alaska OCS Region. His responsibilities include managing a multi-disciplinary staff to implement the Alaska environmental studies portion of the MMS ESP. Dr. Cowles has been with the Alaska OCS Region since 1979, serving as Chief of the Environmental Studies Unit from 1983-1995, and as Acting Chief of the Social and Economic Studies Unit from 1992-1995.

Barry S. Drucker

Mr. Drucker is a Physical Scientist, Office of International Activities and Marine Minerals. He is responsible for formulating and recommending environmental studies in support of the MMS marine minerals program and for negotiating leases for the use of Federal sand for beach and coastal restoration efforts. He develops statements of work for funded studies and oversees projects as MMS Contracting Officer's Technical Representative, as well as working with various Federal, State, and local entities in the development of negotiated sand leases, environmental stipulations, and NEPA documents.

Mary Elaine Dunaway

Ms. Dunaway is a biologist in the Environmental Studies Section in the Pacific Region. She oversees contracts pertaining to biology and fates and effects. Mary Elaine also team-leads MINT, the MMS inhouse Intertidal Team. MINT collects data at 20 rocky intertidal sites adjacent to OCS platforms in the tri-County area and conducts independent research. Current responsibilities include oversight of MARINE, the Multi-Agency Rocky Intertidal Network. MARINE is a partnership of agencies and universities who monitor rocky intertidal communities off California. MARINE with its 20 members and partners now monitor 70 fixed sites biannually from Oregon to San Diego, and conduct periodic comprehensive sampling from Washington to the mainland of Mexico. Protocols are standardized and data is placed in a shared database. Mary Elaine provides expertise to joint State/Federal oil spill efforts, particularly as it relates to groundtruthing the presence of biological resources during a spill or drill. She has initiated a new educational curriculum which presents math and scientific method concepts through the tidepool and is working with several Federal agencies on joint education workshops for science teachers.

John Goll

Mr. Goll is the Regional Director of the MMS Alaska Outer Continental Shelf Office, since May 1997. He is responsible for oil and gas and other mineral leasing and oversight of industry activities on the outer continental shelf off Alaska. This ranges from assessments of the oil and gas resources, preparation of environmental analyses and research, coordinating with local, state, tribal, and federal governments, and others interested in the OCS program, and assuring that exploration and development on the federal OCS is done safely and in the best interest of the United States. Prior to becoming Regional Director, Mr. Goll headed the MMS's national environmental office and was responsible for the agency's nationwide environmental program, including NEPA and research. He was closely involved with the National Research Council and GAO committees which reviewed MMS's environmental studies program, and represented MMS on the Council's Ocean Studies Board project on improving the use of science in decision making for coastal issues. He has participated in training missions with Russian environmental regulators in northwest Siberia and on Sakhalin

Island. He also worked as a meteorologist with the U.S. Geological Survey and the U.S. Nuclear Regulatory Commission, working on air quality modeling and assessments. Mr. Goll holds a Bachelors Degree in Meteorology and Oceanography and a Masters Degree in air pollution meteorology, both from the University of Michigan.

Timothy R. Holder

Mr. Holder has been a Contracting Officer's Technical Representative for economic studies and economist writing economic impact analysis for Environmental Impact Statements for the MMS, Alaska OCS Region, since 1990. Previously, he was a coordinator of local, state, and federal agencies and interest groups for leasing OCS for gold mining near Nome, Alaska, for the MMS. Prior to joining the MMS in 1988, Mr. Holder was a Coastal Management Planner for Nome, Alaska, and has held the position of urban planner/economist for various consultants, regional planning agencies, and local government in the Portland, Oregon, and Detroit, Michigan, areas. Mr. Holder received his B.A. in Economics from Kenyon College, Gambier, Ohio, in 1968, and his Master of Urban Planning from Wayne State University, Detroit, in 1974.

Warren L. Horowitz

Mr. Horowitz is an Oceanographer with the Environmental Studies Section, Alaska OCS Region. He is responsible for formulating and recommending environmental studies in support of leasing oil and gas resources. He develops statements of work for funded studies and oversees environmental studies as an MMS Contracting Officer's Technical Representative (COTR). Disciplinary areas of expertise include geographic information systems and modeling applications for sea ice mapping, coastal oil spill trajectory models, spatial databases of oil and gas activities, and marine meteorology.

James J. Kendall

Dr. James J. Kendall coordinates the Environmental Studies Program (ESP) of the U.S. Department of the Interior's Minerals Management Service (MMS) and serves as Executive Secretary to the OCS Scientific Committee. The MMS ESP is tasked with providing the environmental and socioeconomic information necessary for MMS to make informed decisions concerning offshore oil and gas and marine minerals activities. Prior to joining the MMS Headquarters Office, Dr. Kendall served as the ESP Studies Chief for the MMS Gulf of Mexico OCS Regional Office in New Orleans, Louisiana. He received his bachelor's degree in biology from Old Dominion University and his Ph.D. in oceanography from Texas A&M University. Dr. Kendall has conducted marine research in the Gulf of Mexico, Caribbean, and Red Sea.

Ronald J. Lai

Dr. Lai is a physical scientist in Environmental Sciences Branch in Herndon Office, Virginia, and is program coordinator for the Physical Oceanography and Air Quality research. He assists in the smooth and efficient running of the Environmental Studies Program. He serves in the Technical Proposal Evaluation Committee (TPEC) to award the contracts and oversights the progress of the funded studies. He also serves as the Branch's technical liaison with other federal agencies on physical science research and develops a joint program as needed.

Alexis Lugo-Fernandez

Dr. Lugo-Fernandez is an Oceanographer in the Gulf of Mexico OCS Region.

Harry Luton

Dr. Luton is the Gulf of Mexico OCS Region's Sociologist for MMS's Environmental Studies Program. His University of Michigan Ph.D. dissertation is on an Eskimo whaling community in northern Alaska. He worked for the Agency in Alaska writing social and subsistence sections of Environmental Impact Statements and Statements of Work for socioeconomic studies. He has worked in Headquarters in the Environmental Studies Branch. For the last eight years he has developing socioeconomic studies in the Gulf and on serving as a Contracting Officer's Technical Representative.

Charles W. Monnett

Dr. Monnett is a Marine Ecologist, Environmental Studies Section, Alaska OCS Region. He is responsible for formulating and recommending environmental studies in support of the MMS OCS leasing program. He develops statements of work for funded studies and oversees projects as MMS Contracting Officer's Technical Representative.

Richard D. Newman

Mr. Newman is a Physical Oceanographer, Alaska Outer Continental Shelf Region, Environmental Studies Section. He is responsible for recommending environmental studies in support of the MMS environmental studies program, developing statements of work for funded studies, and overseeing projects as MMS Contracting Officer's Technical Representative, as well as working in the development of environmental impact statements and other NEPA documents.

Fred M. Piltz

Dr. Piltz is the Chief, Environmental Studies Section, Pacific OCS Region. He is responsible for the planning, implementation, and management of the environmental studies for the Pacific OCS Region. Prior to his current position, he worked in applied environmental impact assessment research as both a taxonomic consultant and field scientist in Southern California and in the Straits of Magellan, Chile. His research experience includes laboratory work on the effects of heavy metals on marine organisms, effects of oil spills on intertidal invertebrates, and effects of municipal sewage outfalls on benthic invertebrate communities.

Dick Prentki

Dr. Prentki is an Oceanographer in the Environmental Studies Section, Alaska OCS Region. His responsibilities include developing and providing technical oversight for physical and chemical oceanographic studies in the Alaska environmental studies portion of the MMS ESP. Dr. Prentki has been with the Alaska OCS Region since 1981, first in the Environmental Assessment Section and then in the Environmental Studies Section.

Pasquale F. Roscigno

Dr. Roscigno is the Chief, Environmental Sciences Section, and Gulf of Mexico OCS Region. He is responsible for managing the Gulf of Mexico OCS Regions' ESP. The Gulf studies support OCS management decisions for the Western, Central, and Eastern Planning Areas of the Gulf. Prior to his current position, he served as the Supervisor for the Gulf's Studies Plan Coordination Unit.

Paul Stang

Mr. Stang has been MMS's Alaska OCS Regional Supervisor for Leasing and Environment since July 1997. He oversees the region's leasing, environmental studies, and environmental assessment activities. Previously, he managed branches in MMS Headquarters with responsibilities for lease sales, development of MMS's 5-year leasing program, and long term planning. From 1977-1984, before coming to MMS, Mr. Stang handled a variety of offshore oil and gas and coastal zone management issues for the Department of the Interior's Office of Policy Analysis. Prior to that, he headed projects on coastal zone management, interdisciplinary ocean research, and undersea science and technology development for the National Oceanographic and Atmospheric Agency and deep ocean technology development for the Navy's Deep Submergence Systems Program.

Steve Treacy

Mr. Treacy is Senior Wildlife Biologist, Environmental Studies Section, Alaska OCS Region. He has been responsible for development of Statements of Work and contract administration on many upper trophic species, particularly large whales. Since 1987, he has also been in charge of MMS's inhouse study, Bowhead Whale Aerial Survey Project (BWASP). As BWASP Research Manager and Principal Investigator, he writes and publishes a detailed annual report analyzing each fall migration of bowhead whales across the Alaskan Beaufort Sea.

Lynette L. Vesco

Ms. Vesco is the Acting Regional Supervisor, Office of Environmental Evaluation, Pacific OCS Region. She is responsible for managing all aspects of the Environmental Evaluation Program for the MMS Pacific OCS Region, which includes preparing environmental reviews and analyses for the OCS oil and gas activities, ensuring compliance with environmental conditions of project approval, planning and managing the environmental studies program, and communicating with affected customers. She is also responsible for certain lease management functions such as lease adjudication and company financial responsibility. Lynette has an M.A. in marine biology, and conducted research in rocky intertidal communities for many years.

William Waskes

Mr. Waskes is an Oceanographer in the Leasing Division, Sand and Gravel Section. He is responsible for supporting the division's Environmental Coordinator in formulating and recommending biological studies in support of negotiating leases for the use of Federal sand for beach and coastal restoration efforts. He oversees consultations with NOAA Fisheries and Fish and Wildlife Service on essential fish habitat and threatened and endangered species. He assists in the development of NEPA documents and environmental stipulations for negotiated sand leases.

Kate Wedemeyer

Ms. Wedemeyer is a Fisheries Oceanographer in the Alaska Environmental Studies office. She is responsible for recommending and overseeing fisheries studies related to Outer Continental Shelf oil and gas leasing activities as an MMS Contracting Officer's Technical Representative. Ms. Wedemeyer also oversees a number of physical oceanography and contaminant study contracts. She has been responsible for Essential Fish Habitat (EFH) analyses and inter-agency coordination on the recent Multi-year Beaufort Sea and Cook Inlet oil and gas lease sale EIS's for the Alaska office.

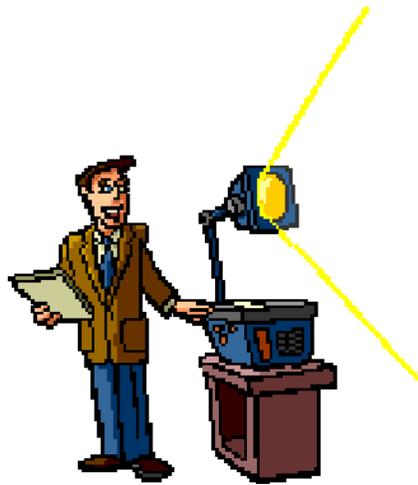
Richard F. Wildermann

Mr. Wildermann is the Chief, Environmental Division. He provides oversight, policy guidance, and direction for all Offshore environmental issues, including the Environmental Studies Program, environmental analysis activities, and compliance with environmental laws and regulations. He has been with the OCS Program since 1978.

Dee Williams

Dr. Williams is a Sociocultural Specialist for the Alaska Region of Minerals Management Service. He is responsible for preparing and administering Alaska offshore sociocultural research as Contracting Officer's Technical Representative, and for developing new research designs and anticipated study needs. He has a broad international and intercultural background in development studies and resource management consulting, with many publications in academic journals and book presses.

Presenters for the OCS Scientific Committee Meeting



**Anchorage, Alaska
April 22 - 24, 2003**

Vera Alexander

Dr. Alexander is Dean of the School of Fisheries and Ocean Sciences at the University of Alaska Fairbanks, and serves as the Director of the University of Alaska Coastal Marine Institute. She is currently a member of the Marine Mammal Commission and the NOAA Science Advisory Board as well as Chairman of the North Pacific Marine Science Organization (PICES). Her research interests include the study of biological oceanography of high-latitude sea-ice impacted areas, with emphasis on ice biology, primary production and nitrogen dynamics, and high-latitude limnology.

John Brown

Mr. Brown is a Senior Project/Program Manager in the Environmental Forensics division with Battelle Coastal Resources and Environmental Management. He has over 20 years' experience in program management, analytical methods, and interpretative techniques for fingerprinting and allocation of hydrocarbon contamination in the environment. Mr. Brown recently rejoined Battelle after serving as a Principal for the Environmental Monitoring and Analysis Unit at Arthur D. Little, Inc., where he was responsible for the overall program management and the technical supervision of the Environmental Chemistry and Forensics Unit. Prior to joining Battelle, Mr. Brown served as Project Manager and Principal Investigator for several programs in Alaska and the Arctic, where projects included the *Exxon Valdez* oil spill Natural Resources Damage Assessment and the Minerals Management Service's Shelikof Strait and Arctic Nearshore Impact Monitoring in the Development Area Programs. Mr. Brown received his bachelor's degree in biology from Hobart College. He can be reached at (781) 895-4847, brownjs@battelle.org.

Brendan P. Kelly

Dr. Kelly is an Associate Professor of Marine Biology at the University of Alaska Southeast & University of Alaska Fairbanks: Juneau Center, School of Fisheries & Ocean Sciences. He received his Ph.D. from Purdue University and his research focuses on the behavioral ecology of marine mammals, especially ice-associated pinnipeds. He is interested in the adaptations of marine mammals to marine foraging, especially in seasonally ice-covered seas. His research is facilitated by research associates, graduate (Juneau Center School of Fisheries and Ocean Sciences) and undergraduate students, and Labrador retrievers. Currently, they are focusing on five major projects: a long-term study of the behavior of ringed seals in their sub-ice habitat; population biology of Pacific walrus; systematics of the world's walrus populations; population biology of harbor seals in Alaska; and the diving and foraging behavior of sea otters in southeastern Alaska.

Steve Okkonen

Dr. Okkonen is a research assistant professor with the Institute of Marine Science, University of Alaska Fairbanks. His research interests include polar and sub-polar oceanography, circulation variability, and satellite remote sensing of the oceans. He received a B.S. in Environmental Sciences Engineering from the University of Michigan in 1976 and a Ph.D. in Physical Oceanography from the University of Alaska Fairbanks in 1993.

W. John Richardson

Dr. Richardson is Executive Vice President of LGL Ltd., environmental research associates, of King City, Ontario. He is an animal behaviorist by training (Ph.D., Cornell Univ., 1976). Since 1980, he has worked on field studies, reviews and environmental assessments of noise effects on marine mammals, working closely with physical acousticians. Much of this work has concerned reactions of bowhead whales, beluga whales, and seals to underwater noise from offshore oil exploration in the Alaskan and Canadian arctic. This work has included monitoring of reactions to actual industrial activities plus controlled tests of reactions to simulated industrial activities. He has also studied the seasonal distribution, normal behavior, and feeding ecology of bowhead whales and other marine mammals. The Alaska OCS Region of the Minerals Management Service has been one of the primary sponsors of this work from 1980 to date. Dr. Richardson has also prepared impact assessments concerning disturbance and other effects of military test activities on marine mammals and he has participated in many related studies in Canada, the U.S.A., and overseas. He is senior author of the book "*Marine Mammals and Noise*", published in 1995 by Academic Press and a Fellow of the Acoustical Society of America. From 1992-1994 he was a member of the U.S. National Research Council's Committee on Low-Frequency Sound and Marine Mammals. From 1993-2000 he chaired the advisory board for the Marine Mammal Research Program associated with the Acoustic Thermometry of Ocean Climate program. He has also worked extensively on birds, especially bird migration and bird hazards to aircraft.

Lawrence J. Rouse

Mr. Rouse is an Associate Professor in the Coastal Studies Institute and the Department of Oceanography and Coastal Sciences at Louisiana State University. His research interests are in coastal and shelf circulation, estuarine-shelf exchange, and remote sensing analysis of these processes. He is the graduate advisor for the Oceanography Department and director of the Coastal Marine Institute.

John Russell

Dr. Russell received a Ph.D. in Cultural and Psychological Anthropology from the University of California, San Diego. He has worked as a research anthropologist for the past 27 years, specializing in the community level analysis of the human dimensions of natural resources management. Topics addressed by Dr. Russell's research include: community dependency on National Forest lands; social impacts of changing fisheries policies in Alaska; traditional knowledge and traditional use of National Parks and other public lands; cultural landscape analysis; cultural factors in risk perception associated with locating hazardous facilities, including the Yucca Mountain Nuclear Waste Repository; the role of culture in coping with environmental stressors; the interaction of social and cultural factors in response to disaster events such as the *Exxon Valdez* oil spill and clean up; and the social impacts of changing land management policies on public lands. His community research experience includes ethnography in both urban and rural areas of Alaska, Hawaii, California, Nevada, Montana, Idaho, Washington, Florida, Louisiana, North Carolina, and Alaska. His international experience includes extended periods of ethnography in communities of western Ireland, Nepal, and India. His current projects include: an assessment of traditional cultural knowledge about Polar Bears among Alaska Natives; social impacts of land management planning for the King Range Natural Conservation Area in California; the potential effects of offshore oil development on bowhead whaling among Alaska Natives; a cultural landscape analysis of the Natchez-trace National Parkway in Mississippi; and consultations with California Native Americans about re-licensing hydro-electric facilities in California.

Larry Schmidt

Mr. Schmidt is a thirty-year career employee with the New Jersey Department of Environmental Protection. He has served in a number of capacities, primarily involved in environmental review of major construction projects, land use planning, permit coordination, program management, and special project assignments. He is responsible for administering the State's Coastal Zone Management Program which includes coastal planning and administering close to \$3 million a year in federal CZM funding. He is the State's representative on the Secretary of the Interior's (federal Cabinet officer to the President of the United States) Outer Continental Shelf Oil and Gas Policy Committee. Committee representatives advise the Secretary of the Interior on the state's interest in activities involving federally licensed exploration and production of offshore oil and gas resources. This includes on-shore impacts to the environment, the economy, infrastructure, and land use. Mr. Schmidt is a graduate of North Carolina State University with a degree in Forestry and has done graduate work in urban and regional planning at Rutgers, the State University of New Jersey.

William W. Schroeder

Dr. Schroeder is a Professor and Coordinator of the Marine Science Program at The University of Alabama, Dauphin Island, Alabama. He has been involved in interdisciplinary oceanographic investigations for over 38 years and has conducted research along the coast, on the continental margins and in the deep water of the northern Gulf of Mexico for the past 29 years. In addition he has participated in international research endeavors in the Bahamas, Caribbean, Gulf of Papua, Azov Sea, Australia and South Africa. He has authored and coauthored over 125 scientific publications. Currently his research activities include: 1) coupled biological-geological-physical studies of deep-water corals in the Gulf of Mexico; 2) validation of distributed marine-environment forecast systems; 3) Late Quaternary sea level and paleoceanography investigations of hardbottom sites in the northern Gulf of Mexico; 4) an integrated study of physical and biological processes along the west coast of Australia; and 5) model validation of the coupled katabatic wind, coastal ocean and ice systems in Antarctica.

Thomas J. Weingartner

Dr. Weingartner's specialties include physical oceanography of the Arctic Ocean and its adjacent shelves, physical oceanographic effects on marine ecosystems. His approach is mainly observational involving research cruises and the use of moored instruments that measure ocean velocity, temperature, and salinity periodically (usually hourly) for up to a year or more at specific locations in the water column.

ATTENDEES

OCS Scientific Committee Members

Dr. Michael Castellini, University of Alaska Fairbanks
Dr. Robert Diaz, Virginia Institute of Marine Science
Dr. Duane Gill, Mississippi State University
Dr. Richard Hildreth, University of Oregon
Dr. Charles Marek, Vulcan Materials Company
Dr. Livingston Marshall, Morgan State University
Dr. Michael Rex, University of Massachusetts
Dr. Edella Schlager, University of Arizona
Dr. Mary Scranton, State University of New York
Dr. Lynda Shapiro, University of Oregon
Dr. Joseph Smith, ExxonMobil Upstream Research
Dr. Denise Stephenson-Hawk, The Stephenson Group
Dr. John Trefry, Florida Institute of Technology

Minerals Management Service

Dr. Tom Ahlfeld, Environmental Sciences Branch
Ms. Carolyn Beamer, Offshore Minerals Management
Ms. Colleen Benner, Environmental Sciences Branch
Dr. Mary Boatman, Environmental Sciences Section, Gulf of Mexico OCS Region
Mr. Greg Boland, Environmental Sciences Section, Gulf of Mexico OCS Region
Ms. Elizabeth Burkhard, Environmental Sciences Branch
Ms. Robin Cacy, Public Affairs, Alaska OCS Region
Ms. Jane Carlson, Procurement Operations Branch
Ms. Phyllis Clark, Environmental Sciences Branch
Dr. Cleve Cowles, Environmental Studies Section, Alaska OCS Region
Mr. Barry Drucker, International Activities and Marine Minerals
Ms. Mary Elaine Dunaway, Environmental Sciences Section, Pacific OCS Region
Mr. John Goll, Alaska OCS Region
Mr. Tim Holder, Environmental Studies Section, Alaska OCS Region
Ms. Cheri Hunter, Offshore Minerals Management
Mr. Warren Horowitz, Environmental Studies Section, Alaska OCS Region
Dr. Jim Kendall, Environmental Sciences Branch
Mr. Robert LaBelle, Offshore Minerals Management
Dr. Ron Lai, Environmental Sciences Branch
Dr. Alexis Lugo-Fernandez, Environmental Sciences Section, Gulf of Mexico OCS Region
Dr. Harry Luton, Environmental Sciences Section, Gulf of Mexico OCS Region
Dr. Charles Monnett, Environmental Studies Section, Alaska OCS Region
Mr. Tom Newberry, Environmental Studies Section, Alaska OCS Region
Mr. Richard Newman, Environmental Studies Section, Alaska OCS Region
Dr. Fred Piltz, Environmental Sciences Section, Pacific OCS Region
Dr. Dick Prentki, Environmental Studies Section, Alaska OCS Region

Ms. Julie Reynolds, Offshore Minerals Management
Dr. Pat Roscigno, Environmental Sciences Section, Gulf of Mexico OCS Region
Mr. Paul Stang, Leasing and Environment, Alaska OCS Region
Mr. Steve Treacy, Environmental Studies Section, Alaska OCS Region
Ms. Lynette Vesco, Office of Environmental Evaluation, Pacific OCS Region
Mr. Will Waskes, International Activities and Marine Minerals
Ms. Kate Weidemeyer, Environmental Studies Section, Alaska OCS Region
Dr. Dee Williams, Environmental Studies Section, Alaska OCS Region

Invitees

Dr. Vera Alexander, University of Alaska Fairbanks
Mr. John Brown, Battelle Coastal Resources and Environmental Management
Dr. Brendan Kelly, University of Alaska Southeast & University of Alaska Fairbanks
Dr. Steve Okkonen, University of Alaska Fairbanks
Dr. W. John Richardson, LGL Ltd.
Mr. Larry Schmidt, OCS Policy Committee, New Jersey Department of Environmental Protection
Dr. William Schroeder, OCS SC Mercury Subcommittee Chair, University of Alabama
Mr. Edward Rasmuson, U.S. Commission on Ocean Policy
Dr. Larry Rouse, University of Louisiana
Dr. John Russell, EDAW
Dr. Thomas Weingartner, University of Alaska Fairbanks

Others

Mr. Bern Shanks, U.S. Geological Survey
Ms. Pam Miller, Arctic Connection

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ACRONYMS

AEWC	Alaska Eskimo Whaling Commission
ANIMIDA	Arctic Nearshore Impact Monitoring in Development Area
API	American Petroleum Institute
Bbbl	Billion barrels
BRD	Biological Resources Division
BWASP	Bowhead Whale Aerial Survey Project
COOGER	California Offshore Oil and Gas Energy Resources
CMI	Coastal Marine Institute
DOE	Department of Energy
DOI	Department of the Interior
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESP	Environmental Studies Program
EFH	Essential Fish Habitat
FY	Fiscal Year
G&G	Geological & Geophysical
GIS	Government Information System
GPS	Global Positioning System
IMEMS	International Marine Environment Modeling Seminar
ITM	Information Transfer Meeting
IUM	Information Update Meeting
LOI	Letter of Intent
LOOP	Louisiana Offshore Oil Port
LNG	Liquified Natural Gas
LSU	Louisiana State University

LUMCON	Louisiana University Marine Consortium
MARINe	Multi-Agency Rocky Intertidal Network
MINT	MMS Intertidal
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
MPA	Marine Protected Areas
NAS	National Academy of Sciences
NEPA	National Environmental Policy Act
NOAA	National Oceanic Atmospheric Administration
NOPP	National Oceanographic Partnership Program
NSL	National Studies List
NRC	National Research Council
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OMB	Office of Management and Budget
OMM	Offshore Minerals Management
ONR	Office of Naval Research
PAH	Polycyclic aromatic hydrocarbons
PCB	Polychlorinated Biphenyls
PI	Principal Investigator
RFP	Request for Proposals
SC	Scientific Committee
SDC	Steel Drilling Caisson
SRB	Science Review Board
TARP	Technology Assessment Research Program
Tfc	Trillion cubic feet
TPEC	Technical Proposal Evaluation Committee
TSC	Technical Steering Committee
UAF	University of Alaska Fairbanks

UCSB

University of California Santa Barbara

USGS

U. S. Geological Survey

Summary

The OCS SC of the Minerals Management Advisory Board held its annual meeting on April 22-24, 2003, in Anchorage, Alaska. On Wednesday, April 22, the SC was briefed by Mr. Robert LaBelle, Deputy Associate Director for Offshore Minerals Management, in which he provided the SC with a historical review of the OCS program.

Mr. John Goll, Director of the Alaska OCS Region, provided an overview of ongoing and planned activity in Alaska and Dr. James Kendall Chief, Environmental Sciences Branch, presented an overview of the Environmental Studies Program (ESP). The SC also heard reports and updates on the OCS Policy Committee, the Mercury Subcommittee, the Alaska and Louisiana Coastal Marine Institutes (CMI), and regional priorities and information needs.

Mr. LaBelle stated that:

- the Minerals Management Service (MMS) manages 1.76 billion acres of submerged lands,
- the OCS Lands Act celebrates its 50th Anniversary,
- this year's Safety in Seas Award was presented to Chevron Texaco,
- production from the 40 million OCS acres under lease accounts for about 30 percent of all domestic crude oil production and about 25 percent of all domestic natural gas production,
- the MMS has collected over \$80 billion in revenue generated by over 66 lease sales, 8.6 billion barrels of oil, and 90 trillion cubic feet of natural gas,
- in 2002, 12 new deepwater discoveries were made - three of these were in 8,000 feet or greater water depth and 14 new deepwater projects began production, and
- MMS is working with the National Oceanographic and Atmospheric Administration which is responsible for implementing the Marine Mammal Protection Act which protects the marine mammals existing in areas where oil and gas activities are being conducted.

Mr. Goll:

- congratulated Dr. Fred King on his being awarded the Federal Executive Association Award, which is very stiff competition and was awarded for the work he devoted to MMS's National Environmental Policy Act documents, the Environmental Impact Statements, and other management issues that the Alaska OCS Region has encountered,
- announced that within MMS's leasing schedule for the next 5 years, four offshore areas are being offered for sale in September, 2003 and include the Beaufort Sea, Cook Inlet, the Chukchi Sea/Hope Basin, and Norton Basin areas,
- described Northstar as being in operation for 1 year and nominally has produced about 60,000 barrels – 84 percent State and 16 percent Federal,
- stated that the McCovey Project in the Central Beaufort Sea had been a project of high interest during this past winter and that Phillips, with Chevron, used a Steel Drilling Caisson, which is a tanker converted to an ice-strengthened drilling vessel, to drill and, in February, the well was plugged and abandoned,
- stated that in Cook Inlet, the MMS is involved in the Cosmopolitan Unit that was drilled from onshore into state waters but includes two federal OCS leases, and
- reported challenges in Alaska that include oil spills and cleanup in broken ice, bowhead whale and subsistence, subsistence in general, activity avoidance, sociological effects, impact assistance, environmental justice, lack of seismic vessels, and lack of drilling vessels.

Dr. Kendall:

- reported that for Fiscal Year 2004, the ESP budget would probably remain around \$17 million,
- explained the ESP and peer review processes, and
- explained that the ESP had been subject to the President's Budget and Performance Integration Initiative.

Dr. Larry Schmidt reported that the OCS Policy Committee met in November 2002 in New Orleans, Louisiana, and topics addressed were: global energy; methane hydrates; Oil in the Sea; Energy, the Environment and Public Opinion; Mercury Studies; and Legislative issues and regional updates. At its next meeting on May 13-14, 2003, in

Alexandria, Virginia, the Committee will consider a resolution regarding long-term management of geo-science data.

Dr. William Schroeder stated the Mercury Subcommittee was formed in March after the Mobile Register began a series of articles on mercury based on analysis of mercury and fish and then mercury and humans and immediately began to try to assign blame on the oil and gas industry and the use of barium in drilling muds for lubrication during exploration. It produced a report, *Mercury in the Gulf of Mexico: The Role of Outer Continental Shelf Oil and Gas Activities*, which the SC voted to accept.

Dr. Kendall presented background information on the CMI, which was started in 1989, and stated its goals are to strengthen relationships with States where OCS oil and gas activities take place, facilitate a cost-sharing partnership, address MMS and State information needs, improve information flow to local communities and the State, and provide for a way of training new students in oil and gas issues. He also stated that:

- the participants of the CMI are Louisiana State University, University of California at Santa Barbara, and the University of Alaska Fairbanks,
- the Universities submit Letters of Intent (LOI) and, after review, full proposals are requested for those selected, and
- the Gulf of Mexico CMI has 91 completed or ongoing projects at a cost of \$21.4 million; the Alaska CMI has 44 completed or ongoing projects at a cost of \$13.5 million; and in California, there are 36 projects ongoing or completed at a cost of \$6.4 million.

Dr. Vera Alexander gave a presentation on the Alaska CMI:

- the MMS provides \$1 million annually to be matched one-for-one with non-federal dollars. Current project expenditures include \$2,173,841 in physical oceanography; \$1,320,950 in biology; \$268,171 in chemical; and \$125,168 for administrative costs,
- most of the research currently being conducted is in the Beaufort Sea since that is where most of the offshore oil development activity is taking place; other areas include Cook Inlet area, the Chukchi Sea, and several other projects that are less field oriented are based in Fairbanks, and
- research topics include seabird habitat, ocean circulation, whale migration, sediment chemistry, sea ice, and hydrocarbon degradation.

Dr. Larry Rouse gave a presentation on the Louisiana CMI:

- for the first Cooperative Agreement, there were 62 projects funded and the second one has had 37 projects funded for a total of about \$17 million worth of research,
- studies being conducted range from the social sciences, sociology and economics, to biological and physical processes,
- research is being done on platform ecology and one particularly interesting study is the interaction between migrating birds and the offshore oil and gas platforms,
- there have been several studies on the interaction between recreational and commercial fisheries with oil and gas platforms,
- the State of Louisiana has a very significant land loss problem and one of the ways to revamp at least the barrier islands is to mine offshore sand, and
- this year 29 LOIs were submitted through the CMI and full proposals were requested for 11 of these while two others were encouraged to submit proposals that would be passed on to other sections of MMS.

Tuesday's afternoon session was devoted to reports on regional priorities and information needs. Mr. Barry Drucker presented for the Sand and Gravel Program followed by comments from Dr. Robert Diaz and Mr. Schmidt.

Dr. Cleve Cowles presented for the Alaska OCS Region, Dr. Fred Piltz for the Pacific OCS Region, and Dr. Pat Roscigno for the Gulf of Mexico OCS Region.

Wednesday was devoted to discipline-based breakout sessions (Ecology/Biology/ Physical Oceanography, and Socioeconomics) where each discipline-based breakout group met separately with staff members from each Region and Headquarters. In each breakout session, one SC member was designated as a discussion leader and an MMS staff member was assigned to take notes. On Thursday, the leaders identified regional priorities for future environmental studies.

On Thursday, the SC heard a series of presentations from the Ninth Alaska Information Transfer Meeting which had been held in Anchorage, on March 10-12, 2003, and hosted 38 technical presentations of various disciplines. The second Information Update Meeting was held in Barrow, Alaska, on March 14, 2003, and one of the topics discussed was the concern over the Arctic Cisco and other Arctic fish in the Holgate River Drain. Both meetings were oriented to provide public dissemination of results and investigators were given the opportunity to discuss the program, its planning, and its activities.

The SC received an update on the progress of the U.S. Commission on Ocean Policy, presented by Mr. Edward Rasmuson, a member of the Commission. As the Commission moves toward completing its mandate during 2003, a number of recommendations are beginning to take shape and be discussed openly. Mr. Rasmuson presented the draft recommendations which will be submitted for Governors review in August.

During the business session of the meeting, the SC developed the following recommendations and acknowledgments to the Director of MMS:

- The SC unanimously expressed its overall high regard for the personnel and programs of headquarters and the regions.
- The SC reiterated the importance of several issues raised last year and continue to recommend that all regions keep up-to-date with appropriate literature, including recent publications related to moratorium areas.
- Data and knowledge obtained through MMS efforts are valuable resources for current and future studies, both internal and external to MMS. To insure public accessibility of MMS-sponsored information, a comprehensive plan for archiving and accessing should be developed. An expert on database development and use should address the next SC meeting on strategies for structuring and accessing large diverse databases.
- Given the common missions of the regions and similarity of many current studies and proposed study profiles, it is important that the regions closely coordinate future studies to maximize applicability of products. A high level of coordination would also prevent unnecessary duplication of effort and maximize information gain for available resources.
- The SC recognizes MMS's long-standing, uninterrupted archiving program with the Smithsonian Institution and encourages its continuation. Additionally, it recommends that MMS expedite discussions with the Smithsonian regarding the development of its Web Accessible System for querying such archived materials. The application of such new technologies to archived material would add a new dimension to MMS studies on par with an archival database. Museum collections are also essential to documenting and understanding biodiversity, a major international priority.
- Given the recent national emergence of programs to bring science into the classroom, MMS should investigate additional ways of turning its research products into educational and outreach materials. The SC is aware of the efforts underway by all of the MMS OCS Regions and recommends that these continue. Additionally, the recent education packages developed by the Pacific OCS Region should be used as models by the other OCS Regional Offices.
- CMI's should highlight student participation in projects and programs by providing citations for all theses and dissertations or other student products on their respective Websites. It would also be relevant to include information on current student projects.
- MMS should continually monitor the environmental data it collects, as well as advances in sampling technology and data analysis, in order to continuously refine procedures for assigning (or modifying) appropriate distances of separation between OCS activities and resources designated for protection.
- Decommissioning will likely become a major focus of MMS interest and research. In preparation for an expected research initiative, relevant literature should be summarized and the Western and Gulf of Mexico Regions should determine areas of commonality in order to avoid duplicative research programs.
- The rise of Marine Protected Areas (MPA) as a management strategy necessitates that MMS start to consider the relationship between OCS activities and MPAs.
- Given the shifting emphasis in contaminant risk assessment from body burden effects and the difficulties of interpreting body burden data, MMS in future studies should emphasize an effects based approach (such as P-450 induction or other biomarkers).
- Possible oil and gas development off the Canadian west coast near the U.S. boundary suggests the need for an MMS Pacific OCS Region liaison to U.S. and Canadian marine researchers in that area.

Subcommittee Actions

The subcommittee on mercury was dissolved after members were praised for their outstanding work on the recent mercury issue.

Memberships on existing subcommittees was reassigned as follows:

- Deepwater Subcommittee – Drs. James Coleman, Michael Rex, William Schroeder, and Joe Smith
- Beaufort Sea Monitoring Issues Subcommittee – Drs. Michael Castellini, Scott Goldsmith, William Schroeder, and Lynda Shapiro
- Sand and Gravel Subcommittee – Drs. James Coleman, Duane Gill, Robert Diaz, Charles Marek, and Livingston Marshall

New subcommittees were formed in three areas to deal proactively with emerging issues and provide specialized assistance to the Gulf of Mexico OCS Region:

- Chemical Contaminants – Drs. Mary Scranton, Denise Stephenson-Hawk, Joe Smith, and John Trefry
- Decommissioning Subcommittee – Drs. Richard Hildreth, Michael Kosro, Livingston Marshall, and Mary Scranton
- Gulf of Mexico/Economic Workshop – Drs. Duane Gill, Scott Goldsmith, Richard Hildreth, and Edella Schlager

PUBLISHED IN THE FEDERAL REGISTER NOTICE MARCH 26, 2003

DEPARTMENT OF THE INTERIOR

Minerals Management Service (MMS)
Outer Continental Shelf (OCS) Scientific Committee of the Minerals Management
Advisory Board; Announcement of Plenary Session

AGENCY: Minerals Management Service, Interior.

ACTION: Notice of Meeting.

SUMMARY: The Minerals Management Advisory Board OCS Scientific Committee will meet at the Hilton Anchorage Hotel in Anchorage, Alaska.

DATES: Tuesday, April 22, 2003, from 8:30 a.m. to 5:00 p.m., Wednesday, April 23, from 7:45 a.m. to 3:15 p.m., and Thursday, April 24, from 8:30 a.m. to 5:00 p.m.

ADDRESS: Hilton Anchorage Hotel, 500 West Third Avenue, Anchorage, Alaska 99501

FOR FURTHER INFORMATION CONTACT: A copy of the agenda may be requested from MMS by calling Ms. Carolyn Beamer at (703) 787-1211. Other inquiries concerning the OCS Scientific Committee meeting should be addressed to Dr. James Kendall, Executive Secretary to the OCS Scientific Committee, Minerals Management Service, 381 Elden Street, Mail Stop 4043, Herndon, Virginia 20170-4817 or by calling (703) 787-1656.

SUPPLEMENTARY INFORMATION: The OCS Scientific Committee is an outside group of non-Federal scientists which advises the Director, MMS, on the feasibility, appropriateness, and scientific merit of the MMS OCS Environmental Studies Program as it relates to information needed for informed OCS decisionmaking.

The Committee will meet in plenary session on Tuesday, April 22. Presentations will be made by the Deputy Associate Director for Offshore Minerals Management and the Director, Coastal Marine Institute, University of Alaska Fairbanks. Other presentations and discussions will focus on the draft recommendations of the U.S. Commission on Ocean Policy, a report from the OCS Policy Committee, and updates on the OCS Scientific Committee's Mercury Subcommittee and Sand and Gravel Subcommittee. The remainder of the day will focus on presentations by the MMS OCS Regional Offices on their research priorities and information needs in the context of regional decisionmaking.

On Wednesday, April 23, the Committee will meet in discipline breakout sessions (i.e., physical oceanography, biology, and socioeconomics) to review the specific research plans of the regional offices for Fiscal Years 2004 and 2005.

On Thursday, April 24, the Committee will meet in plenary session for presentations from the Alaska OCS Region's Information Transfer Meeting held March 10-12, 2003, and for reports of the discipline breakout sessions of the previous day. In the afternoon, the plenary session will continue with Committee Business.

The meetings are open to the public. Approximately 30 visitors can be accommodated on a first-come-first-served basis at the plenary session.

AUTHORITY: Federal Advisory Committee Act, P.L. 92-463, 5 U.S.C., Appendix I, and the Office of Management and Budget's Circular A-63, Revised.

_____/S/
Thomas A. Readinger
Associate Director for Offshore Minerals Management

Mr. Robert LaBelle Presentation

Good morning. I appreciate the opportunity to be with you once again, although this time I'm here as the new Deputy Associate Director for Offshore Minerals Management. Unfortunately, neither our Director, Johnnie Burton, nor our Associate Director, Tom Readinger, can be with us this week. Since I know many of you, and many of you know me, you know I share Johnnie and Tom's enthusiasm and respect for the important work you do and welcome both the returning and new members of the Committee. As for my own position, when I was promoted to Tom Readinger's Deputy, I left the position of Chief of MMS's Environment Division. This position has been filled by Dick Wildermann who is with us today.

Dick's previous position was the Chief, Branch of Environmental Assessment, where he managed compliance with all environmental laws for the Offshore Program. Dick has over 30 years experience with the Federal Government, starting as a naval aviator and later as an Environmental Specialist with the U.S. Coast Guard in New York City. In 1978, he joined the Bureau of Land Management and was later named Chief of the Environmental Assessment Section in the Atlantic Region, where he managed EIS preparation and oversight for environmental issues. Dick went on to become a charter member of MMS when he was reassigned to the Agency in 1985. Shortly after that, he was promoted and reassigned to Headquarters as Chief, Branch of Environmental Evaluation. He has received numerous Special Service and Performance Awards and holds a Bachelor's degree from Fairfield University and a Master's degree from Yale University's School of Forestry and Environmental Studies.

We also have some new members with us today as well as an old friend who has just relinquished his gavel. I want to personally thank Will Schroeder for his years of service, particularly his Chairing of this Committee and his involvement with many of its Subcommittees—most recently the Committee's Mercury Subcommittee. Will, along with Drs. Livingston Marshall and Denise Stephenson-Hawk and one of the Committee's past members, Dr. Eric Crecelius, were invaluable in their review and evaluation of information pertaining to concerns over mercury in the waters and sediments of the Gulf of Mexico. The guidance they have provided on what actions the MMS should take in the context of oil and gas activities in the Gulf has been extremely important, not only to MMS and the Department, but also to an Interagency Working Group on Mercury established by the White House.

Regarding our new members, I would like to welcome:

- Dr. Richard Hildreth of the Ocean and Coastal Law Center, University of Oregon
- Dr. P. Michael Kosro of the College of Oceanic & Atmospheric Sciences, Oregon State University
- Dr. Mary Scranton of the Marine Sciences Research Center, State University of New York
- Dr. Joseph Smith, Offshore Division, Exxon/Mobil Upstream Research; and
- Dr. John H. Trefry, Division of Marine and Environmental Systems, Florida Institute of Technology

I hope you will find the time you spend working with us as valuable to you as we find working with you. In this regard, I understand that Jim Kendall's presentation later today will be very different from those of past years. He will not only walk you through the Environmental Studies Process, but also report to you on a "Recent Assessment Exercise" taking place at the highest levels of Government. This being said I do want to state in one simple sentence why your committee exists:

The role of the OCS Scientific Committee—simply stated—is to advise the MMS Director on the feasibility, appropriateness, and scientific value of the Environmental Studies Program.

Now, why are we in Alaska? Over the past decade, as with all government agencies, our resources continue to be cut back. As such, resources for travel have become more and more difficult to come by. However, it's been over a decade (1991) since we've conducted one of your meetings in Alaska, and during that time, a lot of has occurred. Later today you'll hear from John Goll, Regional Director of our Alaska OCS Region, on the activities and challenges they face.

To mention one more new face & change. . . . Many of you are familiar with Julie Reynolds. Julie has been helping out for a couple of years now but has recently earned/been given even more responsibility for MMS. As such, this may be her last meeting with your Committee. However, one of her long time colleagues, Ms. Carolyn Beamer, has agreed to take up the cause. Carolyn will be working with Phyllis Clark to ensure that logistics, agenda planning, etc., are continued without missing a beat. Welcome aboard Carolyn! One additional note, Phyllis has been involved with this Committee for well over a decade and may very well hold the record for attending these meetings.

Now, before you get started with working with our Headquarters and Regional Studies Teams on studies planning for 2004 and beyond, I'd like to set the stage by saying a few words about MMS and the OCS Program in general, which may help remind us as to why we're all here and how we fit in.

The OCSLA is 50 years old

A little over 54 years ago, the first well out of sight of land was drilled by Kerr-McGee. This well was instrumental in the passage of the OCS Lands Act in 1953 – The OCSLA is 50 years old this year! The MMS is the largest land manager in the United States – albeit submerged lands. Just as the Bureau of Land Management and the National Park Service have responsibility for millions of acres of cultural, natural, and mineral resources onshore so does the Minerals Management Service, offshore—in the amount of 1.76 billion acres.

Offshore Production

Today, production from the 40 million OCS acres under lease account for about 30 percent of domestic crude oil production and 25 percent of domestic natural gas production. We manage these offshore lands from the initial assessment of the resources available to the end of a field's production life, when a company plugs and abandons its wells and cleans up the surrounding environment.

The MMS has done this job for 20 years and in that time, for its offshore responsibility alone, has collected over \$80 billion in revenue generated by over 66 lease sales, 8.6 billion barrels of oil, and 90 trillion cubic feet of natural gas. We project that by 2006 the OCS could easily account for about 40 percent of U.S. oil production. At the same time, we expect the OCS to continue to account for about 25 percent of domestic natural gas production. In the Gulf of Mexico, deepwater production now accounts for about 60 percent of the Gulf's oil production and 23 percent of the natural gas production. Deepwater development projects continue at a fast pace. In 2002, twelve new deepwater discoveries were made (3 of these were in 8,000 feet or greater water depths), and 14 new deepwater projects began production. These joined the 51 that were already in production for a total of 65. And of these 65 projects, 41 are subsea completions with a tieback to a surface facility. We expect a significant rise in the number of deepwater projects that will start production in the year 2003 – perhaps as many as 19. This rise in production, using the MMS low-case estimate for 2006, would increase oil production from the OCS by 75 percent since 1995. If we approach the high-case estimate, we would be looking at an increase of about 118 percent in a 10-year span. This is a truly remarkable American success story.

The rise in production from the Gulf of Mexico and the importance of the OCS in the national energy picture is no accident. Two of the major factors are great geology and the application of ingenious technologies. One a gift of nature and the other brought to the table by the industry. However there is a third component that MMS is directly responsible for – a flexible regulatory regime that seeks to use, where possible, economic incentives to stimulate development.

Royalty Incentive Program

We offer a royalty incentive program for deepwater leases, and have expanded the incentives to promote development of natural gas from deep horizons in shallow waters. We are also considering how to extend the deep shelf gas royalty relief provisions to leases purchased before 2002. We also offer lease extensions for certain exploration activities that focus on targets that occur beneath subsurface salt sheets. The deep shelf gas and subsalt provisions are specifically targeted at bringing more natural gas production online in the near future (2004 to 2007) to help meet the expanding demand for natural gas.

We are also developing economic incentives for exploration in offshore waters of Alaska, and, programwide, we want to make sure our process for permitting new wells is the most efficient and effective possible. That being said, it is critical that we have a well managed program of regular lease sales in the areas where exploration is allowed.

Deepwater & Deep Drilling

Developing a deepwater production and regulatory strategy in the Gulf of Mexico is only one issue that we must evaluate. We must also start paying attention to potential future ultra-deep drilling which may require different lease terms. What I want to illustrate is that while our deepwater story is by and large a successful one—and grabs the lion's share of the headlines—there are other issues we face that are a little more intractable and require considerable time, effort, and consultation to resolve.

For example, on March 26 we published a Proposed Rule to allow owners of existing leases to take advantage of a royalty relief incentive for drilling deep gas prospects in the shelf waters of the Gulf of Mexico. A form of this relief was already available for leases purchased after 2001.

Few other initiatives can address near and mid-term shortfalls in natural gas supplies due to long lead times needed to explore and develop resources. Deep-shelf gas can be brought on line quickly because of an extensive existing infrastructure in shallow water (pipelines, platforms, producing facilities). Drilling can commence immediately, with new production in 2004-2009. New leases (on about 1200 tracts?) can tap only a fraction of the deep-shelf resource potential that underlies mostly existing leases issued earlier.

The Proposed Rule extends incentives to older leases to tap the majority of the resource potential. This could result in an additional 100 to 200 billion cubic feet of natural gas production per year, thus helping to moderate prices with a consumer savings estimated at \$280 million per year (for 18 years).

Finally, interest has been expressed for areas 30,000 feet or deeper. MMS will begin considering whether other measures are warranted for such extreme conditions.

Our Other Research Program

Regarding our other research efforts, the Technology Assessment & Research Program issued a call for white papers assessing the performance and damage experienced by Gulf of Mexico facilities during Hurricane Lili. As a result of this call, we will be funding a number of major engineering research efforts, and because of a need for better physical oceanographic information, our Environmental Studies Program is funding the development of a comprehensive, definitive, and reliable database of wind, sea state, and currents associated with Hurricane Lili in the northern Gulf of Mexico.

We intend to use the information we gather to develop a MMS damage assessment report and to ensure that current MMS/industry guidelines are adequate for future hurricanes. This is one example of how we meld the research objectives of our different programs to ensure that OCS operations continue to be safe and also protect the environment.

That is our mandate—set by Congress—and delegated from the Secretary of the Interior. The main tenets of the OCSLA clearly state that the Federal OCS is a vital national resource. Public lands should be made available for expeditious and orderly development, subject to environmental safeguards, consistent with the competitive aspects of our economic system, and based on national needs.

While all these tenets seem straightforward, the last one can be a little tricky. Indeed, there are numerous other laws that, because of the activity they regulate or resources they protect, have to be taken into account when considering offshore activity.

NOAA & the Marine Mammal Protection Act

For example, the Marine Mammal Protection Act is one of those. Because the responsibilities of the MMPA are under the purview of NOAA, the Department of Commerce's National Oceanic and Atmospheric Administration, we must coordinate our permitting of offshore activity with them.

The most recent instance of this working relationship in action concerns how seismic activities may adversely affect marine life, particularly sperm whales, which are an endangered species now known to inhabit Gulf waters. In December 2002, MMS petitioned NOAA Fisheries for a rulemaking (potential for harm) under the MMPA regarding seismic surveys in the Gulf of Mexico. NOAA Fisheries published a Notice of the petition in the March 3, 2003, *Federal Register*; the comment period ends April 16, 2003.

In the Federal Registers Notice, NOAA Fisheries indicates that “. . . *in the interim period before this rulemaking is complete, MMS will enforce the mitigation measures outlined in this section to ensure the protections required by the ESA and MMPA.*” The resulting mitigation and monitoring requirements will most likely resemble requirements established in the past for seismic surveys off California and Alaska, the United Kingdom, and other countries.

Homeland Security

Another issue of primary importance in these troubling times is the security of our offshore infrastructure. The importance of domestic production has increased in view of the potential for a disruption in oil and gas imports. MMS has adopted a proactive approach towards homeland security by identifying key assets and sharing responsibility with other Federal Agencies, such as the Coast Guard, State and local governments, as well as private industry. We are improving communication and security awareness and identifying vulnerabilities while we develop measures to improve the protection of offshore personnel and facilities. We have developed the OMM Threat Security Guidelines which form the foundation for a comprehensive offshore security system. These guidelines establish specific protective measures for each standardized threat condition level of the Homeland Security Advisory System. MMS is working with the Naval Facilities Engineering Service and the Sandia National Laboratories to develop a threat assessment and management methodology. This methodology will help MMS prioritize critical OCS infrastructure in our OCS Regions. We are also working closely with the Coast Guard to develop security regulations for offshore fixed and floating facilities. And our most recent success has been to successfully work with API, the Coast Guard, and others to draft and publish security guidelines specifically tailored for offshore oil and gas production operations. These guidelines are now available for industry to use.

These are just a few of the many issues that we must negotiate on a daily basis, but when we deal with a program that is as important to the Nation's energy and economic security, it is essential that we go the extra mile to ensure its continued operation.

As we celebrate the 50th anniversary of the passage of the OCS Lands Act later this year, it is important that we also recognize the exemplary record of the offshore industry in operating safely. The offshore industry, year after year, is one of the safest industrial activities in the United States. This year's Safety in Seas Award was presented by the National Ocean Industries Association to ChevronTexaco and Oceaneering for being leaders in the field of safe operations in a demanding working environment. We at MMS are proud to have been able to be part of the selection process.

ENVIRONMENTAL STUDIES PROGRAM

This afternoon we will be hearing about environmental study planning in the regions. Tomorrow you will review the regional study plans for next year and the environmental questions we are trying to answer to help us manage OCS mineral development in as safe and environmentally sound a manner as we possibly can. We look forward to your able assistance on some of the key challenges we face as we attempt to formulate research plans on many present and upcoming complex issues. I'd like to thank this committee for helping us achieve our goals in the past and look forward to working with you in the future.

I'll be happy to answer any questions you may have.

Six Selected Presentation Summaries

From the

Information Transfer Meeting
March 2003

Sponsored by the

Alaska OCS Region
Minerals Management Service

For Presentation to the

Minerals Management Service
Scientific Committee Meeting
Anchorage, Alaska
April 24, 2003

**THE MINERALS MANAGEMENT SERVICE ARCTIC NEARSHORE IMPACT
MONITORING IN THE DEVELOPMENT AREA (ANIMIDA) PROGRAM:
INTRODUCTION TO
A MULTI-YEAR MONITORING PROGRAM IN THE NEARSHORE BEAUFORT SEA**

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Offshore oil and gas development and production activities have been initiated at Northstar Island and are proposed for the coming years at a modified Liberty prospect site in the nearshore Beaufort Sea. There is concern about the long-term effects of these developments, as well as, long-term effects of any development associated with future offshore lease sales and exploration activities. Historical chemical and physical data have been collected in the region over several decades. Nevertheless, the sensitivity of the region adjacent to Northstar and Liberty, and the highly variable and complex environmental conditions, make further monitoring necessary. In response to interagency reviews of related environmental impact statements (EISs) and development and production plans, the U.S. Department of Interior, Minerals Management Service (MMS) initiated the ANIMIDA Program as a long-term study for monitoring potential impacts of the Northstar and Liberty developments. ANIMIDA Phase I was started in June 1999 and included hydrocarbon and metals chemistry measurements in sediment and tissue samples, as well as acoustic measurements adjacent to the Northstar and Liberty sites. Phase II of the ANIMIDA Program was initiated in July 2000 and incorporates seven tasks including hydrocarbon and metal chemistry studies, suspended sediment studies, an assessment of subsistence whaling at Cross Island, biota contaminant assessment, and a study of the "boulder patch" area. An overview of the ANIMIDA Program status to date will be presented.

A DESCRIPTION OF POTENTIAL IMPACTS OF OCS ACTIVITIES ON BOWHEAD WHALE HUNTING ACTIVITIES IN THE BEAUFORT SEA

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Subsistence hunting for marine mammals and especially bowhead whales has a long history as an organizing element of Iñupiat social, cultural, religious, and economic life. Archaeological evidence shows that Iñupiat dwellings were sometimes made with whale ribs and other skeletal parts. Whales were prominent in religious beliefs, practices, and symbols; and, sharing of whale products among kinsmen and other Iñupiat defined and reinforced social bonds. Muktuk, whale meat, and other whale products also provided an essential source of protein and fat that Iñupiat believed essential for their diet and health.

When European and American whalers entered the Arctic they employed Natives as whalers and exposed them to new whaling technologies. Post-contact, whaling has remained essential to modern Iñupiat values and lifestyles: the Barrow High School mascot is the "Whalers;" employers allow time off for whaling crew members to hunt; Nalukataq and related whaling ceremonies are important cultural events; and, muktuk and other whale products have cultural, economic, and health-values for community members.

Oil development activities in the late sixties and early 1970's resulted in new change agents affecting Iñupiat communities: new sociopolitical institutions emerged; settlement and residence patterns began to change; transportation technologies such as snow machines became more available as did wage employment with the newly formed North Slope Borough. Modernization of Iñupiat communities accelerated with exposure to these and other change agents. Outer Continental Shelf (OCS) oil activities were perceived to present unique threats and consequences, including ones specific to whaling. Iñupiat expressed concern that OCS oil development activities could deflect whale migration farther off-shore, contribute to whale skittishness, and otherwise adversely affect whale behavior. These types of concerns are perceived to have negative influences on whale hunting; and, any threats to whale hunting also affect other aspects of community and personal life connected to whaling.

Using multiple data sources, this project examines Iñupiat assessments of the influences of development on participation in traditional activities, especially whale hunting and its related sociocultural components. A focus is to identify Iñupiat assessments of OCS activities as a particular type of development threat or opportunity; and, the perceived affects of OCS activities on whale hunting and related traditional activities. In addition to observational (ethnographic) and secondary source data, three surveys are being administered (whaling captains, randomly selected households, and high school juniors and seniors) to examine variation in these assessment among and within three North Slope communities (Barrow, Kaktovik, and Nuiqsut) and one "control" community in western Alaska. The data should assist communities to identify and plan for sociocultural problems related to ongoing development in the Arctic.

MEASUREMENTS OF TEMPERATURE, SALINITY AND CIRCULATION IN COOK INLET, ALASKA

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Temperature and salinity measurements acquired in central and lower Cook Inlet during spring and fall 2002 show that the hydrographic structure of tide rip fronts varies spatially and seasonally. Increased river discharge during summer and fall strengthens non-tidal, density-driven currents associated with the tide rip fronts. The hydrographic structure of the tide rip fronts also varies over the semidiurnal tidal cycle. These results illustrate the need to incorporate density effects in numerical oil spill trajectory models for Cook Inlet.

BEAUFORT NEARSHORE UNDER-ICE CURRENTS

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SUMMARY OF WORKSHOP ON PHYSICAL OCEANOGRAPHY IN THE BEAUFORT SEA

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Presented by Steve Okkonen.

MMS sponsored a 2.5-day workshop on the physical oceanography of the Alaskan Beaufort Sea, held in Fairbanks, Alaska in February 2003. The workshop reviewed knowledge of the physical oceanography of the Beaufort shelf and recommended studies to support Minerals Management Service's mission with respect to industrial development on this shelf. There are fundamental unknowns in the understanding of the ocean and ice circulation, ocean density field, and of the forcing mechanisms influencing the sea ice and oceanography. The study recommendations consist of a mix of field (observational) and idealized model studies to improve understanding of poorly understood physical processes and boundary conditions and to provide data sets necessary for the proper evaluation of regional pollutant transport models. Critical issues requiring study are the:

1. wind and surface stress fields established by mesoscale variations in the regional meteorology and sea ice distribution and deformation fields,
2. effects of freshwater discharge and freezing (convective) processes on the shelf circulation,
3. controls exerted on the circulation and water property fields by the lateral ocean boundaries of the Alaskan Beaufort Sea: the Chukchi shelf (western boundary), the Canadian Beaufort shelf (eastern boundary), and the shelfbreak and continental slope (offshore boundary), and
4. shelf/slope bathymetry

These topics affect the time and space scales of the ice and ocean circulation, which have not been well-resolved in the Beaufort Sea. Consequently, the recommended studies are also designed to delineate the major scales of variability.

BOWHEAD WHALE FEEDING IN THE EASTERN ALASKAN BEAUFORT SEA: UPDATE ON SCIENTIFIC AND TRADITIONAL KNOWLEDGE

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BEHAVIOR OF RINGED SEALS AND RE-INTERPRETATION OF AERIAL SURVEYS

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Ringed seals spend much of the year hidden from view in snow caves (lair) on the shorefast ice of the Arctic Ocean. Each spring, as the snow melts, seals abandon their snow caves and rest on the surface of the ice. In the past, aerial surveys have been used to relate seal numbers to ecological variables and industrial activities. Aerial surveys, however, count an unknown proportion of the population that is visible on the surface of the ice and assumes that the proportion does not change over time.

We are testing the implicit assumptions of aerial surveys and investigating how the proportion of visible seals changes over time and between years. The results will be used in a reanalysis of past ringed seal surveys.

From 1999-2002, we tagged 48 ringed seals (8, 10, 14, 16 respectively) in Prudhoe Bay. During May and June each year, we recorded hourly the proportion of tagged seals in the water, hidden in snow caves, or visible on the surface of the ice. The proportion of tagged seals that were visible 1) had a strong diurnal pattern, peaking at 3:00 pm and 2) was highly variable, changing from as much as 100% to 13% by the next day. Lastly, the timing of lair abandonment varied greatly from year to year.

In 2001 and 2002, in conjunction with the Jet Propulsion Laboratory, we found that spaceborne Ku-band scatterometer data were sensitive to snow deterioration and remotely indicated the timing of lair abandonment. We are continuing to test the utility of scatterometer data and we plan to model the effects of environmental covariates on the proportion of seals visible. The model will then be used in a reanalysis of previous ringed seal surveys.

OCS Scientific Committee of the Minerals Management Advisory Board Charter

Function

The OCS Scientific Committee will give advice on the feasibility, appropriateness, and scientific value of the Outer Continental Shelf Environmental Studies Program and the OCS Sand and Gravel Program to the Director, Minerals Management Service. The Committee will review the relevance of the research and data being produced to meet MMS scientific information needs for decision making and may recommend changes in scope, direction and emphasis.

Membership

The Secretary may appoint between 10 and 15 members for 2-year terms. Members may serve three consecutive terms. After a 2-year break in service, the member may be reappointed to serve additional terms. A member may serve until their replacement is appointed.

Appointments will be made to balance the Committee in terms of technical skills and geographic representation.

Members will be appointed to the Committee based on the following criteria:

- Scientific competence,
- Reputation within their field of expertise, and
- Ability to represent important elements of the MMS's research and science information efforts.

In addition, the Secretary may appoint one discretionary member to serve a 2-year term on the Committee. This discretionary member may be reappointed for additional 2-year terms and is not limited to the number of consecutive terms served. This appointment will be based on the member's scientific eminence as evidenced by national and international awards for professional excellence, induction to prestigious professional academies or societies and other highly meritorious recognition for scholarship and research as well as distinguished prior service to the Committee.

Officers

Committee Officers

The Committee will elect a Chair and Vice Chair from its membership to serve 2-year terms.

Federal Officers

The following individuals will serve as ex officio, nonvoting participants on the Committee:

- Associate Director for Offshore Minerals Management is the Executive Director
- Chief, Environmental Division is the Executive Secretary
- Chief Scientist is the MMS Science Liaison to the Committee

Official to Whom the Committee Reports

The Director, Minerals Management Service. The Director or his designee will serve as the Designated Federal Officer.

Office Responsible for Providing Necessary Support

The Department of the Interior, Minerals Management Service.

Subcommittees

The Committee may establish subcommittees to study issues in-depth and to develop recommendations for consideration by the full Committee. Membership will be balanced in terms of points of view, subcommittee function, and expertise required by the subcommittee. Subcommittees may include people who are not members of

the Committee. The Committee Chair will appoint subcommittee members. The OCS Scientific Committee may provide reports to the OCS Policy Committee.

Estimated Number and Frequency of Meetings

The Committee will meet once a year.

Travel Expenses

Each member will be reimbursed for travel expenses incurred when attending Committee meetings in accordance with Federal travel regulations as implemented by the Department of the Interior.

Estimated Operating Costs

We estimate that the activities of the Committee will cost \$44,000 and require one work year of Federal employee support annually.

Meeting Minutes

Detailed minutes of each Committee meeting, recommendations made, and copies of all studies and reports received, issued, or approved in conjunction with the activities of the Committee will be available for public inspection at the following location:

Minerals Management Service
381 Elden Street, Mail Stop 4040
Herndon, Virginia 20170