OCS Scientific Committee
April 23 – April 25, 2002
Alexandria, Virginia

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Transcripts are available upon request. Please go to Transcripts outline and request which pages you would like to receive. Please e-mail your request to EnvironmentalStudiesProgram2@BOEMRE.gov.

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OUTER CONTINENTAL SHELF (OCS)
SCIENTIFIC COMMITTEE (SC)
Plenary Session
April 23, 2002
Alexandria, Virginia
Meeting Synopsis

INTRODUCTION

Dr. William Schroeder, SC Chair, welcomed everyone to the meeting and reminded everyone that this meeting is principally for the Minerals Management Service (MMS) to inform the SC on technical matters and issues that are germane to what it has been asked to advise.

ASSOCIATE DIRECTOR'S PRESENTATION

Presentation by Mr. Tom Readinger

Mr. Tom Readinger, Associate Director for MMS, related to the SC that he is looking forward to a close relationship with the scientists on the SC as the MMS deals with policy matters and decisions that will need to be made. He feels it is critical that the MMS has the best information in order to interact in terms of what decisions are being made and the SC provide the science on issues facing MMS.

He stated that he has been involved in the offshore program for about 27 years and was previously Ms. Carolita Kallaur's Deputy (Ms. Kallaur was the former Associate Director for MMS). Dr. Tom Kitsos, MMS's former Deputy Director, is now with the Ocean Commission as well as Dr. Ken Turgeon, who was MMS's Chief Scientist.

The MMS has a new Director, Ms. Rajane "Johnnie" Burton. He explained she has had some background in state government, has been in elected office, and has a lot of experience on the accounting of mineral revenues for the State of Wyoming, which is a big oil and gas producer. She also has an in depth background in the oil and gas field, mostly onshore, however, some of the technology and science is the same as offshore.

The MMS also has a newly-appointed Deputy Director – Mr. Walter Cruickshank. Prior to his appointment, he served as Associate Director for Policy within Offshore. He has been with the Offshore Program for 15 or so years and is an economist with a geologist background. Mr. Readinger added that Mr. Cruickshank is playing a lead role in the Department of the Interior (DOI) under the National Energy Policy (NEP) that the administration is putting forward.

Mr. Readinger presented plaques to outgoing members, Drs. Stan Albrecht, Cortis Cooper, Fred Grassle, and William Schroeder and thanked each of them for their contribution to MMS's science program for the last 6 years.

Ongoing Issues

Energy. MMS's primary responsibility under the OCS Lands Act is to make resources available.

The law originally dates from 1953, but was amended in 1978 in the midst of the Nation saying more energy is needed and it is an important component for economic growth and energy security. Currently, about 27 percent of both oil and gas in terms of domestic supply come from the OCS. However, if one looks to the future, estimates from geologists are that about 60 percent of the Nation's undiscovered resources lie underneath the ocean. Therefore, the OCS should play an even larger role in the future as some of the onshore supplies are in a declining mode. Although there is about 60 percent, a third of that lies in areas that has been put off limits by both prior administrators and Congress. As part of the new NEP, the MMS has been directed to look closely at how to deliver these resources to the marketplace in a safe way. Mr. Readinger explained that the OCS Policy Committee has been focusing on that issue and a subcommittee has been created that reported there is a need for the OCS to play a larger role in the future. By some estimates, current production level of about 5 trillion cubic feet (tcf) per year needs to grow up to 7 or 8 tcf. In order to meet that demand, the MMS is looking very closely to see if there is anything that can be done by way of incentives or other encouragements.

Currently, roughly 98 percent of the new utilities being constructed are counting on natural gas because of its positive environmental effects. The possibility of Liquid Natural Gas (LNG) terminals where natural gas is being produced in other countries could be converted to liquids and then shipped into the U.S. or hooked into the infrastructure.

Mr. Readinger added that there are a lot of creative ideas being proposed including putting LNG terminals offshore, which is being contemplated, and new legislation is being considered that might be needed. As part of that, the MMS is working very closely with other agencies on that proposition.

In order to meet the need to increase the OCS to that 8 tcf amount, there is a lot of work that will need to be done. There has been an increase in deepwater oil production, but there has also been an increase in natural gas production as well. That amount of natural gas from deepwater has actually helped balance the decline in natural gas production from the shelf areas, so over the last 4 or 5 years, it appears that the decline has been arrested. However, if all that deepwater can do is balance the shelf decline, the U.S. is not going to meet the need to increase the OCS to that 8 tcf amount. The MMS continues to offer incentives to industry for natural gas production in the shallow water at deep horizons. One example of an incentive is that companies are not required to pay royalties for wells drilled below 15,000 feet for the first 20 billion cubic feet of natural gas. For existing leases, the MMS has been working at the staff level to draft regulations that would allow that type of incentive for active leases.

Gulf of Mexico OCS Region. There are roughly 7,500 leases in the Gulf of Mexico: 4,031 platforms and over 6,300 producing wells. In one-year's time, oil from deepwater grew 21 percent and with many new projects approved and about to come on line, there could be a significant, continuous trend.

Extra funds have been received to increase staff and science, and Mr. Readinger thanked the SC for the advice given to MMS and reported that some of the work which the SC advised on is being completed.

Noteworthy is some of the work the MMS had done from the engineering side and the environmental side on the issue of Floating Production, Storage and Offloading (FPSO) systems. Some engineering research has been completed by way of a comparative analysis of what the risks are versus the conventional technology. In January, a decision was published stating that FPSOs will be considered and companies are free to submit plans. Mr. Readinger again thanked the SC for its input regarding FPSOs. He continued that he looks forward to meeting with the Deepwater Subcommittee and encouraged its advice.

Pacific OCS Region. Mr. Readinger said the Pacific is a productive area for hydrocarbons. Approximately one billion barrels of oil have been produced in the Pacific and 1.1 tcf of natural gas over the last 32 years or so. There are currently about 400 million barrels under the existing developed tracks and roughly 43 producing leases. Although there is controversy and opposition to activities in the Pacific and the MMS has some undeveloped areas that are part of the contention or concerns, there is roughly about one billion barrels that are estimated to underlie those leases.

Mr. Readinger announced that the Pacific OCS Region is downsizing due to the lack of activity in the Pacific and asked the SC for advice on some remaining issues that exist.

Alaska OCS Region. Mr. Readinger reported that Northstar, which is a joint federal-state project, has had its first oil production and there is interest in further drilling.

Three sales in the Beaufort Sea are being planned for the next 5-year plan and the National Environmental Policy Act (NEPA) work is underway. Other sales in more frontier areas are planned. One is the Norton and currently there is a call for information to see whether or not there is any interest. In addition, there are two proposed sales in the Chukchi Sea. This area has been offered several times and there has been a significant amount of natural gas discovered. The companies who were drilling there were hoping for oil because of the infrastructure issues and costs would be less. Once natural gas and not oil was discovered, these companies relinquished the leases. Depending on what happens with oil and gas prices, there could be some interest in that area.

There are also two proposed sales in Cook Inlet and the preliminary work has begun.

International. Mr. Readinger stated that the U.S. wants to continue to play a role with information exchange and that if there is a way to produce more safely and there are better international standards, then the MMS wants to enter into those discussions.

There were no questions asked of Mr. Readinger

OCEAN COMMISSION UPDATE

Presentation by Dr. James Coleman

Dr. Coleman explained that the U.S. Commission on Ocean Policy was formed out of the Oceans Act of 2000 and required that the President form a commission consisting of 16 members. The purpose of it was to make recommendations for a coordinated, comprehensive, and long-range

national ocean policy that promotes the following objectives:

- protection of life and property against natural and manmade hazards
- responsible stewardship and use of fishery and other ocean and coastal resources
- protection of the marine environment and prevention of marine pollution
- enhancement of marine-related commerce and transportation, resolution of conflicts among users, and engagement of private sector
- expansion of human knowledge – role of oceans in climate and global change and advancement of education and training
- investment in technologies for use in ocean and coastal activities, including technologies that promote energy and food security
- close cooperation among government agencies and private sector to ensure:
    * coherent and consistent regulations
    * availability and appropriate allocation of resources
    * cost-effective and efficient operation of federal activities
    * enhancement of partnerships with state and local governments
- preservation of role of U.S. as a leader in ocean and coastal activities; cooperation with other nations and international organizations

Dr. Coleman described the disciplines of the 16 members. There are three scientific academic scientists and the remaining members are a wide range, from economists to fisheries people, to lawyers, and Chief Executive Officers of companies. He added that it has been a very interesting Commission because the various levels of understanding the ocean are quite high and it requires that those who testify generally have to bring their message down to a level that is in layman's terms.

Within the Oceans Act, it mandated several aspects that the Commission has to make recommendations to the President and to Congress. The report has to be completed within 18 months after establishment of the Commission and requires the following:

- assessment of existing and planned facilities (human resources, vessels, computers, satellites, and
  other platforms and technologies)
- review of existing and planned activities of Federal entities, including recommendations for changes to improve efficiency and effectiveness and reduce duplication
- review cumulative effect of Federal laws and regulations (identify internal inconsistencies or contradictions and recommend resolutions, consider conflicts with state laws)
- review known and anticipated supply and demand for marine resources
- review relationships between Federal, State, and local governments and private sector
- review opportunities for new products, technologies, or markets
- review previous and ongoing State & Federal efforts to enhance effectiveness and integration
- recommend any modifications to laws, regulations, or administrative structure of Executive agencies needed to improve understanding, management, conservation, and use of resources
- review effectiveness and adequacy of existing Federal interagency coordination mechanisms and recommend changes for improving effectiveness

Dr. Coleman stated that the Commission has a budget of about a $7.5 million, and there is now

an Act before Congress to extend the time period for a few months since it got a late start due to the September events.

He reminded the SC that this is simply a recommendation to the President and Congress and may not be enacted. However, in meeting with the Ocean Caucus, a member indicated that the Caucus would try its best to enhance and do what has been recommended.

The Act called for an Ocean Commission Science Advisory Panel which the Commission selected. There are 26 members on the Panel, which was broken up into working groups in order to distribute the work, and this Panel meets once every month. The working groups formed are:

- research, education, and marine operations,
- stewardship – deals with marine protected areas, oil and gas issues, etc.,
- governance – deals primarily with regulation aspects, and
- investment – deals with appropriations.

Future scheduled meetings of the Commission on Ocean Policy:

- April 17-19 – Los Angeles, California,
- May 13-14 – Honolulu, Hawaii,
- June 12-14 – Seattle Washington,
- July 22-24 – Boston Massachusetts,
- August 21-23 – Anchorage, Alaska, and
- September 23-25 – Chicago, Illinois.

Dr. Coleman then gave a brief background as to what occurs at Commission meetings to give the SC a flavor of its meetings. Members are set up in a panel and people are brought forth to testify. The meeting is planned to try to look at local issues. In addition to the public meetings, there are generally one or two site visits. The reason for the site visits is to go to an area and meet with the general public, some of the agencies, etc., to find out what is going on within that local area.

No questions were asked of Dr. Coleman.

OCS POLICY COMMITTEE REPORT

Presentation by Mr. George Banino

Mr. Banino is the Vice-Chairman of the Policy Committee and Dr. Donald Oltz, who is the state geologist for Alabama, is the Chairman.

One of the responsibilities as the vice-chairman is to serve as the liaison between the Policy Committee and the SC. He explained that he has been with the Policy Committee for about 10 years and has noticed over the last 2 or 3 years a concerted effort to try to get more interaction between the two Committees.

There have been fruitful efforts in terms of trying to organize each of the Committees' activities towards some of the same goals. One example is the pending establishment of a Hard Minerals Subcommittee within the SC. There has been a Hard Minerals Subcommittee of the Policy

Committee for about 4 or 5 years that has done some very good things in support of the programs within MMS.

Mr. Banino gave a summary of what was accomplished at the last Policy Committee meeting, where it is going, and what it will be doing at the next meeting.

The Policy Committee met on October 31 and November 1 of last year in San Diego, California. Its next meeting will be held May 21 and 22, 2002, in Herndon, Virginia. The following is a summary of the Policy Committee.

Natural Gas Subcommittee. A Natural Gas Subcommittee had previously been established to consider some of the policy issues regarding the development of OCS natural gas and a report from the Subcommittee was submitted to the Policy Committee, which was accepted and approved. The report was then submitted to the Secretary for consideration. Following that submittal, comments were received from the Secretary and those comments were considered at the meeting in San Diego, California.

There were twelve recommendations and the Secretary commented on each of those recommendations. In particular, one addressed congressional funding for additional education and outreach regarding the leasing program. The Secretary said that the DOI is interested in working with the Policy Committee on developing education and outreach and charged MMS with working with the Policy Committee regarding this specific initiative. As part of this charge, Chairman Oltz, together with MMS, established an Education and Outreach Subcommittee. Mr. Bruce Vild, who is from Rhode Island, chairs that Subcommittee. It has a number of members, including a representative from the Department of Transportation and also Dr. Denise Stevenson-Hawk, who is a member of the SC. That Subcommittee had its initial meeting on February 20, 2002, in Washington, D.C., and will meet again on May 20, 2002, in Herndon, Virginia.

Accessing Moratoria OCS lands. A number of state representatives were invited to talk from the state perspective. A very quick summary of that is that politically there was very little support to develop offshore natural gas on these moratoria states. Alternatively, there was a great deal of interest in continuing the concern about development. Each state basically came down to the same conclusion, that currently there is no political interest in developing offshore. The Secretary of the DOI, through her communication, stated that the administration supported the current withdrawals on congressional moratoria. However, in view of the Nation's long-term energy needs, if any state or local official who had an interest in discussing energy and environmental balance issues, she and the DOI would consider entering into discussions and looked forward to whatever assistance the Policy Committee could provide.

Recommendations. There were some recommendations regarding the United Nations Convention on the Law of the Sea and the Secretary stated that she had forwarded the advice of the Policy Committee on to the State Department and Department of Defense.

There was a recommendation regarding coastal impact assistance. The Secretary in her comments pointed out that the issues raised, both policy and financial questions, needed further

analysis.

Presentations and Discussions. Presentations given to the Policy Committee dealt with the 5-year oil and gas leasing plan, the demand for oil and gas supply, and an update on the present situation. There was discussion of the long-term outlook on world oil supply, demand, and pricing.

As mentioned earlier, there has been increasing interest in LNG. There were a couple of presentations regarding this topic.

- The re-emergence of LNG
- Alternative ways of getting natural gas to the consumer
- Reactivation of LNG facilities
- Specific interests and applications that have been submitted to MMS regarding activation of some of these LNG facilities

Another topic of discussion was energy-related uses of the OCS. There has been discussion about putting LNG facilities offshore and even the possibility of platforms to supply medical supplies and equipment to some of these offshore facilities rather than coming back on land constantly for these frequently needed materials.

The Policy Committee discussed new technology and advances to improve the protection of the environment. Over the past 30 years there have been tremendous improvements in the technologies and great efficiencies to production, all of which are helping in terms of reducing the environmental impact.

There was a presentation on ocean and coastal policy initiatives similar to what had been presented to the SC on the status of the Ocean Commission.

Subcommittee Reports. There is one standing subcommittee, which is the Hard Minerals Subcommittee, and there are two current subcommittees. One is the Natural Gas Subcommittee, and then a newly-established Education and Outreach Subcommittee.

The **Natural Gas Subcommittee** has submitted its report, and the Policy Committee is going to decide whether or not to continue with this Subcommittee or dissolve it since it has completed its mission with the various aspects being taken up by other subcommittees such as the Education and Outreach Subcommittee.

In regards to the **Hard Minerals Subcommittee**, New Jersey has an active beach nourishment program, and it is also the only state where there is active commercial mining of sand and gravel from the marine environment, although the mining is in state waters.
In the last 6 months MMS has conveyed 1.8 million cubic yards of offshore sand to the National Park Service for Assateaque Island in Virginia, and an additional hundred thousand cubic yards of sand to the State of Maryland adjacent to Assateaque. There are requests pending from the State of Virginia, the U.S. Navy, and the City of Virginia Beach. The Corps of Engineers is doing some of the work that is being done in the Virginia Beach area.

The **Education and Outreach Subcommittee** is comprised of nine members from the coastal states, the environmental community, fishing industry, the oil and gas industry, the Department of Energy (DOE), and an environmental science and education consultant. This Subcommittee met on
February 2, 2002, and addressed three basic questions:

- what is its message going to be,
- who will its audience be, and
- how will it execute recommenced programs that it creates.

The Subcommittee agreed that it should approach the OCS oil and gas issues as energy issues instead of ocean resource issues. It also agreed that a desired result would be more open-mindedness on the issue that could lead to a real dialogue between contending parties. There is some support for decoupling natural gas from oil and focusing education and outreach efforts on OCS natural gas. This was done because there are any number of areas where there could be potential development that are really gas-prone areas rather than oil-prone areas, and there are different issues and different concerns involved. As a result of that first meeting, there were 20 recommendations developed for consideration. These will be combined, where appropriate, under the three main headings and will be furthered considered when the Policy Committee meets on May 20th.

<u>MMS's Environmental Studies Program (ESP)</u>

- MMS has just completed a study and final report entitled, "The Examination of Regional Management Strategies for Federal Offshore Borrow Areas Along the United States East and Gulf Coasts."
- MMS will soon be funding an environmental investigation of the use of shoals off the State of Maryland which will relate to work in the future with the National Marine Fisheries Service (NMFS) on a question of essential fish habitat (EFH).
- The Sand and Gravel Program is a very active program and there are a lot of requests and a great deal of interest. Most of the state representatives in attendance showed a primary interest in the Sand and Gravel Program since there is no oil and gas activity off their coasts because of moratoria.

<u>Next OCS Policy Committee Meeting.</u> An agenda for the upcoming meeting in May has been prepared and Mr. Banino gave the SC a sense of where the Policy Committee is going and what it is considering.

Topics for the next meeting are:

- a review of DOI's strategic plan which will provide an overview of the strategic plan and insights into the process that MMS is undertaking to develop a strategic plan that aligns with its strategic direction,
- an Education and Outreach Subcommittee report,
- an update on the results of today's meeting and that will highlight the activities that are related to mercury energy issue concerns, ocean issues, hard mineral activities, and any other topics that are covered during this meeting,
- an update from the Hard Minerals Subcommittee,
- a presentation on biological monitoring which is a program that has been developed based on

beach nourishment operations, and this presentation will address the $8 million multi-year monitoring study that was recently completed by the U.S. Army Corps of Engineers,
- a presentation on geographical information systems as they apply to sand and gravel resources development and to some oil and gas activities as well,
- a presentation and continued discussion that will address possible use of OCS facilities for hydrogen production and alternative energy schemes,
- an update on congressional and legislative activities and what is occurring on up on the Hill that affects MMS's programs,
- a discussion of recent bankruptcies and the potential impact on MMS and MMS OCS activities,
- an update on changes in natural gas drilling, what the level of activity is, and the current supply and demand situation looks like,
- a discussion of Eastern Gulf sales, particularly Lease Sale 181 and 189, and what the results of that sale,
- a panel discussion on state issues,
- a presentation on mercury and drilling muds which will address the studies regarding environmental research related to mercury in drilling muds in drilling operations and the regulatory framework for permitting these discharges in the OCS, and
- the MMS Regional Updates where each of the regional directors will give an update on OCS activities in each area.

Open Discussion

Dr. Coleman asked whether or not the Policy Committee has ever looked at the regulations that deal with biotech possibilities (pharmaceutical) in OCS lands. Mr. Banino replied that he does not believe it has been brought before the Policy Committee as an issue.

Dr. Cooper asked whether or not the Policy Committee has ever considered looking at renewable energy generation such as wind energy and wind power. Mr. Banino responded that some consideration to alternative energy uses of the OCS has been given and, during the last Policy Committee meeting, a presentation had been given that lightly addressed this issue. He feels it will be addressed again at the next meeting, and in particular, there has been some discussion about developing offshore wind farms and what the impact of those might be. He added that he believes there is a proposal before MMS regarding this subject. So, although there has not been any real consideration or deliberation, there has been some information presented to the Policy Committee. He added that if the SC feels in some of these areas that there is a policy issue that needs to be considered or addressed, the Policy Committee wants to hear about it.

REPORT ON THE GULF OF MEXICO REGION INFORMATION TRANSFER MEETING (ITM) ON SAND AND GRAVEL STUDIES

Presentation by Mr. Barry Drucker

Mr. Drucker mentioned that he and Drs. Bob Diaz and Chuck Marek worked together on the presentation for the Gulf of Mexico Region ITM. The Sand and Gravel Program is a very active one and once the State of Louisiana signs a lease for the use of 4.2 million cubic yards of sand to restore a beach at Holly Beach, Louisiana, the MMS will have given leases for over 17 million

cubic yards of sand.

The purpose of the ITM sand and gravel sessions was to provide details and results of several major and recently completed MMS-funded environmental studies, to get feedback from the session audience, and have presenters who had done studies for other agencies, most notably the Army Corps of Engineers, on some of the major work.

In addition, there was also an excellent presentation from the Army Corps' New Orleans District Office on Louisiana's shoreline restoration projects. The Holly Beach project is a part of the Coastal Wetlands Planning Protection and Restoration Act; therefore, it is the first major project in Louisiana for the coastal restoration that is using federal sand.

The MMS has an environmental mandate to ensure that proposed sand and gravel activities do not result in adverse environmental impacts in marine environment, which is what drives the environmental studies for this program. Mr. Drucker explained that since 1991, $7 million has been expended to study offshore sand and gravel dredging effects.

There were site-specific study presentations from Louisiana, Alabama, New Jersey, North Carolina, Maryland, and Delaware. The site-specific studies have a two-fold approach: 1) Provide basic information on infauna and apifaunal character of identified sand borrow areas. Those areas included areas that have been identified as potential areas that have compatible sand for beach nourishment projects which is where MMS concentrates on gathering biological information. 2) Numerical wave modeling results relative to the potential physical effects of a typical beach dredging project occurring within identified borrow areas.

Generic studies, which provide information on the effects of particular types of dredging operations on various aspects of the physical, chemical, and biological environments and mitigation or monitoring techniques to examine, alleviate, or prevent adverse environmental impacts, were also presented. This type of information can be applied in all areas where sand and gravel operations are/may take place. A lot of studies have been funded by the MMS in the U.K. with the realization that sometime in the future the OCS might be a source of construction aggregate. The U.K. has an active offshore aggregate dredging industry that looks at effects of dredge plumes and the effects that these plumes have on benthic organisms.

Presentations were also given on development of monitoring protocols that looked at the long-term effects of dredging, whether or not it is feasible to go to a regional management approach of managing these OCS areas, a biological monitoring study off the northern New Jersey coast, and Louisiana’s coastal restoration efforts. Mr. Drucker stated that there is an Environmental Impact Statement (EIS) that reviews the entire realm of coastal restoration projects in the Barataria Basin. One option being the use of ship shoal off Louisiana as a major source of sand. The MMS, as a cooperating agency, is covering all the portions of that EIS that deals with the effects of extracting sand from ship shoal.

Mr. Drucker mentioned that a special issue of the *Journal of Coastal Research* to be published late in 2002 will be dedicated to the MMS Sand and Gravel Program.

Information derived from the generic and site-specific studies will provide a foundation that can be used to make sound environmental decisions relative to marine mineral development, to evaluate the effects of specific proposed dredging operations as required under current environmental laws and legislation, and the results will be incorporated in lease requirements/stipulations for the dredging of OCS sand.

The following are data gaps that completed sand and gravel studies have determined.

- Long-term effects of dredging and effects of multiple dredging evens on biological and physical environment are largely unknown
- Need to concentrate heavily on studying biology and physiography of shoal areas since this is where the action is
- Need to examine ways in which operations can be engineered/structured so as to avoid/lessen impacts on the biological and physical environment with specific areas of ridge and shoal features

The MMS has a plan to address these data gaps/issues. A Monitoring Design/Protocols Report, which was completed in October 2001, provides detailed specifications for biological/physical protocols, estimated costs, and parameters/measurements to evaluate long-term impacts of dredging and allows for modification/implementation of appropriate levels for specific areas. This report gives a foundation on what types of data should be collected, how it should be evaluated, and how it should be used to make decisions on looking at long-term use, especially of the shoal areas.

The next phase of this plan is the testing of these monitoring protocols. The MMS has signed a cooperative agreement with the Virginia Institute of Marine Science to conduct a review and analysis of the protocol report and to field test many of the recommended protocols.

What the completed and ongoing studies are showing is that there are different biological species, fish, and otherwise, that do inhabit very specific areas of ridge and shoal features, and that there is the possibility that if these areas are disturbed, one or more of these species may be adversely affected. Therefore, there may be areas in the shoal and ridge features that should not be dredged, or at least not be dredged on a long-term basis. This is trying to be determined now, especially with the requirements for EFH and the consultations entered into with the NMFS. The NMFS defines almost everything as EFH, but decisions should be based on detailed information specific to the ridge and shoal features. Mr. Drucker informed the SC that the MMS is working closely with the Army Corps, the NMFS, and the Fish and Wildlife Service in developing the statement of work for a planned finfish study offshore Maryland/Delaware and in evaluating the technical proposals.
Mr. Drucker continued that for Fiscal Years 2003, 2004, and beyond, the MMS is going to continue to evaluate and define the resident habitats and the physical conditions within these shoal areas and the effects of dredging these shoals, both on a short-term basis and a long-term basis, and to examine engineering methods and mitigation to avoid adverse impacts.

Open Discussion

Dr. Coleman asked if the MMS has official procedures, environmental studies requirements,

regulations, etc., for private leasing of offshore minerals. Mr. Drucker responded that there are three regulations which are prospecting, leasing, and development that are used with competitive leasing.

FORMATION OF SAND AND GRAVEL SUBCOMMITTEE

Drs. Marek, Diaz, and Duane Gill were named members of the Sand and Gravel Subcommittee.

MERCURY IN THE MARINE ENVIRONMENT

Presentation by Dr. Jerry Neff

Dr. Neff explained that the issue of mercury associated with offshore oil and gas activities surfaced late last year and early this year. The American Petroleum Institute (API) asked Dr. Neff to write a white paper that basically evaluated all the available information about mercury around offshore oil and gas operations. Although API is not releasing it yet, it is under review and should be available to the public shortly.

He reported that this is a complex problem because mercury comes from a variety of different sources. It is actually present everywhere in the environment at trace concentrations and so in deciding if offshore platforms are a source of mercury, one has to disentangle all the different potential sources. It is felt that most of mercury enters the oceans from the atmosphere.

Dr. Neff presented a slide from the Environmental Protection Agency's (EPA) report to Congress that showed the deposition patterns of mercury from the atmosphere. Part of the mercury is natural, but some of it comes from human activities. The most important of these are coal combustion and waste incineration since they emit mercury into the atmosphere, which is converted to various inorganic forms, and then falls on the ocean in precipitation.

He remarked that the average deposition rate is 20 micrograms per square meter per year which is a lot of mercury coming out of the air and has to be considered in any budget of sources and dynamics of mercury in the environment.

Another important source, especially for the Gulf of Mexico, is river runoff and runoff from land. The U.S. Geological Survey (USGS) has collected recent data on concentrations of mercury in solution and associated with suspended and deposited sediment particle. It has been determined that perhaps 21 tons per year of mercury enters the Gulf of Mexico from the Mississippi River flow and the other 15 percent of water flow from rivers contributes a proportionate amount.

The report to Congress from the EPA highlights a mercury cycle that shows that 2,000 tons of mercury is deposited from the atmosphere into the ocean each year and an equal amount evaporates out of the ocean into the atmosphere again, recycling. A lot of mercury, too, comes from anthropogenic human activities and natural sources on land that goes into the ocean, so it is a very complex cycle of mercury.

Mercury associated with drilling and mud cuttings (chips of natural rock being generated by the

drill bed as it drills through the ground), and produced water, which are the two types of permitted discharges that contain traces of mercury, were reviewed. There was about 340 pounds of mercury discharged into the ocean in 2001 from drilling fluids and drill cuttings, and an additional 3.6 kilograms, or 8 pounds, discharged in produced water. This is based on a compilation of all the available literature on the concentration of mercury in drilling muds actually discharged to the ocean, and on the concentrations of mercury in produced water, and also a bit of data that is available on mercury concentrations in cuttings.

He continued that the mercury in drilling muds itself is mostly associated with barium sulfate, which is a natural mineral and is used as a weighting agent. It has a density of about 4.5 so it makes the drilling mud heavier countering pressures in the formation and preventing a blowout. Therefore, it is essential to the drilling operation. Current EPA regulations require that any barite used in offshore drilling muds and destined for ocean disposal has to contain less than one part per million mercury. Generally, all the recent analysis shows that the industry is able to comply with that regulation, and the latest average is about .5 parts per million.

Mercury concentrations in produced water usually are low, about $36x10^9$ liters of treated produced water is discharged, and that gives a value of about 3.6 kilograms of mercury in produced water.

Modern analysis generally put the mercury about .1 parts per billion in produced water although occasionally there may be higher values.

Dr. Neff showed a number of slides pertaining to test results of mercury levels from offshore platforms in the Gulf of Mexico. The Gulf of Mexico Offshore Monitoring Experiment (GOOMEX), the Alabama Lease 132, and the Synthetic Base studies all showed low levels; the Deepwater Study, older Texas and Louisiana OCS studies, and California OCS studies, showed very low levels as did the Gulf of Mexico Synthetic Based Fluids study.

He summarized this part of his presentation that the overall picture is that there are a lot of platforms that have been looked at and sediments generally have very low essentially background concentrations of mercury, with a few exceptions and only one where there was more than one part per million mercury, so basically ten times background.

Is mercury associated with barite in a form that could be leached out and become available to animals and be toxic? Dr. Neff explained that back in the 1980s, he performed some laboratory studies that exposed animals to barite and drilling mud layered on the sediments. No bioaccumulation was found. Dr. John Trefry at the Florida Institute of Technology actually tried to leach the barite with various acid leaches to mobilize different fractions. Even with strong acid or aqua regia, which basically destroys the entire mineral matrix, there is hardly any mercury leaching out. What this says is that even if an animal ingested this barite, the acid in its gut would not release it; there is no way that the animal can get hold of this mercury and basically assimilate it into its tissue. It can pass it through the gut, but it passes out the other end and is not assimilated at all.

He continued that the important aspect of mercury in the environment is not the inorganic

mercury that has been presented thus far, but the methylmercury. This is a toxic form that causes the neurological problems like Minamata disease and so forth.

Dr. Neff explained that there have been a lot of studies on mercury methylation which is the formation of methylmercury from inorganic mercury. This is a complex cycle and occurs in sediments or in anoxic water masses like the oxygen minimum layer in the ocean or in basin water where the oxygen is very low, or in layers of sediment where there is very low oxygen. There has to be some sulfide and the mercury can react with sulfide to form a soluble salt that then can be methylated by sulfate-reducing bacteria, a reaction that is used as a source of energy to convert carbohydrates, and so forth, to energy source. However, the sulfide inhibits that process by forming mercuric sulfide cinnabar, which is extremely insoluble. Therefore, it occurs at a very narrow range of conditions in sediments. Then, too, some of the methylmercury may be converted further to dimethylmercury, which is insoluble and very volatile so it comes out of the sediments and evaporates into the air where it is oxidized back to inorganic mercury. But most of the mercury that enters sediments is precipitated as mercuric sulfide, and so in deep layers of sediment there is mercury, but it is all in the sulfide form meaning it is completely insoluble.

Methylmercury can be bioaccumulated by marine animals and plants and is more persistent in the tissues since it is retained better. The inorganic mercury is quickly released back again, and so, methylmercury can build up in the food chain to higher concentrations at higher tropic levels. As one creature eats another, he accumulates the methylmercury and puts it in his muscle tissue, and so forth, on up. Whereas, the inorganic mercury does not do that; it builds down, actually, because it is excreted so quickly.

Do marine animals in the vicinity of offshore platforms contain higher concentrations of mercury than the same species from elsewhere? The answer, obtained from a tremendous amount of data, is generally no, they don't.

Dr. Neff explained the comparison studies done in the Gulf of Mexico Region with those done in the South Atlantic and the Pacific Oceans.

One of the concerns was with shrimp near offshore platforms. In the U.S., mainly penaeid shrimp is consumed – the brown shrimp, pink shrimp, white shrimp, etc. Dr. Neff had studied all of the penaeid shrimp data for the three platforms in the GOOMEX study and then the area-wide values for the Gulf of Mexico from a report done for EPA by Battelle in 2000. When comparing the panaeid shrimp found in the Gulf of Mexico with that of other areas, there is very little variation of levels. One species of shrimp that Dr. Paul Montagna introduced in his presentation were some species of shrimp collected that could not be identified that had higher mercury levels. But basically for the edible shrimp, there is no difference between platform and non-platform areas. Another concern was the king mackerel. The mercury data for king mackerel that has been reviewed showed a relationship between the size, the length of the animal, and the amount of mercury, i.e., as the animal gets larger, he collects more and more mercury in his muscle tissue. This pattern is similar in the south Atlantic where there are no platforms, as in the Gulf of Mexico where there are platforms.

Dr. Neff summed up his presentation by stating that permitted drilling and production waste containing about 190 kilograms, about 400 pounds, of mercury are discharged to the Gulf of Mexico each year. This represents .8 percent of the mercury discharged in the water of the Mississippi River. The mercury in drilling waste is tightly bound to barite and has very low solubility and bioavailability. Mercury concentrations in sediments near platforms are nearly all well below the effects range median concentration and pose no risk to bottom living marine animals. Mercury concentrations in edible fish, finfish and shellfish, are similar to those of species collected elsewhere in the Gulf of Mexico, and most concentrations in edible tissues are below the Food and Drug Administration and EPA action levels. Finally, mercury in marine fish and shellfish in the Gulf of Mexico does not come from offshore platforms.

GOOMEX: EXPERIMENTAL DESIGN AND WHAT THE DATA MEAN

Presentation by Dr. Paul Montagna

Dr. Montagna explained that the three goals of GOOMEX were to:

- Identify chronic, sublethal effects of offshore oil and gas production activities
- Relate effects to a contamination gradient
- Recommend monitoring strategies

Dr. Montagna stated that one should never use a scientific study that was designed for one purpose to make conclusions or decisions for another purpose. He did agree with Dr. Neff's statement that there is a little bit higher concentration of mercury within 50-100 meters of platforms when compared to natural background. There is no evidence that there is any higher levels of metals in fish tissue or most tissues in marine organisms near/far from platforms.

Dr. Montagna described in detail what was involved with the GOOMEX study. For sediments; three platforms, five distances, four sampling periods, and three replicates; for a total of 900 sediment samples. Sediment chemistry, geology, and infaunal responses were measured. For tissues; three platforms, two distances (near and far), four sampling periods, three trawls. A total of 72 trawl samples were looked at from these platforms. Fish and large, mobile invertebrate responses were measured. Biological responses at the molecular, cellular, individual, population, and community level were studied for both sediment and trawl samples.

In summary, he concluded the following:

- Responses are within 100 meters of platforms.
- Responses are consistent across platforms only with meiofauna.
- Meiofauna may indicate local spatial scale of effects because of life history.
- Reef effects may be confounded with platform effects for community interactions.

The tissue metal analyses goal was to determine toxic responses, not potential for human effects. The tissues measured included whole invertebrates, less hepatopancreas and stomach (shrimp, crabs, etc.), fish liver (not flesh), and fish stomach contents.

There were 797 samples taken from among 37 species and not all species were present everywhere, so there was not a complete block design. Also, there was no difference if analyzed by platform. The overall average finding were:

- Near = 409 ng/g, n=426

- Far = 532 ng/g, n=370

In summary, the tissue data test results were:
- No evidence of elevated tissue levels near platforms when analyzing whole data set,
- No evidence of fish tissues elevated when analyzing taxa groupings, but shrimp is different, and
- Highest tissue levels were found at High Island-A389 when analyzing taxa groupings.

The overall conclusions of Dr. Montagna's presentation were:
- small elevation of contaminants is found within 50-100 meters from platforms, but little evidence that it departs from background variability,
- bottom shunting causes much higher sediment contamination just to the level where biological effects may occur,
- differences among platforms are greater than differences with distance from platforms, and
- only shrimp, a bottom feeder, may be accumulating metals near the platforms.

Dr. Montagna clarified that methylmercury was not measured nor were game fish, and GOOMEX was not designed to measure accumulation. It was designed to measure and analyze detoxification pathways, so focus was not on the species but only on a number of trolls and acquiring results that were related to detoxification studies.

He stated that to conduct a thorough study, one would need to monitor the food web. The reality is that mercury gets in fish by a food web biomagnification pathway and methylmercury must be looked at directly.

DIRECTOR'S PRESENTATION

Presentation by Ms. Johnnie Burton

Ms. Burton described her experience in the oil and gas industry in various capacities including the building of databases consisting of drilling information and being vice president of a small exploration company.

She stated that she feels MMS has a very important role to play in the production of energy and thinks the implementation of the President's energy policy will require some real work and focus on what needs to be done.

She reported that the U.S. consumes a lot of energy and sometimes is often criticized for it. However, Ms. Burton asked that everyone keep in mind that the energy used produces an enormous array of goods and services that are used not only by U.S. citizens and the economy, but also by a lot of people around the world.

In order to decrease the usage of energy, one must conserve. The U.S. consumes a lot more than is produced and that is the problem. She added that it is not only an economic problem but it is a very dangerous problem for the security of our country and a new strategy needs to be created that will essentially meld better conservation measures, more exploration, and more production.

The MMS is a key bureau for the production of energy offshore since it is charged with managing all the submerged lands and supervising the drilling and the production, although it is limited by the fact that Congress tells how much and where these leases can be.

The President's NEP has provisions to increase energy production while protecting the environment. More energy needs to be produced but not at the expense of the environment. New technologies and a better understanding of the various ecosystems will allow the U.S. to produce energy with minimal impact to the environment. The MMS is charged with constantly monitoring those new technologies, the safety of the work that is being done offshore, and the safety of the environment.

Ms. Burton reported that from 1985 to the 2000, the OCS has produced six billion barrels of oil. There were less than one one-thousands of a percent of spill when those six billion barrels were produced on the OCS, the record of industry is quite good, and the MMS played a role in monitoring and working with industry to achieve that kind of result.

She announced that MMS recently issued a record of decision to allow FPSOs. She added that this is not a blanket agreement of these systems, but it is a recognition that these systems are about as safe as any other storage and production system and those applications will be reviewed on a project-by-project basis.

More effort has also been given to create some incentive for more drilling in the real deep water. The Deep Water Royalty Relief has obviously encouraged companies to invest in those areas and renewed interest has been seen in real deep water drilling.

Some relief is also being offered in shallower water for deep gas and it is hoped that this will spur more exploration and more development.

The MMS recognizes that the production, particularly of oil, is decreasing rather steeply, and the demand is increasing and the same goes for gas. Gas is pretty flat in terms of production, but the demand is definitely increasing.

The SC's advice is crucial to the MMS because it is helping to anticipate and address the environmental issues that are going to be very important in years to come. Ms. Burton said that she had heard a lot about the work the SC has done and she is very pleased with the advice the SC has offered on a lot of issues.

She quoted a statement that Secretary Gale Norton tends to use - "A healthy community is dependent on three principles. A healthy population, a healthy economy, and a healthy environment, " and when any one of those is out of balance, the community's health suffers. The MMS is trying to follow this principle by making sure that it has all of those things in balance although it is not always easy, but Ms. Burton is convinced that it can be done and that MMS is focused on this issue.

As a result of public concern, for example, the Mercury Subcommittee was formed. This is an issue that is very important and it is critical that answers are reliable, credible, and scientifically

supported. The MMS must lie to rest the fear that drilling and producing in the Gulf of Mexico, or anywhere offshore, is actually putting the fish population at risk and the human population that eats the fish.

The Sand and Gravel Subcommittee that was formed during this meeting to address the special environmental needs that are associated with these activities will be very beneficial as the MMS becomes more involved in this area.

Ms. Burton welcomed the six new members attending the meeting and thanked the retiring members. She added that she is familiar with the role the SC plays since she had served on the Royal Policy Committee for MMS and stated that it is a very important part that advisory committees play in consultation with the MMS and the MMS is very appreciative of the SC.

Dr. Schroeder thanked Ms. Burton and related that the SC has always had a wonderful working relationship with the Directors and Associate Directors and it certainly looks forward to that continued relationship with her.

Open Discussion

Dr. Coleman asked Ms. Burton, in regards to the future of energy demand and supply and that frozen hydrates have a potential, if she believes the MMS, particularly from the engineering component, will concentrate more in greater and more intense studies. He added that he knows that the DOE has taken the lead, and yet, as a regulatory agency, that resource belongs to the Nation but is under MMS control for regulation. Ms. Burton replied that although she had been appointed only 4 weeks ago as Director, she is aware of the frozen hydrates issue and has been briefed on its potential. The MMS is very interested in that and, yes, it will be looking at that very seriously. She asked Mr. Bob LaBelle to add to her response. Mr. LaBelle reported that the MMS is actively working on this and that the MMS is part of a joint industry project being headed by Chevron. It is a very well-funded project to characterize natural gas hydrates and learn how to safely produce them. The MMS is also going to be working closely with the USGS in the resource assessment phase of gas hydrates as a producible resource, and the ESP is looking at hydrates in relation to chemosynthetic communities. It is an exciting field and the Agency is starting to position itself to become a major player since it will be responsible when production comes on line.

NMFS REGULATIONS/EXPLOSIVE REMOVAL

Presentation by Ms. Judy Wilson

Ms. Wilson's presentation focused on the nexus between operations and the regulatory environment, environmental assessment (EA), and environmental studies, and how they all come together in the kind of work that she is involved in for MMS.

In the Gulf of Mexico, there are 28 species of cetaceans. Unless there is specific authorization, under the Marine Mammal Protection Act (MMPA) and the Endangered Species Act (ESA), there is no allowable take of marine mammals, whether by lethal or non-lethal means, within the Gulf of Mexico.

The take of marine mammals under the ESA cannot be authorized unless incidental take is authorized under the MMPA. The entire authorized take is based on a cumulative total of all actions that are occurring that may impact the sea turtles or marine mammals.

There are also five species of sea turtles in the Gulf of Mexico that are protected under the ESA. Incidental take of sea turtles associated with explosive removal of offshore structures in the Gulf of Mexico is permissible provided that mitigation measures under the ESA Biological Opinion are followed.

Ms. Wilson gave a brief history on the removal of offshore structures using explosives. In 1988, NMFS, what is now the National Oceanic Atmospheric Administration (NOAA) Fisheries, issued a generic biological opinion covering the incidental take of sea turtles during explosive removal of offshore structures. The parameters of the opinion are the use of high velocity explosives, staggered charges, charges have to be set at a minimum of five feet below the mudline, and cannot exceed 50 pounds per detonation. The opinion provides for a low level of incidental take of one endangered or ten threatened turtles, which are cumulative take. It also sets a 48-hour observer program that is run by the NMFS, or now, NOAA Fisheries. In 1989, the API petitioned NMFS under the MMPA for regulations to take dolphins during explosive removals of offshore structures (EROS). The following year the National Academy of Sciences report came out, *Decline of Sea Turtles*, and that report estimated that turtle mortality due to structure removals was two percent of the mortality due to shrimp trawling. In 1993, MMS reinitiated the consultation with NMFS on platform removals, and that consultation is still to be concluded. The initial opinion was issued as a means to streamline and make more efficient the work necessary to allow for removals under the ESA.

In 1995, NMFS issued Incidental Take Regulations for bottlenose and spotted dolphins under the MMPA, which was 6 years after API petitioned for the regulations. The reason it took so long to get the regulations promulgated was that NMFS had to prepare a NEPA document, an EA, because issuing regulations is covered under NEPA, and it took quite a while to get that analysis completed.

The Incidental Take Regulations had mitigations that were similar to those for the ESA Biological Opinion for Sea Turtles and it also added a new requirement to conduct an additional post-detonation survey. In 1997, MMS sponsored an international workshop on Offshore Lease Abandonment and Platform Disposal. During that workshop it was decided to rename "abandonment" and "disposal" to "decommissioning". Therefore, the new title when dealing with platform decommissioning is EROS.

One important recommendation that resulted from the workshop was that the NMFS and MMS should maintain the procedures in the marine mammal and sea turtle observer program, including the ban on nighttime detonations, and the required period of observation was shortened from 48 hours to 24 hours prior to detonation.

Subpart M regulations governing the take of dolphins expired in November 2000. Regulations under the MMPA may not exceed 5 years. Therefore, during 2000 and 2001, NOAA Fisheries

informed all potential applicants for a Letter of Authorization that none could be issued since there were no regulations in effect. However, as an interim measure they advised all removal operators to follow 1988 ESA guidelines for sea turtles.

The take to date, from 1987 to the present, is four loggerhead sea turtles: one killed; 1 stunned but recovered sufficiently to avoid capture; and two injured, recovered, rehabilitated, and later released. No marine mammals have been observed to be killed or injured during the same period. This indicates better detection of marine mammals versus sea turtles within the impact zone shortly before explosives were detonated.

Since the expiration of the regulations, the MMS has been involved with developing an action plan that will define the kinds of studies that are necessary. Meetings have been held with the Offshore Operators Committee (OOC), the National Ocean Industries Association, and API. The MMS has also held several meetings between with NOAA Fisheries. The MMS Gulf of Mexico Region issued a Notice to Leasees and Operators (NTL) regarding removal of structures. The MMS also committed to petition the NOAA Fisheries for new Subpart M regulations in conjunction with the ESA Section 7 Consultation. The information that is prepared for the petition will be similar to that which is required for the Section 7 Consultation. Those will be done simultaneously and will have a corresponding set of mitigation measures. The MMS will also prepare the programmatic EA to support the rulemaking.

The NTL that the Gulf of Mexico Region issued changed the policy for well casings and stubs. It informs operators of Federal requirements for protecting endangered and threatened species and marine mammals, and modifies information to include structure removal applications.

For 2002, action on EROS include the following:
- January – an EA initial draft outline was prepared
- API meets with the Department of Commerce and NMFS to proceed with 1 year interim regulations
- Gulf of Mexico OCS Region will sponsor two EROS sessions
- MMS convenes industry/government working group meeting on EROS

The requirements of the petition from MMS to NMSF are:
- a description and duration of activities
- status and distribution of marine mammals
- anticipated impacts
- monitoring and reporting to verify negligible impact

New criteria have been established by NMFS for what is take. The dual criteria are 182-dB and 12 per square inch peak pressure, which were established in *Churchill* EIS and rulemaking.

As an example, Ms. Wilson presented a slide that showed the safe range based on the amount of explosives and where the peak pressure, based on 12 pounds per square inch, occurred.

The petition will differ from the former regulations, it will cover all water depths and all marine mammals. Currently the regulations that are proposed and the ones that expired just covered the

spotted and bottlenose dolphins in 200 meters and less of water depth. The MMS is proposing a tiered approach in the regulations where there may be different kinds of observation requirements pre- and post-survey for sea turtles and cetaceans at different water depths for different levels of explosives. It is hoped that this approach would encourage industry to start focusing on technologies using the smaller shaped charges that have not been used much since using the larger explosives in deeper water depths will cause more onerous mitigation and monitoring requirements.

A short-term forecast platform removal model was presented during the ITM that indicated what occurred in the last 5 years, and from that, a prediction is made as to what is expected over the next 5 years. This model did not take into account any platforms or structures that would be added to the OCS because it is a short-term-forecast. Basically, there are about 100 structures or 80 percent of the structure removals a year in water depths of 200 meters or less.

Suggested improvements for future monitoring include the following:

- The requirement to begin monitoring 48 hours prior to detonation of explosives can be reduced to 24 hours without any negative impact to protected species.
- In deep water areas where whales may occur, pre-detonation, passive acoustic monitoring may enable detection of marine mammals within the impact zone. This procedure may also be a useful option in shallow water areas when sporadic dolphin sightings sometimes cause extensive blast delays.
- Duration of aerial surveys conducted at deepwater sites should be increased so survey times are longer than the dive duration of whales.
- Further research to identify active acoustic signals that can move marine mammals out of the impact zone; however, sea turtles are far less dependent on sound than marine mammals, so acoustic solutions to move sea turtles from the impact zone are highly unlikely.

Information needs identified were:

- Information search and synthesis type studies need to completed and submitted to NOAA Fisheries. In the immediate near-term to get this petition completed and submitted to NOAA

  Fisheries, there are three studies in particular that the Gulf of Mexico OCS Region is going to be putting out for a Request for Proposal:
  1. A synthesis of non-explosive removal technologies,
  2. Impact zone equations to model near-field and far-field mid-water energy flux and peak pressure, and
  3. physical impacts, thresholds for cetaceans and turtles.

The results of third study can be fed into the second one.

- The pressure wave/acoustic properties (PWAP) which is more of a long-term study that will identify the actual pressure waves and acoustic properties of explosives that are set in pipe or submerged. Everything that is currently being done is based on open water detonations and the majority of what the offshore industry does in removing platforms is to clear the mud out of a piling and sink the explosive in there and then detonate it.
- The safe range for sea turtles using cadavers. This work is underway and the MMS may be able

to partake in sponsoring some of that.
- The Gulf of Mexico OCS Region is planning an EROS workshop following the conclusion of the PWAP study.
- Data collection by MMS and NMFS on mitigation measures (emphasis on measures for detecting protected species and dampening PWAP of EROS).

Tasks resulting from the post-ITM meeting were:
- Explosive Industry – Provide a list of parameters/variables that affect the PWAP of an underwater explosion.
- MMS – Prepare an advisory concerning interim Standard Operating Procedures.
- OOC, Explosive Industry – Provide a detailed description of all types of offshore structure removals for inclusion the EA appendices.
- NMFS – Contact the Acoustical Society of America about measurement standards and recommendations for acoustic experts.
- MMS and NMFS – Technology Assessment Research (TAR) – Identify and prepare a list of standards for measuring the PWAP of an underwater explosion.
- MMS – Identify representatives and schedule a meeting of those representatives to develop the list of standards. Representatives from MMS, TAR, NMFS, OOC, the offshore oil and gas industry, the explosive industry, and academic experts will be included.
- NMFS – Contact Joe Gaspin (and others, if needed) regarding the critique of the Connor paper.
- MMS and NMFS – Investigate the usefulness of acoustic harassment devices, surveying and monitoring techniques.
- OOC and Explosive Industry – Investigate various engineering mitigation measures and provide a list and description of the best two.
- OOC – Identify and prepare a list of potential Gulf of Mexico platforms for PWAP measurements.
- NMFS and MMS – Analyze NMFS platform removal observer data for inclusion in EA appendices.

Open Discussion

Dr. Coleman asked if explosives are, at some point in the future, prohibited for removal, what options are there other than cutting techniques, etc. Ms. Wilson replied that cutting techniques are not viable options since it gets to a point at a certain water depth, many of the pilings are grouted and very big and simply cannot be cut or severed. These are the reasons MMS is trying to motivate industry to better develop and use much smaller charges.

Dr. Coleman asked if regulations would come into effect that one cannot maintain the same approach of using even shaped charges, what about the liability of platforms, and so forth, that are out there that cannot be removed? Ms. Wilson answered that it is a condition of the lease that the platforms must be removed. She added that she does not think there is going to be a situation where mitigation or monitoring requirements would be so onerous that operators could not in fact remove their platforms as they are required to by lease. Dr. Pat Roscigno added that there have been some changes on the technology front. One operator actually wanted to remove a platform that is heavily grouted without using explosives. New diamond saws that can remove

a heavily grouted platform was being used. He is hopeful that between the changes in explosive technology and the advances in new cutting technology, this will be reasonable for both industry and the environment. The solution in that case is to turn the platform into an artificial reef. So rather than go through explosives removal, the MMS is petitioning the community to accept it as an artificial reef.

QUESTIONS ON THE MERCURY IN THE MARINE ENVIRONMENT AND THE GOOMEX EXPERIMENTAL DESIGN AND WHAT THAT DATA MEANS PRESENTATIONS

Dr. Lynda Shapiro asked Dr. Montagna if there is any comparable information on variability just in sediment ocean bottom that is not in the immediate vicinity of a rig? Dr. Montagna said that he didn't really know per se, but that he does know it varies because of the loop current and similar things. Even amongst the three study sites in GOOMEX, there was pretty large variability in the natural background even though they were very close together and he would expect that to be even more dramatic if samples had been taken near the Mississippi, which was specifically excluded for that reason. Dr. Schroeder added that another part of that is erosion, and when a storm path moves through, the characteristics of the sediment in that area changes. All one has to do is go from fine to coarse and there is going to be a substantial change.

Dr. Coleman asked Drs. Neff and Montagna if a port or some of the marinas were sampled, what would the mercury levels be in there versus what is found in the offshore and in some of the very sensitive coastal ecosystems? Dr. Neff replied that it varies all over the board. For most harbors and bays, it depends on sources. Places like Mobile Bay, which has a lot of upstream activities like pulp and paper mills and chloralkali plants, etc., are sources of mercury, and so often the sediments in places like Mobile Bay have a fair amount of mercury. Usually less than one part per million, but may be a few tenths and it would be typical of a moderately contaminated urban estuary. Places like Boston Harbor, similar, although in that case, most of it comes from the sewage sludge that used to be dumped there. Sewage sludge often has elevated levels of mercury. Off of Southern California with all the discharges, there may be a few tenths of a part per million which would be typical for a moderately contaminated area. There are a few exceptional places like LaVaca Bay where there is a very strong point source and it is very concentrated near the outfall, but it has not spread, which is amazing. One can go a few hundred meters away from the discharge and see almost background levels. Studies that have been done to date seem to imply that very little of the mercury is exported outside of LaVaca Bay. The same with the Everglades. The marsh sediments in the Everglades have very high mercury, and yet the sediments in Florida Bay, which is right adjacent to the Everglades, look normal. Dr. Montagna agreed with what Dr. Neff said and added that a general comparison of all the GOOMEX contaminants had been done and it was found that basically the three platforms would have fit in the lower tenth percentile of moderately contaminated places.

Dr. Gill asked Dr. Neff if he had an idea of how many platforms in the Gulf of Mexico shunted the materials and are there any in close proximity when there might be a "hot spot"? Dr. Neff said that 39 platforms out of 4,000 in the Gulf were shunted and two of those were in the GOOMEX study. The sampling is not balanced since most of those platforms were in the general area of the Flower Garden where there is a concern of suspended solids and corals. It is known that the quickest way to kill a coral is to allow sediment material to accumulate on the

surface. He added that most of the shunting was done in that area and perhaps in similar reef trends elsewhere in the Gulf of Mexico.

Dr. Gill asked if a disturbance would increase the mercury released into the environment as these structures are remove. Dr. Neff stated that he had not thought of that and he guessed everything down to the sediment line would need to be removed. Dr. Montagna added that the bottom would have to be trolled. Dr. Neff said that in one study, vertical profiles in the sediments were done. In most cases, it is fairly uniform vertical profile, so any sediment disturbance probably would not mobilize the mercury. Dr. Montagna added that a few years ago with some EPA funding, he did a study at some platform removal sites to specifically determine whether or not contaminants were still present. The process involved removing the platform and then going through with trolls to pick up any garbage. One would imagine that there would be a pretty good scouring and dispersal, but there was little evidence. Areas of higher contaminants in the sediments can still be identified, particularly barite, which seems to be pretty sticky and not move around. Dr. Neff also said that natural storm event studies in the Georges Bank determined that the half-life for barium in sediments there, which is a very high-energy area with lots of sediment disturbance, was 4 years. This means it either gets buried deeper in the sediment just by infiltration or it gets resuspended and transported.

Mr. Larry Rouse agreed with Dr. Neff that methylmercury is the human problem and is created in low oxygen situations. He then asked Dr. Neff to comment on the fact that off of Louisiana for 3 to 5 months a year there is extremely low oxygen concentrations over extremely large areas, and what impact could there be on conversion of this mercury into methylmercury. Dr. Neff said he, too, has been wondering abut that because Louisiana does have low oxygen areas mainly due to outflow of the Mississippi River and organic loads introduced that way, and then vertical stratification that prevents mixing. Those conditions are fairly favorable for mercury methylation by sulfate reducing bacteria and one gets that phenomenon in the open ocean at about 300 to 500 meters, called the oxygen minimum layer. Therefore, there is a possibility that that would be the case. Added to that factor is the fact that most of the coastal Louisiana is wetlands, and this is the prime area for the formation of methylmercury in the sediments and this may be an important source of mercury in the Gulf of Mexico.

Dr. Cooper asked why samples were not taken nearer to the Mississippi River. Dr. Neff said the area was restricted because of confounding factors. For example, the Mississippi plume -- east versus west gradients. One can draw generalities from looking at just three platforms while there are a lot more platforms near the hypoxic zone in the Gulf of Mexico than there are away from it. The other little gem that came out of the GOOMEX study and really was a surprise was that in the shallowest platforms during summer, because of all the biomass on the lakes, oxygen depletion in bottom waters near platforms was actually seen. No one has looked at methylmercury and certainly not at the methylation rates. However, even if there is just a little bit of mercury put out by platforms, and if it is in favorable conditions for methylation, then it could be a problem.

Dr. Roscigno asked if it is possible to separate the Mississippi influence from a design if one did look at platforms? Dr. Montagna replied of course and that it is just a simple matter of stratifying the design. A lot is known about the Gulf of Mexico such as what biogeographic

zones, what physical zones exist, and what different kind of depositional and geological zones exist. All that is needed is to have more than one platform within each zone.

Dr. Diaz asked, relative to trying to identify where the mercury is coming from that is causing the problem, are there any isotopic signatures in mercury that could be used to trace cutting mercury from fresh water river mercury such as N15, N16? Dr. Neff said that mercury occurs in several natural isotopes, so it may be possible. He added that he is not enough of a radiation physicist to know if there are some stable isotopes of mercury that would be more abundant, for example, in cuttings which are obviously geologically very ancient compared to drilling mud and that is the trouble. All of the resources are old, but one could compare it to more modern mercury.

Dr. Jim Ray wanted to clarify that there are a whole series of factors that have to be right for methylation to be occurring, not just low levels of oxygen. A second point he wanted to make was the real heart of the old oil patch in the old days when the wells were drilled right along the coast and in the wetlands. The areas being discussed with hypoxia is near shore, the conditions are right in the wetlands, and yet the status and trends program has had mussel watch stations there, or oyster stations, all along that same part of coastal Louisiana and the mercury signal is not being picked up greatly elevated there. As a matter of fact, the mercury level tends to be higher along the Florida coast than it does along the wetlands area of Louisiana. Dr. Neff agreed and stated that the Louisiana Department of Environmental Quality has a major ongoing mercury monitoring program that is updated every year. Dr. Kay Briggs added to Dr. Ray's comment that it is true that sulfate-reducing bacteria in sediments can methylate mercury. There are also anaerobes that need an anoxic environment. It has also been proven that there has to be the presence of some sulfate. In marine environments there are large quantities of sulfate and for some reason this causes an inhibition or some inhibitory process for the bacteria to methylate the mercury. It is a much more slower and difficult process for the bacteria to literally methylate the mercury to get rid of it because it is a toxic for them also. In fresh water environments, especially in the northeast where there is a lot of acid rain inputs, there are mercury and sulfate emissions. The fish in the northeast in these fresh water environments would have some sulfate, which is necessary for the process but not an overabundance which is so heavy in the marine environment, many of the fish would actually have a much higher biomass of methylmercury. Dr. Neff agreed and added that barium sulfate is now being added to the mix. He explained that in the recent work at the Chesapeake Biological Laboratory has shown that sulfide is a very strong inhibitor of mercury methylation, and that is where the sulfate comes in. There is a lot of sulfate, reducers convert it to sulfide, and it first reacts with the mercury to form cinnabar, which is insoluble, but it also inhibits reaction. And so there is a delicate balance there. There has to be just enough sulfate and sulfide present. If there is too much, then all the mercury precipitates. If there is not enough, then the reaction does not happen. He added that it is a really delicate reaction and the controlling factors are not fully understood, especially in marine systems

Dr. Eric Crecelius wanted to point out that the form of mercury found in the drilling fluid is an extremely insoluble form of mercury, and although the sediments quite locally are contaminated with a few tenths of a part per million mercury, this is a very insoluble form of mercury. In reality, there is a very small mercury signal here that potentially can get into the ecosystem, compared with typical urban coastal areas that have several tenths of a part per million mercury.

But that mercury, in a typical coastal environment or urban environment, is absorbed on the surface of the particles and it is quite available for chemical and biological reactions. Therefore, although there is this relatively small mercury footprint around these platforms, it is a relatively immobile or non-bioavailable form of mercury, so the chance of finding this signal in nature is extremely remote. It would take an extremely involved intense study before one could get to be able to answer the null hypothesis that there is not something going on here. And so that is the big problem is designing a program where there is a chance of saying beyond reasonable doubt that there is not a mercury problem.

REGIONAL PRIORITIES AND ENVIRONMENTAL INFORMATION NEEDS

NATIONAL

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 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 2003, the ESP budget would probably be around $17.3 million, which is $2.2 million less from last year. Although the budget has not yet been approved, this is what is being anticipated.

Approximately 50 percent of the $17.3 million will be spent in the Gulf of Mexico, with the remainder divided up between the Headquarters office, and the Pacific and Alaska OCS Regions. Not all of this money is for new starts; there are also ongoing studies that will be funded. Of that $17.3 million, after the ongoing studies are accounted for, there will be about 35 percent available for new starts.

He gave a breakout by discipline of how past funds have been spent.

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

There has not been much of a change except for in the socioeconomic program. A few years ago there was very little going on, but with the help of the SC and others, MMS's support for socioeconomics studies has expanded and has proven to be very beneficial to the OCS program.

Dr. Kendall announced that the ESP Annual Studies Development Plan would be put on the MMS Website, which is not running. Status reports for ongoing/already awarded studies can be found on the website under "Ongoing MMS ESP Studies."

Dr. Kendall introduced topics dealing with future directions, which was discussed in detail by the regional chiefs.

- Deepwater OCS Activities: Physical Processes of the Slope and Rise, Ecology of Deepwater Benthic Habitats, Historic Shipwreck on the OCS, Socioeconomics Studies, and Decommissioning
- Physical Oceanography: Advanced Technology and Methods, Strategic Planning for Field Studies, Integration with other Disciplines, and Short-term versus Long-term Monitoring
- Air Quality (AQ): Updates of AQ Models and Improve Resolution, Changing Specifications of MMS Regulatory Requirements, Implementing New Federal Standards for Ozone and Particulate Matter, Evaluating Impacts on Class I Areas, and Advancing Atmosphere Science for AQ Modeling
- Oil Spill Modeling: Incorporation of Impact Assessment Methodology and Data and Continuing Improvement of Ocean Current Simulations
- Marine Monitoring: Arctic Nearshore Impact Monitoring, Mammals, Benthic Studies, Mitigation Monitoring, Rocky Intertidal Communities, and Flower Garden National Marine Sanctuary
- Sand and Gravel: Site-Specific Studies to Evaluate Potential Negotiated Agreement Requests in Frontier Areas, Cumulative Effects and Issues Associated with Multiple Event/Long-term Dredging, Environmental Issues Common to All Areas, and EFH Issues/Consultations
- Social and Economics Effects: Multilevel Approach to Social Impact Assessment
- Levels of Social Analysis: National/International, Regional/State/Regional subarea Community/Group-Individual

Open Discussion

Dr. Coleman asked if the MMS is looking at the environmental impact of production of gas hydrates? Dr. Kendall responded that the MMS is working on this issue with Chevron and there were limited, individual efforts being supported through the Gulf of Mexico Coastal Marine Institute (CMI).
Dr. Cleve Cowles, in reference to the Alaska OCS Region, added that although this subject is not being looked at extensively by the Environmental Division, the Resource Evaluation Division has done some work in conjunction with the USGS on assessing those resources. Dr. Kendall said that until an EIS is required and the analysts know what the technology is that is going to be used, it is difficult to address the issue from an impact perspective; however, MMS is monitoring events in India, Russia, and Japan.

ALASKA OCS REGION

Presentation by Dr. Cleve Cowles

Dr. Cowles' opening slide highlighted the Northstar development site in the Beaufort Sea, which he explained, represents the culmination of multiple state, federal, and local government

environmental reviews, public input, industry, and government studies, and that after more than 20 years of the OCS program in Alaska, it is the first production well. In January the production site was completed and the eventual production from this island is estimated to be about 65,000 barrels a day.

He presented to the SC a photo introduction to the region, the strategic picture, major activities, the issues that relate to those activities, study priorities in Fiscal Year 2003, and future topical themes beyond 2003.

He explained that in the Alaska OCS, the region's physical environment is quite complex. It is highly variable in a climatic sense and the meteorological characteristics. There are extremes of temperature and day length; much of the year, adjacent seas to Alaska are dominated by ice, particularly the Beaufort, Chukchi, and the Bering Seas. Cook Inlet has sea ice during cold winters, particularly in the upper inlet. The features of Alaska include extremes of weather, extensive glaciation, volcanic, and seismic events.

The ecological setting is one of great productivity and diversity. There are about 26 marine mammal species in the Gulf of Alaska, versus roughly four that are predominant in the Beaufort. The Steller sea lion is a species of great interest in Alaska, which has declined precipitously in the last 10 – 15 years and are a subject of great study by other agencies.

In the Gulf of Alaska, Cook Inlet, and the Bering Sea, there are world class fisheries for salmon, halibut, pollock, and other groundfish and Alaska is noted for a diversity of birds.

Many of Alaska's indigenous people seek a traditional lifestyle, seeking food and cultural sustenance from subsistence, both coastal and interior villages. Historically, Alaska has been a crossroads of Native, Russian, American, and other peoples.

The Alaska economy is a mix characterized by oil production, commercial fishing, civilian government activity, tourism/outdoor recreation, military/defense, mineral extraction, construction, and some forest products.

Major issues confronting the Alaska OCS Region are the following:

- The proposed Beaufort program area is 9.8 million acres, which translates to roughly 15,000 square miles. The coast is roughly 400 miles long. This scale, and that of the rest of the state, helps to explain why over the years the program has spent more than $265 million on studies relative to Alaska OCS information needs. Because of the remoteness of these areas, the challenging environment, and the diversity of proposed sales that have been held over the years, it has required quite a bit of expenditure. The MMS has done hundreds of studies throughout the offshore and coastal area.
- The Beaufort Sea is on tap for three proposed offshore oil and gas lease sales in Fiscal Years 2003, 2005, and 2007. Currently, Cook Inlet has a proposed sale for Fiscal Years 2004 and 2006. Further down the line in timing, for the Chukchi Sea/Hope Basin there is a possible special sale in Fiscal Year 2007 and in the Norton Basin area, there is a possible sale proposed for Fiscal Year 2003.
- As a result of previous leases at McCovey, Liberty, and Northstar, the studies program is

monitoring and providing input into post-lease activities.
- Another strategic item coming up is a possible gas pipeline that would connect Prudhoe Bay's field to a northern extension of gas lines in the Mackenzie River in Canada. Although this item has a relatively slim chance, there is a possibility that there might be a permit application in the future.
- The MMS is very close to issuing a final EIS on Liberty, but British Petroleum has decided to put that on hold and take a look at it from an engineering and design standpoint to see if there is a different way that it can be done at lower costs.

Ongoing Alaska Studies Program include:
- managing about 44 studies in all the major disciplines,
- 26 of the 44, or roughly 59 percent are cooperatively funded,
- 68 percent are Beaufort-specific, and
- about a third of the studies have a monitoring role.

Dr. Cowles presented a pie chart of the dollars spent for each discipline to be expended through Fiscal Year 2003:
- socioeconomics – 11 percent,
- biology – 5 percent,
- fates and effects – 9 percent,
- protected species – 33 percent,
- physical oceanography – 15 percent,
- multidisciplinary, 22 percent, and
- other 5 percent.

The resultant planning trends include:
- must cover both site-specific and regional context,
- near-term increased information needs for Cook Inlet,
- longer range potential needs in Chukchi/Hope Basin,
- continued monitoring, and
- maximize cooperative and integrative opportunities.

Dr. Cowles explained and gave examples of current technical issues within the Alaska Study Development Plan and for Arctic activities which has at least 16 different multidisciplinary study issues ranging from pollutant monitoring to integration of traditional knowledge, and also explained how priorities are set for Alaska OCS studies.

Potential decisions for Fiscal Year 2003 and beyond in the 5-Year Program include:
- Beaufort Lease Sales in Fiscal Years 2003, 2005, and 2007,
- Cook Inlet Sales in Fiscal Years 2004 and 2006,
- Chukchi/Hope Basin Special Sale in Fiscal Year 2007, and
- Norton Basin Special Sale in Fiscal Year 2003.

Topical themes for Fiscal Year 2004 and beyond include:
- Physical Oceanography and Modeling – finer scale circulation models, nearshore modeling,

ice modeling, and surface radar mapping,
- Fates and Effects – site-specific monitoring,
- Sea Bed and Sub-sea Physical Processes – ice gouging, strudel scour, overflood limits, shallow care data, and Cook Inlet sand waves,
- Endangered/Protected Species – monitoring bowhead whale migration, bowhead feeding areas, polar bears, waterfowl, other marine mammals, and other monitoring,
- Effects on Unique Benthic Communities – "Boulder Patch" – Optical measurements and kelp productivity, community composition and diversity, and monitoring,
- Marine Fish Migrations – recruitment and EFH, effects on subsistence species, salmonid reproduction, and subsistence harvest trends,
- Subsistence Lifestyle – cumulative effects of development on subsistence, hunting, fishing access, and
- Socioeconomics Change on North Slope – quantification of impact experiences and anticipated impacts on sociocultural systems, region-wide economic changes in municipal infrastructure, employment, tax base, etc.

Open Discussion

Dr. Coleman asked whether or not the studies addressed the possibility of positive impacts around oil and gas operations. Dr. Cowles said studies are designed to address positive impacts where appropriate, a recent example is the bowhead whale hunting study since the design of the socioeconomic questionnaires will ask for responses in both dimensions as far as the subsistence hunting community and the bowhead hunters are concerned. It will ask people about both positive and negative perceptions related to OCS development. The North Slope Borough (NSB) has definitely had some positive results from having a tax base at Prudhoe Bay to utilize for capital improvements and education and other similar things. There is a study of the NSB economy planned to be initiated this year.

PACIFIC OCS REGION

Presentation by Dr. Fred Piltz

Dr. Piltz gave an update on regional information needs and presented an overview of the status of knowledge in the Pacific OCS Region based on the importance of activities and decisions that MMS needs to make with regard to oil and gas activities.

The slides he showed were color-coded to present the status of information. The categories for the colors were defined as:
- MMS having enough information, meaning that it is comfortable with the level of information and knowledge it has on-hand,
- MMS would like more information, but there is information that can be used to make reasonable conclusions and impact analysis, and
- MMS is not comfortable.

Physical Oceanography – Modeling Surface Currents

	Comfortable	Not as Comfortable	Not Comfortable

Large Scale California Current	X		
Meso Scale Santa Barbara Channel Eddy	X		
Fine Scale Inter-Island Jets		X	

Physical Oceanography – Modeling Sub-Surface Currents

	Comfortable	Not as Comfortable	Not Comfortable
Large Scale California Under Current		X	
Meso Scale Bightwide Basins Basin Flushing		X	
Fine Scale Canyon Flows			X

Marine Mammals – Ecology and Biology

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance Seasonal Decadal	X X	 X	
Feeding and Reproductive Biology	X		
Behavior Effects of Noise	X	 X	

Seabirds – Ecology and Biology

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance Seasonal Decadal	X X		 X
Feeding and Reproductive Biology	X		
Behavior Effects of Noise	X	 X	

Benthic Ecology – Ecology of Deep Water (>200m) Soft Bottom

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance Seasonal Decadal		X	 X X
Feeding Ecology			X
Reproductive Biology			X

Benthic Ecology – Ecology of Deep Water (>200m) Hard Substrate

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance		X	

Seasonal		X	
Decadal			X
Feeding Ecology			X
Reproductive Biology			X

Intertidal Ecology – Biology and Ecology Rocky Shores

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance	X		
Seasonal	X		
Decadal		X	
Feeding and Reproductive Biology	X		
Anthropogenic and Natural Effects		X	

Fish and Fisheries Ecology – Fish Ecology

	Comfortable	Not as Comfortable	Not Comfortable
Distribution and Abundance		X	
Seasonal		X	
Decadal			X
Feeding and Reproductive Ecology			X
Commercial and Sports		X	
Other			X
Anthropogenic Influences			X

Platform Ecology – Community Structure

	Comfortable	Not as Comfortable	Not Comfortable
Fish	X		
Recruitment/Residence			X
Trophic Relationships			X
Invertebrates	X		
Recruitment			X
Trophic Dynamics			X
Algae	X		
Recruitment			X

Platform Ecology – Community Structure

	Comfortable	Not as Comfortable	Not Comfortable
Fish		X	
Relations to Platforms and Natural Reefs			X
Invertebrates		X	
Relations to Platforms and Natural Reefs			X

Algae		X	
Relations to Platforms and Natural Reefs			X

Social Ecology – Community Landscapes

	Comfortable	Not as Comfortable	Not Comfortable
Infrastructure	X		
Capacities	X		
Demands and Trends	X		
Demographics	X		
Social and Power Linkages	X		
Decadal Trends	X		
History	X		
Values and Behaviors	X		
Predictive Models			X
Recreation and Tourism			X

The one major issue of concern in the Pacific Region is platform decommissioning. Questions that need to be addressed are habitat value of platforms, steel decomposition rates in a variety of marine environments, sports fishing values (possible resource), and natural reef inter dynamics.

There is one proposed study for Fiscal Year 2003, and that is to study platform habitat value. The Pacific OCS Region had been asked to pose a null hypothesis and the general hypothesis is that there are no significant differences among the habitat values of oil and gas platforms and adjacent natural
rock reefs as measured by calculated habitat indices. The habitat value index will be determined during the study.

There are currently 79 leases in the Pacific: 43 active producing leases and 36 undeveloped leases. There are 23 platforms and the average daily oil production is a little less than 100,000 barrels a day. Average daily gas production is 212 million cubic feet.

For the 36 undeveloped leases, the future is highly uncertain. The DOI is involved in litigation on two fronts. One is with the State of California with regard to an issue about the Coastal Commission exerting what is called consistency review which involves a variety of stages in the OCS process. The Coastal Commission asserts that it has consistency review if MMS gives a suspension of operations. MMS disagrees and it lost in the lower Ninth court; currently it is in the Ninth Circuit Court of Appeals. Shortly after the appeal was filed, the companies holding the leases filed suit against DOI for breach of contract.

In conjunction with management reform and a variety of other activities going on not only in the Department but throughout government, the Pacific OCS Region is being downsized. Therefore, there is going to be a reduction in the Environmental Studies staff and the ESP in the region during the next year.

During the next couple of years, the Pacific OCS Region plans to complete ongoing funded

research on oceanography and Dr. Piltz mentioned that MMS takes a lot of pride in the work that has been accomplished with the Scripps Institution of Oceanography over the years. Information will be summarized from that research and Dr. Piltz estimates that the Pacific OCS Region will no longer be doing oceanography after Fiscal Year 2004.

Six proposals are currently being evaluated from the CMI with the University of California Santa Barbara and those will be awarded. The longest of those will take 3 years to complete, so sometime in Fiscal Year 2005, the CMI will be winding down.

The recreation and tourism model that is currently in progress with the University of California Berkeley will be finished, and most of the other research will be completed in Fiscal Year 2003 or 2004.

There are no plans to zero the program in the Pacific Region. Dr. Piltz explained that it will be kept at a very low level and focus will be on three areas: production-related, site-specific information or information that the program might generate related to safety; decommissioning; and focused monitoring.

One more environmental mitigation monitoring contract will be awarded this year. This is a time and materials contract, and one of the first things that may be done under this contract is to have grab samples of sediments around some of the rigs that have not been sampled taken to see whether or not there is a mercury problem. The State of California legislature has already introduced legislation in the state to look into this.

The MMS Intertidal team will continue at a fairly low level and the Multiagency Rocky Intertidal Network will continue with the University of California Santa Barbara.

The Pacific OCS Region has accumulated a tremendous storehouse of information so focus will be on how to synthesize that data and information to be passed on to those who may need it.

Open Discussion

Dr. Coleman asked Dr. Piltz had MMS undertaken social ecology studies 8 or so years ago, would that have made a difference in the viewpoint of the Californians towards the offshore oil and gas?
Dr. Piltz responded that perception is reality and the behavior probably would have not been any different. Dr. Piltz mentioned research being done by the University Santa Barbara where research is based on the California Opinion Poll. This poll has been done for decades, probably going back to the 1940s or 1950s and Californians were asked questions related to energy and offshore oil and gas. If the percentage of respondents that would favor more oil and gas development in the federal waters was plotted, it ranged from around 50-some percent to two times over the last couple of decades to around 20 percent. In 1998 it was at 20 percent, and the most recent survey done in Fiscal Year 2001 showed 45 percent. He added that the graphs of acceptance of more offshore oil and gas development tracks almost perfectly with the cost of gasoline. Therefore, it is reasonable to conclude that regardless of the perceptions that people have, their attitudes towards energy, at least as demonstrated by this poll, really depend upon

economics.

Mr. Paul Stang asked Dr. Piltz to give the new SC members more detail about what happened in the Pacific OCS Region, some level of effort for the region as a whole in the downsizing. Dr. Piltz explained that while the office was in Los Angeles, it had gone through downsizing from140 to 160 people to 100 when it moved to Camarillo. Currently, the full time equivalent ceiling is 98 and the Region is going to be cut down to 48 or 50. The Studies Section will essentially be done away with in terms of staffing.

GULF OF MEXICO OCS REGION

Presentation by Dr. Pat Roscigno

Dr. Roscigno gave a summary of the Studies Program, which has $48 million in ongoing studies and nine planned studies are being added. He also highlighted input from the SC at several different levels. In terms of level of effort, there are responsibilities and controversies in the Gulf of Mexico.

On going studies include:

- Deepwater Program: Central Gulf of Mexico Midslope Physical Oceanography Study. This study deals with the physical oceanography associated with sperm whale populations near the Mississippi Canyon. One of the recommendations from the Deepwater Physical Oceanography Workshop was to better integrate MMS's physical oceanographic program with its biology program, and this was seen as a good opportunity to try to move in that direction. The two theories behind this is that an upwelling event is occurring at the thousand meter up at isobath that is producing a squid population that the sperm whale are feeding on. This study will look at some of the reasons for that upwelling and the physical oceanographic features of the area to determine why the sperm whales are there. Another area of great interest is the DeSoto Canyon region, which is a deepwater region near Florida and is the Eastern Planning Area. The MMS has a lot of physical oceanographic information from that region and it was suggested that information be modeled in the hindcast to see if whether or not a more realistic sense of the oceanography can be obtained.
- Study to Conduct National Register of Historic Places Evaluations of Submerged Sites on the Gulf of Mexico OCS. This is more or less a pilot study that uses remote sensing, a remotely operated vehicle, and divers that will look at anomalies to determine whether or not they are actually shipwrecks. From this study, a new model will be developed that can predict the probability of these disturbances being shipwrecks that need further attention. The MMS has a certain responsibility in protecting the archeological resources on the shelf.
- Deepwater Program: Characterization of Gulf of Mexico Deepwater Bottom Communities with Emphasis on *Lophelia* coral. This is a new emerging issue to characterize some of the regions that that might be habitat for *Lophelia* and chemosynthetic and benthic communities.
- Cumulative Effect Series: The Effects of the Offshore Petroleum Industry on Economic Growth and Structure. This study will document and assess the cumulative economic impacts of OCS petroleum industry on Texas and Louisiana.
- High-Resolution Multibeam Mapping of Topographic Features between Sonnier and Coffee Lump Banks. This study will survey and assess identified topographic features for the condition of important biological features.

- Synthesis of Physical and Geological Oceanography Knowledge from 1970 to Present. One of the recommendations from the workshop and the SC has always been to synthesize data obtained from studies. This study will make available the extensive reviews of the information produced from MMS's Oceanography Program.
- Petroleum-Involved Ports and Port Communities: An Assessment of Ports, Their Activities, and Their Economic and Social Effects on Related Communities. The goal of this study is to describe the role that OCS industry plays in the development, operations, organization, and infrastructure of Gulf of Mexico ports and how this interaction impacts local communities in terms of benefits and burdens.

Dr. Roscigno gave some perspective on several topical issues:
- Deepwater. Deepwater corals sensitivity to OCS activities and chemosynthetic communities in the deepest parts of the Gulf.
- Platform Removal. Concern about dismantling of the world's largest artificial reef system: accelerating lease abandonment activities, expanding artificial reef programs, and resolving value of artificial reefs in deepwater.
- Bioprospecting on OCS Platforms. Using platform communities as potential sources for therapeutic drugs can mitigate concerns about overharvesting natural reef communities and the potential for platforms to be used is yet to be demonstrated.
- Invasive Species. The role of artificial structures and reefs in enhancing the abundance of invasive species will continue to be an area of interest.

Open Discussion

Dr. Shapiro asked if a pharmacologically active ingredient were to be found in an organism that lives on the rig, who does the mining of this living resource fall within the mandate of the MMS? Dr. Roscigno answered that that question would need to be answered by the Oceans Commission since there is no legislation in place. He added that development of a pharmacological agent would take 10 to 15 years, so there is enough lead-time. Dr. Piltz said that some very active classes or groups of compounds have been discovered, but agreed that it takes a long time because mechanism needs to be investigated. Dr. Coleman added that testing is being done now that could be a potentially multi-billion-dollar industry within the next 5-10 years. So it is possible to have a potential resource greater than the oil and gas that came out of the area.

Dr. Coleman asked if studies are planned on the potential deepwater current and erosional effects of these currents. Dr. Roscigno replied that a contract has been awarded that will look at some of these deepwater currents Sigsby escarpment.

Dr. Diaz mentioned that Ms. Wilson had talked about the explosive removals of platforms but there is a possibility of leaving some in place. He asked if MMS can change the permit requirement for removal of a structure to turn it into a reef. Dr. Roscigno responded that it does. As an example, he explained currently there is a platform that originally was going to be blown up and removed. After consideration, it was determined that the environmental impact would be too much to handle; therefore, the company is talking with the State of Louisiana about the possibility of having this platform turned into an artificial reef. It will be removed mechanically and it would save money for the industry, it would protect the environment, and it would also

produce quality habitat. He added that there is an Artificial Reef Program for Louisiana, Texas, Mississippi, Florida and Alabama, and the state administers it.

GENERAL DISCUSSION

Dr. Schroeder asked the SC if there were any additional questions concerning any presentation.

Dr. Cooper asked how MMS divides its budget among the regions. He added that from an investment point of view, 50 percent of the resources basically have gone to areas that essentially have produced a very small amount of the total volume of oil. Dr. Kendall explained that there are always more suggested studies than money so regions are requested to submit high-priority proposed studies. Management is then conferred with to discuss the likelihood of something occurring in a region in years to come that this information could actually be used. Deep water studies were given as an example. In 1994, Dr. Ray, who was then an SC member, warned MMS that industry was going into deep water and MMS responded by hosting a deepwater workshop in 1997. For that year or two, everything else paled in comparison to the discussions of where the studies money was going.

Dr. Coleman mentioned that a few years ago, the SC suggested to MMS that it become more proactive in an outreach program, educational program, etc., and asked for a status update on that suggestion. Dr. Kendall answered that MMS is now on the Web and Dr. Denise Stephenson-Hawk has recently been appointed to the SC. Dr. Stephenson-Hawk is very involved with the educational initiative of the National Ocean Research Leadership Council of the National Oceanographic Partnership Program and also serves as a representative to the Policy Committee's Subcommittee on Education and Outreach. He added that educational posters have also been produced and more are being requested. Dr. Roscigno said that the mercury issue has really highlighted the fact that outreach and communication are very important. The Gulf of Mexico OCS Region is in the process of seriously considering training its staff in a more organized way to address the press and to communicate risk to the grater community at large. The Regional Director also wants a quarterly report produced that will highlight the Region's studies and other programs in a way that is more accessible to the public. Mr. Stang said the Alaska OCS Region has a program, NEED, that has been going into schools to educate students and teachers on what energy is, how it works, what the sources are, etc., for the past 10 years.

Dr. Livingston Marshall asked Dr. Piltz whether or not any thought has been given as to who will step in and fill the gap since the Pacific OCS Region is downsizing. Dr. Piltz replied that there are a number of areas that Pacific OCS Region is not going to be able to do such as in the area of ongoing intertidal monitoring of the coast, so other agencies and private groups are being recruited for assistance. The USGS may continue the marine mammals and sea birds studies. There will potentially be some gaps that will exist, mostly offshore in deeper water because that has been the domain of MMS for so long and there are relatively few, if any, agencies that have active research or information needs that have come forward to fill those gaps. As for social and economics, MMS and groups like the Census Bureau collecting raw information, the types of social science that the Pacific OCS Region has done for the last 10 years, is just not being done in any other federal agency, so there will be some gaps.

DISCIPLINE SUBCOMMITTEE REPORTS

A. Ecology/Biology

Drs. Marshall, Rex, Shapiro, and Diaz are members of the Subcommittee. Dr. Marshall presented the Ecology/Biology Subcommittee report to the SC.

General comments applicable to all regions were:

1. Information synthesis. These studies are strongly supported. Reviewing existing data and thinking about how it is used is a very valuable way for MMS to spend its money.
2. Data accessibility. Database development and archiving of material collected by MMS studies is strongly encouraged. MMS should develop accessible tracking systems for databases and material to use for environmental analyses and to make data from previous and current studies available on the Internet.
3. Context. Provide the SC with a list of issues and questions addressed over the last 4 to 5 years of studies within the individual regions. These would assist greatly in putting into context what has been done and help the SC to understand the foundations upon which additional proposed studies are being made.
4. Publications. Researchers are encouraged to publish results of studies in peer reviewed journals. MMS should provide to the SC a bibliography of all articles published in the previous year that were funded by the program.
5. Outreach. MMS should engage in more outreach in order to keep the public aware of scientific findings. The posters done in the Gulf of Mexico OCS Region are good examples.
6. Partnering. The Subcommittee commended those groups that are partnering with other agencies and encouraged other regions to do the same.
7. Patents. MMS should be proactive and consider patent issues now. Patentable products discovered using MMS funds should be treated according to a pre-specified formula, especially with respect to bioprospecting.

Gulf of Mexico OCS Region.

1. Gulf of Mexico Midslope Physical Oceanography Studies. The correlation between the physical oceanography study and the sperm whale study is premature. The Subcommittee recommended that this study be delayed or the relationship between the whales located at the 1,000-meter isobath and the physical oceanographic processes be thoroughly reexamined.
2. The use of existing high-resolution sonar imagery should be coordinated with direct observations from submersibles in an efficient way to identify sites for *Lophelia*.
3. The SC would appreciate copies of all posters and teachers' packets.

Alaska OCS Region.

1. Recognized experts in fisheries modeling, stock exploitation, and long-term climate related fluctuations need to be invited to the conference in Nuiqsut on Arctic cisco.
2. Population genetic studies need to be performed to better understand the dynamics of the Arctic cisco population.

Pacific OCS Region.

1. Long-Term Rocky Intertidal Monitoring Program has great value to MMS as well as to the general scientific community and should be continued. This is an important long-term ecological database for showing anthropogenic and natural environmental effects.
2. Current attempts to coordinate current survey data with the historical record should be continued and completed.
3. Continued collaborations with the Partnership for Interdisciplinary Studies of Coastal Oceans are encouraged.

National. The Subcommittee recommended that a long-term strategic plan for the Sand and Gravel Program be developed to identify the basis issues and plan specific integrated studies to assess environmental effects of sand mining.

B. Physical Oceanography

Drs. Cooper, Marek, and Coleman are members of the Subcommittee. Dr. Cooper presented the Physical Oceanography Subcommittee report to the SC.

Gulf of Mexico OCS Region.
1. Central Gulf of Mexico Project. The Subcommittee decided that the Midslope Physical Oceanography Study is premature and that squid/food situation first needs to be determined.
2. Western Gulf of Mexico Deepwater Study. It was suggested that this study be started now to get ahead of the development trend and postpone Physical Oceanography Slope and Rise study for 1 year.
3. Western Gulf of Mexico Monitoring Program. Cooperation with Mexican oceanographers is important, especially in the Western Gulf of Mexico.
4. Hindcast DeSota Canyon Modeling. A new modeling study should not be performed, but current modeling should continue.
5. Gulf-Wide Hydrography Study. The Subcommittee agreed that this would provide some valuable baseline information and strongly recommended that coordination with the Mexican Government, the Navy, and NMFS would be critical.
6. Synthesis of Physical Oceanography and Geology (Book Series). An outline and proposed authors should be reviewed by SC members.

Alaska OCS Region.
1. The Arctic Nearshore Impact Monitoring in Development Area study should continue.
2. Sea Ice Modeling. This should begin after the Workshop on Physical Oceanography in the Beaufort Sea is completed.
3. Beaufort Sea Nearshore Currents Measurements. The Subcommittee felt moving this to the east seemed reasonable.
4. Meteorological Collection and Synthesis. The Subcommittee endorsed the move to a different island in order for data collection to continue.
5. Mapping of Leads and Landfast Ice. This study should continue.
6. Sea Level/Climate Change. The Subcommittee suggested that this be performed as a CMI study.

National.

1. Sand and Gravel. The Subcommittee stated that environmentally friendly dredging should be done and discussed multiple dredging impacts.
2. Wetting/Drying Cell Modeling. Should be performed only where tides are large and existing model/drifter verification is done. MMS should consider using the existing 2-D Model and this study should be reevaluated to determine need.

Pacific OCS Region.

1. El Nino Monitoring add-on. The Subcommittee recommended that the Santa Barbara Channel/Santa Maria Basin Monitoring Program serve as a model of an observing system for National program.
2. Littoral Transport Study. The Subcommittee agreed that this is an engineering issue, perhaps an issue that the oil companies should resolve.
3. Concern of Contract Management. There is still a lot of work that is going to be done in the next several years and yet the staff is no longer going to basically be in existence. Therefore, it was recommended that an action plan be put in place to make sure that those contractors continue to perform.

Dr. Cooper commented that Dr. Ron Lai presented the Subcommittee with graphical presentations for each of the regions that summarized both ongoing and proposed work. These graphics showed the budget, a brief summary of each of the projects, and the timeframe. The Subcommittee found these graphics to be very useful and suggested they be available at future meetings beforehand and applied to all disciplines.

Dr. Roscigno asked Dr. Cooper if the sperm whale and the physical oceanography study were decoupled, does he see merit in measuring those finer scales in general, or just postpone it. Dr. Cooper stated that if there is enough financial resource available without compromising the Western Gulf, yes. He added that he would rather see more moorings in the west and doing a better job there because he anticipates a lot of issues cropping up in the next 2-3 years as that drilling activity starts to ramp up and the production activity starts to ramp up as well in the next 4-5 year period.

Dr. Piltz stated that the Littoral Transport Study is an approved study that is a cooperation between TAR and the ESP. This study has been bouncing between who should fund it. Although the study is in process right now, a statement of work is being written.

Mr. LaBelle asked whether or not a workshop should be held to help design or elucidate the need for a Western Gulf Observational Study. Dr. Cooper said a special side meeting could be held during the Deepwater Workshop in May.

C. Socioeconomics

Drs. Gill and Goldsmith are members of the Subcommittee. Dr. Goldsmith presented the Socioeconomics Subcommittee report to the SC.

Pacific OCS Region

Dr. Goldsmith stated that the Subcommittee looked at the individual studies to see how each

could be strengthened both in terms of methodology and the objectives of the studies.

1. The Value of Sport Fishing Near Rigs, a proposed study for Fiscal Year 2004. The Subcommittee supports this study and recommends this study include all sport fishing activities as well as commercial fishing.
2. Risk Perception, an ongoing study. The objective of this study is to look at how different groups evaluate risk. The Subcommittee thought this was a very useful kind of undertaking and that the notion of the study should be expanded to look at how that information/results can be used to get the message out more effectively about the actual risks associated with various MMS activities. The Subcommittee feels that people are more supportive of activities offshore that are state efforts as opposed to federal efforts.

Dr. Goldsmith said that with the downsizing of the Pacific OCS Region, it is important to keep in mind that MMS has an ongoing responsibility for monitoring the environment and, although at the present time it appears as though there is not much occurring offshore, it is impossible to predict what the situation will be in 5-20 years from now. Therefore, the MMS should not lose sight of the ongoing responsibility to monitor what is going on in order to be in a position to act if and when something new does occur.

He added that because the activity in the Pacific OCS Region has been going on for such a long period of time, there is an opportunity to look at the historical life cycle of oil and gas activity overtime.

Gulf of Mexico OCS Region

Dr. Goldsmith said that the Subcommittee prioritized the studies as follows:

1. Labor Demand Study, an ongoing study. The MMS needs to continue doing the analysis of the data that has been collected.
2. Report on Cumulative Effects. As with the Pacific OCS Region, the Subcommittee feels that it would be useful to look at the long-term cycle of economic and social impacts associates with oil and gas development. The Gulf of Mexico OCS Region is proposing a whole series of cumulative effects studies and the Subcommittee supports each of them, although each study should be characterized rather than as cumulative.
3. Port and Port Communities. As it was proposed, this study looks at what has happened at the various ports along the coast associated with oil and gas activities offshore. The Subcommittee feels the objective needs to be more clearly defined and questions such as why have some communities been more successful in dealing with the oil and gas development than other communities should be the focus. In line with that, what institutions have played a positive or a negative role in developing the community capacity to deal with those changes? Since the MMS does not have the time or funds to look at each port, the Subcommittee suggests that a stratified sample of the ports be taken to be used as the basis for the analysis and that the structure of the analysis be one of a comparative analysis rather than simply descriptive and that, as part of the methodology, both kinds of scoping analysis be done in each of the chosen ports.
4. Institutional History, a proposed Fiscal Year 2004 study. The Subcommittee thinks this study could be strengthened by focusing on the questions, “Given that MMS decisionmaking

always has to be done in an environment of uncertainty about what the future conditions will be, how has the MMS addressed that uncertainty in its decisionmaking historically? Has it been successful? Are there things that could be learned about how MMS could have done things differently in order to deal more successfully with that uncertainty?" The Subcommittee feels there are other types of questions that this study could ask rather than being simply a historical review of what has happened to make it of grater value to the agency.

Alaska OCS Region.

1. Study of Potential Conflicts in Cook Inlet Between OCS Development and Drift Net Fishing, a proposed study for Fiscal Year 2003. The Subcommittee believes this will be a useful study. The drift net fishermen are generally supportive of oil and gas development in Cook Inlet, but there are concerns about the ability to harvest salmon by drift nets because of the potential for rigs to be located in the most productive areas where fishing is taking place. Another concern is that the study should keep in mind that there really is an economic tradeoff in terms of trying to develop mitigation measures between the loss to the oil and gas industry from having to change its behavior and potential loss to the fishermen from having to change their behavior. Also of concern are the locations of where the leases are in relation to where the communities are on the road systems in Cook Inlet. Basically, the question is, "Would a development on the Cook Inlet leases be serviced by existing bases, in which case there would be very little economic and social impact, or would alternative sites need to be developed in the lower Cook Inlet?" And, if that were the case, then there could be quite significant social and economic impacts because the communities in the lower Cook Inlet are off-the-road systems.
2. Social and Economic Impacts of Oil Spill Litigation. The objective of this study is to gather some sense of what the impact on communities is and will be from the oil spill litigation settlements of the Exxon Valdez oil spill. Although a settlement of $5 billion to be distributed among a variety of different stakeholders was awarded, the settlement has been under appeal for the last 8 years. Therefore, there are two parts to this analysis: 1) what happens to those communities during the appeal process and 2) what happens after the settlement money does come.
3. Visual Documentation of the Bowhead Whale Hunt, a Fiscal Year 2004 proposed study. The Subcommittee agreed this is a worthwhile study.

National

1. Conduct a Comparative Analysis of the Impacts of Oil Spills in Other Locations and in Other Nations. The Subcommittee feels this is a useful study but that it should be more than simply a description of what has happened in other places. One way to strengthen this study would be to focus more on how the disasters in other locations were handled and dealt with and what the conditions were that resulted in certain oil spills being handled more effectively than others. Also, it may be useful to look at how the media characterized these evens in the different locations to obtain some sense of how MMS might be able to improve its information transfer capabilities.

2. Economic Modeling, the process of updating models to try to make them more consistent across the regions. The Subcommittee feels one of the most important improvements would

be to have the model deal with issues of change over time rather than looking at simply one slice in time or one year. The Subcommittee also feels that there seems to be a little too much reliance on the formal models in terms of analysis. There is also a danger with formal models that could seduce one into thinking more is known than what is actually really known. The Subcommittee thought it would also be useful to backtrack and keep on top of how model parameters vary over time.

3. Commercial and Recreational Fishing and Dredging. The objective of this study is to look at the impacts and possible mitigation measures to minimize the impacts of dredging on fishing. There is a situation here where a socioeconomic impact analysis is divided between two different agencies: MMS and the Corps of Engineers.

Open Discussion

Mr. LaBelle pointed out that any survey that involves public participation needs to be reviewed by the Office of Management and Budget. He, therefore, asked the SC to consider making its opinion known to MMS about the worth of these surveys. Dr. Gill stated that surveys are of the utmost importance for social science and Dr. Goldsmith seconded.

COMMITTEE BUSINESS

Discussion of Subcommittees.

Sand and Gravel Subcommittee. After Tuesday's meeting, Drs. Gill and Coleman offered to serve along with Drs. Diaz and Marek on the Sand and Gravel Subcommittee.

Beaufort Sea Monitoring Issues Subcommittee. Dr. Shapiro offered to serve with Drs. Castellini, Goldsmith, and Schroeder. A Subcommittee meeting was held March 6, 2002, to discuss the Beaufort Sea activities and Dr. Goldsmith has prepared a review of that meeting which will be appended in an attachment to the Letter to the Director.

Deepwater Subcommittee. Drs. Albrecht and Grassle are rotating off of the SC, therefore, there are socioeconomic and ecology/biology vacancies. Drs. Cooper and Schroeder are hoping to extend their membership on the SC in order to continue serving on the Subcommittee. Therefore, the members of the Deepwater Subcommittee are Drs. Schroeder, Cooper, Coleman, and Rex.

Mercury Subcommittee. Dr. Schroeder gave the SC a report on its formation and recent meeting, which was held after the Plenary Session on Tuesday. Members of the Subcommittee are Drs. Crecelius, Marshall, Schroeder, and Stephenson-Hawk. The Subcommittee had also invited members of the SC and MMS personnel who were either directly involved or had an interest in this issue directly or potentially. The purpose of the meeting was to discuss what the Subcommittee had done to date. The Subcommittee had been in an information-gathering phase, and MMS personnel had been acquiring, reproducing, and sending to the Subcommittee members information that is pertinent to the mercury issue. It was determined that all members were receiving that information and that information was useful.
The Subcommittee also discussed the talks that had been presented earlier that day by Drs. Neff and Montagna. After the discussion, Drs. Neff, Montagna, Ray, and Mr. Mike Parker were

invited to come in to the meeting to answer any questions the Subcommittee might have or to provide any additional information that was not discussed at the meeting earlier that morning.

Dr. Neff has prepared a report on mercury, which was being reviewed by the API and would be released in the near future. With the timing of the release of that report and the upcoming mercury forum being held in Mobile, Alabama, on May 20-21, 2002, it was recommended strongly that that report be available before hand. The Subcommittee assured that the report was going to contain everything that Dr. Neff had reported here plus a great deal of other information.

It was asked whether there were any other activities going on directly from industry or elsewhere that would be providing important information to the mercury issue, and it was learned that NMFS is apparently initiating a study on methylmercury levels in fish tissues. This study is being designed to look at three different habitats -- bays and estuaries, open Gulf and reef areas -- compare the eastern and the western Gulf. The results of this study would not be available for about a year or so, but that is a large study that is just beginning.

There may very well be other studies being initiated and the Subcommittee has asked industry to notify the Subcommittee what it is doing in order to keep the Subcommittee informed on what may be of importance to the deliberations that will be made in terms of recommendations back to MMS.

At this stage the Subcommittee feels very comfortable about the data it has gathered and is focusing entirely on the technical scientific issues. There has been a great deal of information about this issue in the media, particularly in the newsprint, and it appears that in some cases there may have been information presented in those articles that was either misunderstood by the reporter or perhaps even inaccurately reported that has led to an impression that the situation is somewhat different than it might be. That is a public perception problem and the Subcommittee recognizes importance of straightening that out.

Dr. Schroeder announced that the Subcommittee would not plan to have anything to say until after the Mercury Forum, the Neff report is reviewed, and after the OCS Policy Committee meeting. At that point in time, some milestones for when some recommendations and/or input to MMS could be provided will be set.

<u>Items for the Letter to the Director</u>

- Emphasize survey researches in Socioeconomic studies. This is the only way to obtain data. There will be no frivolous surveys conducted, surveys are methodically logical, and the public is anxious to be surveyed.
- Reiterate the importance to hire a communications expert.
- Recommend that the Pacific OCS Region maintain quality of research.
- Comment that this meeting was extremely productive.
- Ask that handout material be provided to the SC prior to meetings via electronically.
- Report on the Mercury Subcommittee.

Each of the Subcommittees and its members was identified.

- Sand and Gravel Subcommittee: Drs. James Coleman, Robert Diaz, Duane Gill, and Chuck Marek.
- Beaufort Sea Monitoring Issues Subcommittee: Drs. Michael Castellini, Scott Goldsmith, Lynda Shapiro, and William Schroeder.
- Deepwater Subcommittee and FPSO Subcommittee: Drs. James Coleman, Cortis Cooper, and William Schroeder.
- Mercury in the Gulf of Mexico Subcommittee: Drs. Eric Crecelius, Livingston Marshall, William Schroeder, and Denise Stephenson-Hawk.

Previous Recommendations

Dr. Shapiro reported on the progress of the recommendations that were made last year and which ones had been acted on and which ones had not.

Those recommended but not acted upon are:

- The need to hire a communications specialist.
- The issue of going ahead and at least researching patent rights.
- Expand communications with the non-scientist user base. In general, MMS should consider appointing a specialist in communications.
- Future meetings might include brief presentations from selected CMI projects and programs.
- The DOI should examine legal issues concerning patent rights.
- Make sure that the information gathered is broadly disseminated to scientists through publications.
- Partnering be ongoing and encouraged the continued partnering with appropriate partners, be they other agencies, industry, or academia and, where appropriate, partnering with international counterparts in Canada or in Mexico.
- Education or outreach. This is actually an extension of the concept of hiring a media specialist but, in general, the need to communicate the mission and the accomplishments of MMS to the public.

Instead of having the breakout groups called Discipline Subcommittees, it was recommended that they be renamed as Discipline Breakout Groups since there are subcommittees that have been formed by the SC to deal with special issues in order to avoid confusion between the two.

Dr. Shapiro mentioned that MMS's responding to the SC's comments prior to the next meeting was very helpful and would like to see this practice continued.

Emerging Issues/Topics of Interest

Dr. Shapiro named the invasive species as an emerging issue.

Other Business

Dr. Schroeder mentioned that, as members of the SC, that there are times members will be E-mailed items that need to be read and, in some cases, approved. He suggested that when MMS does E-mail the SC something that requires action, that "Action Required" be put in as the subject line. This will alert the SC members that action needs to be taken on this particular

E-mail and hopefully a response will be received by the due date.

Dr. Schroeder spoke for the SC in telling Dr. Piltz that the SC is saddened to know that the Pacific OCS Regional office is downsizing and said that the entire SC has very, very much enjoyed working with him and his staff. Dr. Schroeder asked Dr. Piltz to take back with him the SC's sincere wishes for the best to all, a very thankful note to them on the wonderful work that has been done, the fine science that has come out of that. The SC has enjoyed working with him and his group over the years, and really and truly wish everyone the very best. He added that the SC is extremely appreciative of the fine work that Dr. Piltz and his staff have done.

Dates and Locations for Next SC Meeting

It was decided that the SC meeting would continue to be held in April and location will be announced at a later date. Mr. LaBelle said that the SC used to rotate among the regions when there were three meetings per year. However, since it is meeting once a year, he wanted input from the SC as to where it would prefer to meet next April. He reminded the SC that it last met in New Orleans, Louisiana.

Dr. Schroeder reminded the SC that with the current meeting structure, more subcommittee meetings can be held. He admitted that a lot of business can be done electronically, and then when a discussion mode is needed, there can be a conference call. However, there are certainly times when Subcommittees need to meet not to carry out just business, but to meet in conjunction with another important event or activity.

Dr. Schroeder adjourned the meeting.

MINERALS MANAGEMENT ADVISORY BOARD

Agenda for the OCS Scientific Committee Meeting
Tuesday, April 23, 2002
Holiday Inn and Suites
Alexandria, Virginia

8:30 a.m. - 8:45 a.m.	Welcome and Introductions Dr. William Schroeder, Chair, OCS Scientific Committee
8:45 a.m. - 9:15 a.m.	Associate Director's Presentation Mr. Tom Readinger, Associate Director for Offshore Minerals Management and Executive Director of the OCS SC
9:15 a.m. - 9:35 a.m	Ocean Commission Update Dr. James Coleman, Ocean Commission Member
9:35 a.m. - 9:55 a.m.	OCS Policy Committee Report Dr. George Banino, OCS Policy Committee Chair
9:55 a.m. - 10:10 a.m.	Break
10:10 a.m. - 10:30 a.m.	Report on the GOMR ITM Session on Sand and Gravel Studies Dr. Robert Diaz, Virginia Institute of Marine Science, Dr. Chuck Marek, Vulcan Materials Company, and Mr. Barry Drucker, MMS INTERMAR
10:30 a.m. - 10:45 a.m.	Formation of the Sand and Gravel Committee
10:45 a.m. - 11:15 a.m.	Mercury in the Marine Environment Dr. Jerry Neff, Battelle Ocean Science Laboratory
11:15 a.m. - 11:45 a.m.	GOOMEX: Experimental Design and What the Data Mean Dr. Paul Montagna, Marine Science Institute, University of Texas
11:45 a.m. - 12:00 noon	Director's Presentation Ms. R. M. "Johnnie" Burton, Director
12:00 noon - 1:30 p.m.	Lunch

MINERALS MANAGEMENT ADVISORY BOARD

Agenda for the OCS Scientific Committee Meeting
Tuesday, April 23, 2002
Holiday Inn and Suites
Alexandria, Virginia

(Afternoon Session)

1:30 p.m. - 2:00 p.m.	NMFS Regulations/Explosive Removals Ms. Judy Wilson, MMS Environmental Assessment Branch
2:00 p.m. - 4:45 p.m.	Regional Priorities and Environmental Information Needs
(2:00 - 2:25)	National Dr. James Kendall, Chief, Environmental Sciences Branch
(2:25 - 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, Chief, Environmental Studies Section
(4:00 - 4:45)	Gulf of Mexico OCS Region Dr. Pat Roscigno, Chief, Environmental Sciences Section
4:45 p.m. - 5:15 p.m.	Scientific Committee Wrap-Up Discussion Dr. William Schroeder, Chair, OCS Scientific Committee
5:15 p.m.	Adjourn

Associate Director's Presentation

As advisor to the Director, MMS, the Committee appreciates the opportunity to have a dialogue with the Associate Director for Offshore Minerals Management on ongoing and future issues, policies, and activities of the Bureau. This exchange not only keeps the Committee apprised of MMS direction but also offers an opportunity for the Committee to provide direct advice and guidance on matters as they relate to the Environmental Studies Program.

Ocean Commission Update

Established by the Oceans Act of 2000, the U.S. Commission on Ocean Policy is 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. During its 18-month investigation, the Commission will examine such issues as responsible stewardship of living and non-living resources; protection of the marine environment; impact of, and protection against, natural and manmade hazards, the role of oceans in climate change, and enhancement of oceanographic science, to name but a few.

Dr. James Coleman, a member of the Commission, will report on recent Commission activities.

OCS Policy Committee Report

Officers of the OCS Scientific Committee and the OCS Policy Committee routinely attend each other's meetings and give brief presentations on the various OCS issues they are involved with. Dr. George Banino will present the key discussion items from the OCS Policy Committee's October 2001 meeting.

Report on the GOMR ITM Session on Sand and Gravel Studies

In January 2002, the MMS International Activities and Marine Minerals Division (INTERMAR) convened a sand and gravel session at the Gulf of Mexico Information Transfer Meeting. Covering both the morning and the afternoon, a series of speakers provided the results of several major and recently completed MMS-funded environmental sand and gravel studies. This included site-specific and generic-oriented efforts. In addition, there were talks on related studies and activities of interest from the Army Corps of Engineers' New York and New Orleans District offices. Several of the sessions' speakers are presently preparing papers for inclusion in a special MMS sand and gravel issue of the Journal of Coastal Research. Barry Drucker (MMS sand and gravel program), in consultation with SC members Drs. Bob Diaz and Charles Marek, will present an overview of the ITM session.

Formation of the Sand and Gravel Subcommittee

It is recognized that sooner or later leases of sand and gravel offshore will be offered. At the last meeting, it was recommended that the protocols that went into the original leasing of offshore oil, gas, etc., be looked at to determine the best way to proceed and that the MMS begin consideration of impacts on budget and planning caused by possible substantial increased in

leasing and operation in the sand and gravel program.

Mercury in the Marine Environment

Mercury, particularly in the form of methylmercury, is extremely toxic to marine organisms, wildlife, and man. The main pathway for human exposure to methylmercury is through consumption of freshwater and marine fishery products. There is considerable concern throughout the US, including the Gulf of Mexico states, about mercury contamination of commercial and recreational freshwater and marine fishery products. Recent newspaper editorials identified offshore oil and gas operations as a possible source of mercury in marine fish and shellfish in the Gulf of Mexico. The American Petroleum Institute commissioned Dr. Neff to prepare a review on the possible contribution of offshore oil and gas facilities to mercury contamination of marine fishery products. He found that the contribution of offshore oil and gas activities to the flux of mercury to the Gulf of Mexico was very small. Fish and shellfish collected near offshore platforms do not contain higher concentrations of mercury in edible tissues than the same species from elsewhere in the Gulf of Mexico.

GOOMEX: Experimental Design and What the Data Mean

The Gulf of Mexico Offshore Operations Monitoring Experiment (GOOMEX) was performed to develop and recommend sensitive and appropriate techniques for monitoring activities of offshore oil and gas production. To accomplish this goal, a broad range of biological, biochemical and chemical methodologies were tested to detect and assess potential chronic, sublethal, and long-term effects of offshore oil and gas production. GOOMEX study components included measurements of abiotic characteristics to indicate environmental state (e.g., chemical patterns in sediments and water, geological patterns, and physical patterns) and biotic responses (e.g., tissue body burdens, detoxification response by fish and invertebrates to contaminant exposure, sediment toxicity to invertebrates, meiofaunal, macrofaunal and megaepifaunal community structure, harpacticoid reproduction and population genetic structure, megaepifaunal reproduction). In general, results indicate that effects were limited to 100 m from platforms. Relative to background (i.e., $\geq$ 200 m), the zone near platforms had sediments with higher levels of contaminants and toxicity; reduced levels of abundance, species diversity, genetic diversity, and reproductive success; and feeding guilds dominated by deposit feeders. The HI-A389A platform had much higher levels of contaminants and concordant biotic responses than other platforms, apparently because of near-bottom shunting to avoid dispersal to the nearby Flower Gardens.

Director's Presentation

The Scientific Committee advises the Director, MMS, on research studies supported under the Bureau's Environmental Studies Program. During these meetings, the Director tries to meet with the Committee for a dialogue concerning MMS's mission related activities and priorities as they relate to the studies program.

NMFS Regulations/Explosive Removals

NMFS Regulations/Explosive Removals. Production declines in mature oil and gas fields of the U.S. Gulf of Mexico will accelerate as reserves continue to be depleted in the years to come. MMS regulations and leases require lessees to remove surplus structures such as platform jackets, caissons and casings within one year after lease expiration. Explosive charges are often favored for severing structural and production members, and exploratory wells to allow structure removal. Explosives are often safer than other methods; they are cost-effective; and they are frequently the only practical method of removing certain types of structures.

Regional Priorities and Environmental Information Needs

MMS Headquarters and Regional Studies presentations will outline the overall research needs and priorities of the National and Regional Studies Programs. Presentations will address current issues; information/knowledge gaps; the most pressing research needs; how the various disciplines fit together in the overall picture; and future Studies efforts, in terms of expenditures and prioritization.

MINERALS MANAGEMENT ADVISORY BOARD

Agenda for the OCS Scientific Committee Meeting
Wednesday, April 24, 2002
Holiday Inn and Suites
Alexandria, Virginia

8:15 a.m. - 8:30 a.m. Charge to the Discipline Subcommittees
Dr. William Schroeder, Chair, OCS Scientific Committee

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

	Ecology/Biology Marshall Salon	Physical Oceanography Pendleton Salon	Socioeconomics Wythe Salon
8:30 – 9:45	Alaska Region	Gulf of Mexico Region	Pacific Region
9:45 – 10:00	Break	Break	Break
10:00 – 11:15	Headquarters	Alaska Region	Gulf of Mexico Region
11:15 - 12:30	Lunch	Lunch	Lunch
12:30 - 1:45	Pacific Region	Headquarters	Alaska Region
1:45 - 3:00	Break	Break	Break
3:00 - 4:15	Gulf of Mexico	Pacific Region	Headquarters

4:15 p.m. - 4:45 p.m. Subcommittees Chairs and MMS Recorder Finalize Recommendations

4:45 p.m. Adjourn

MINERALS MANAGEMENT ADVISORY BOARD

Agenda for the OCS Scientific Committee Meeting
Thursday, April 25, 2002
Holiday Inn and Suites
Alexandria, Virginia

8:00 a.m. - 8:30 a.m.	Plenary Session Dr. William Schroeder; Chair, OCS Scientific Committee
8:30 a.m. - 9:30 a.m.	Discipline Subcommittee Reports (20 minutes each) • Biology • Physical Oceanography • Socioeconomics
9:30 a.m. - 10:00a.m.	Open Discussion
10:00 a.m. - 10:15 a.m.	Break
10:15 a.m. - 12:00 p.m.	Committee Business • Election of Chair and Vice-chair for FY 2003 • Discussion of Subcommittee Reports • Items for Letter to the Director • Emerging Issues/Topics of Interest • Other Business • Dates and locations for the next meeting
12:00 p.m.	Adjourn the meeting

Discipline Subcommittee Reports

Each Subcommittee will report on the national and regional studies plans that were discussed during the breakout sessions yesterday.

Committee Business

- A new Chair will be appointed to the OCS SC. In the event that the Vice Chair, Dr. Lynda Shapiro, is elected Chair, an election of a Vice-Chair will be held.
- The Committee will discuss and comment on the Subcommittee Reports.
- Items for the Letter to the Director will be submitted.
- Emerging Issues/Topics of Interest
- Other business will be discussed.
- Possible dates and locations will be discussed for the next SC meeting. At the previous meeting, it was decided that the month of April would be ideal for the SC meetings to be held.

ATTENDEES

OCS Scientific Committee Members

Dr. Stan Albrecht, Utah State University
Dr. James Coleman, Louisiana State University
Dr. Cortis Cooper, Chevron Petroleum Technology Company
Dr. Robert Diaz, Virginia Institute of Marine Science
Dr. Duane Gill, Mississippi State University
Dr. Oliver "Scott" Goldsmith, University of Alaska Anchorage
Dr. Charles Marek, Vulcan Materials Company
Dr. Livingston Marshall, Morgan State University
Dr. Michael Rex, University of Massachusetts
Dr. William Schroeder, University of Alabama
Dr. Lynda Shapiro, University of Oregon

Minerals Management Service

Ms. Vicki Agnew, Offshore Minerals Management
Dr. Tom Ahlfeld, Environmental Sciences Branch
Ms. Colleen Benner, Environmental Sciences Branch
Dr. Mary Boatman, Environmental Sciences Section, Gulf of Mexico OCS Region
Dr. Kay Briggs, Environmental Assessment Branch
Mr. David Browne, Environmental Studies Section, Pacific OCS Region
Ms. Elizabeth Burkhard, Environmental Sciences Branch
Ms. Johnnie Burton, Minerals Management Service
Ms. Jane Carlson, Procurement Operations Branch
Mr. Jim Cimato, Environmental Sciences Branch
Ms. Phyllis Clark, Environmental Sciences Branch
Dr. Rodney Cluck, Environmental Sciences Branch
Dr. Cleve Cowles, Environmental Studies Section, Alaska OCS Region
Mr. Walter Cruickshank, Minerals Management Service
Mr. Barry Drucker, International Activities and Marine Minerals
Ms. Mary Elaine Dunaway, Environmental Studies Section, Pacific OCS Region
Mr. Keith Good, Environmental Sciences Branch
Ms. Carol Hartgen, International Activities and Marine Minerals
Ms. Cheri Hunter, Offshore Minerals Management
Dr. Jeff Ji, Environmental Sciences Branch
Dr. Walter Johnson, Environmental Sciences Branch
Dr. Jim Kendall, Environmental Sciences Branch
Mr. Robert LaBelle, Environmental Division
Dr. Ron Lai, Environmental Sciences Branch
Ms. Dian Lawhon, Public Affairs
Dr. Alexis Lugo-Fernandez, Environmental Sciences Section, Gulf of Mexico OCS Region
Dr. Harry Luton, Environmental Sciences Section, Gulf of Mexico OCS Region
Ms. Bettine Montgomery, Policy Management Improvement

Dr. Fred Piltz, Environmental Studies Section, Pacific OCS Region
Dr. Dick Prentki, Environmental Studies Section, Alaska OCS Region
Mr. Tom Readinger, Offshore Minerals Management
Ms. Julie Reynolds, Offshore Minerals Management
Dr. Robert Rogers, Environmental Sciences Section, Gulf of Mexico OCS Region
Dr. Pat Roscigno, Environmental Sciences Section, Gulf of Mexico OCS Region
Mr. Edward Shaw, Office of the Director
Mr. Paul Stang, Leasing and Environment, Alaska OCS Region
Mr. Will Waskes, International Activities and Marine Minerals
Ms. Kate Weidemeyer, Environmental Studies Section, Alaska OCS Region
Mr. Dick Wilhelmsen, Leasing and Environmental, Pacific OCS Region
Ms. Judy Wilson, Environmental Assessment Branch

Invitees

Mr. George Banino, OCS Policy Committee, Earth Tech, Inc.
Dr. Eric Crecelius, Battelle Research, Incorporated
Dr. Paul Montagna, University of Texas
Dr. Jerry Neff, Battelle Ocean Science Laboratory
Mr. Don Oltz, OCS Policy Committee, Geological Survey of Alabama

Others

Ms. Betty Anthony, API
Mr. Tom Michaels, NOIA
Mr. Mike Parker, API
Mr. Juan Poloma, API
Dr. Larry Rouse, University of Louisiana
Ms. Heidi Wieskel, PEW Commission

MEMBERS OF THE MINERALS MANAGEMENT ADVISORY BOARD OCS SCIENTIFIC COMMITTEE

ALBRECHT, Dr. Stan L.

Dr. Albrecht is Executive Vice President and Provost at Utah State University. He previously served as Dean of the College of Humanities, Arts and Social Sciences at USU and has filled other administrative assignments as Associate Chair of the Department of Health Policy and Epidemiology at the University of Florida and as Associate Director of the Institute for Health Policy Research. His research interests include the study of environmental policy, with a particular focus on the effects of environmental policy on human communities.

CASTELLINI, Dr. Michael Angelo

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.

COLEMAN, Dr. James M.

James M. Coleman 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.

COOPER, Dr. Cortis K.

Dr. Cooper is a senior research associate at Chevron Petroleum Technology, the upstream R&D organization of Chevron. He has 20 years experience in the oil industry providing metocean (meteorological and oceanographic) design and operating criteria for major offshore projects in all parts of the world. Recent research efforts have focused on numerical modeling of the Loop Current in the Gulf of Mexico, wave forecasting off W. Africa, measurement of current turbulence, identification of hurricane alleys in the Gulf, and modeling of deepwater oil spills.

DIAZ, Dr. Robert J.

Dr. Diaz's research interests center around understanding trophic dynamics and the functional importance of production in ecosystems, benthic boundary layer processes, and organism-sediment interactions, and how perturbations of these processes influence energy flow. He has investigated the effects of low dissolved oxygen on trophic transfer of benthic secondary production and developed several methods of assessing environmental impacts which incorporate the functional aspects of benthic communities and remote sensing technology (sediment profile and underwater photography). He is striving to estimate the relative resource value of all the 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 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 and low salinity fauna.

GILL, Dr. Duane A.

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.

GOLDSMITH, Dr. Oliver Scott

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 25 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.

GRASSLE, Dr. J. Frederick

Dr. Grassle is a marine ecologist and oceanographer, Professor of Marine and Coastal Sciences, and Director of the Institute of Marine and Coastal Sciences at Rutgers University. His research is estuarine, continental shelf, and deep-sea benthic ecosystems, coastal observing systems, and the development of an Ocean Biogeographic Information System.

MAREK, Dr. Charles R.

Dr. Marek has been employed by Vulcan Materials Company since October 1972. He began his career 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 research and development department. Since 1996, Dr. Marek has been the Principal Materials Engineer. He participates in and promotes research by universities, public funded agencies, and trade associations on select projects and problems/opportunities of interest and importance to Vulcan and to the 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 end-use products made with the materials.

MARSHALL, Dr. Livingston S., 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, Dr. Marshall was also appointed Research Associate at the Smithsonian Environmental Research Center. In addition to his research, teaching, and outreach responsibilities at Morgan State University, Dr. Marshall 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.

REX, Dr. Michael A.

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.

SCHLAGER, Dr. Edella C.

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.

SCHROEDER, Dr. William W.

Dr. Schroeder has been involved in interdisciplinary oceanographic investigations for over 37 years and has conducted research along the coast, continental margins, and deep sea of the northern Gulf of Mexico for the past 28 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 co-authored over 125 scientific publications dealing with estuarine, shelf and open ocean hydrography and circulation, shelf-estuarine interactions, geological and biological characterizations of coastal, continental margin and deep sea habitats, hypoxia-anoxia events and coastal sediment processes. Currently, his research activities include: 1) coupled physical-biological-geological studies in the northeastern Gulf of Mexico; 2) Late Quaternary sea level and paleoceanography investigations of hardbottom sites in the northern Gulf of Mexico; 3) an integrated study of physical and biological processes along the west coast of Australia; and 4) model validation of the coupled katabatic wind, coastal ocean and ice systems in Antarctica.

SHAPIRO, Dr. Lynda P.

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.

STEPHENSON-HAWK, Dr. Denise M.

Dr. Stephenson-Hawk chairs a consulting group assisting organizations with the application and use of science for the purpose of strategically influencing policy and organizational and resource allocation decisions. She has served as a principal investigator for research funded by the National Science Foundation, National Aeronautics and Space Administration, the Office of Naval Research, and the U.S. Department of Energy. She has also been appointed to national committees such as the National Science Foundation's Geosciences Advisory Committee, National Aeronautics and Space Administration's Earth System Science Applications Advisory Committee, and National Oceanic Atmospheric Administrations Science Advisory Board. She has worked with educators at the K-12 level, serving as the co-chair for the statewide (Georgia) Workshop for K-12 Teachers of Mathematics and Science in 1998, and also served as Provost of Spelman College.

MINERALS MANAGEMENT SERVICE (MMS)
Personnel Who Interact with
the OCS Scientific Committee
April 23-25, 2002

BURTON, Rejane "Johnnie"– Director

Ms. Burton's appointment as Director, Minerals Management Service, was 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 through1988, 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 through1979.

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. In1987, 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'Enseignment 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.

READINGER, Thomas – Associate Director for OMM

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.

COWLES, Cleve

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.

DRUCKER, Barry S.

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. He develops statements of work for funded studies and oversees projects as MMS Contracting Officer's Technical Representative.

KENDALL, James J.

Dr. James J. Kendall coordinates the ESP of the U.S. Department of the Interior's MMS. The 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 Studies Chief for the MMS Gulf of Mexico OCS Region. He received his bachelors degree in biology

from Old Dominion University and his Ph.D. in oceanography from Texas A&M University. He has conducted marine research in the Gulf of Mexico, Caribbean, and Red Sea.

LABELLE, Robert P.

Mr. LaBelle is the Executive Secretary of the OCS Scientific Committee and Chief, Environmental Division. In this position, he has management oversight for all of the MMS's environmental activities. This includes the MMS Environmental Studies Program, the National Environmental Policy Act analyses performed by MMS to evaluate lease sales and industry proposals, and support of MMS environmental regulations. Prior to this position, he was responsible for establishing and defending Department of the Interior policy on oceanography as applied to environmental impact assessment of offshore activity. He has published on oil-spill modeling and impact assessment, and holds degrees in biology, marine ecology, and management.

PILTZ, Fred M.

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.

ROSCIGNO, Pasquale F.

Dr. Pat Roscigno is the Chief, Environmental Sciences Section, 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.

WILSON, Judy

Ms. Wilson is a Marine Biologist, Environmental Division, Branch of Environmental Assessment. She is responsible for formulating and recommending policies relating to the Endangered Species Act and the Marine Mammal Protection Act in support of the MMS Offshore Program. She oversees ESA section 7 consultations and petitions for rulemaking under MMPA.

PRESENTERS

BANINO, Mr. George

Mr. Banino is Vice President of Earth Tech Inc., in Latham, New York. He is Project Manager and Advisor for scores of mining and geotechnical projects, and combines his strong background in field geology, quarry operations including mining and blasting designs, together with his experience in economic aspects of geologic evaluations and mineral production. For 12 years he also directed RUST's Testing Laboratory and his research in improving the resistance to weathering of earth materials has lead to numerous publications and patents. He works with the firm's environmental engineering groups to evaluate a wide range of mining issues and achieve practical solutions that meet the needs of both the mineral producer and the surrounding community. He is author of numerous publications on mineral law, reclamation, quarry operations and economic geology. In addition he is active in environmental committees and advisory boards of national, state, and local associations and regulatory bodies. He serves as Vice Chairman of the OCS Policy Committee and as a member of its Hard Minerals Subcommittee.

CRECELIUS, Dr. Eric

Dr. Crecelius is Technical Group Leader for Marine Chemistry, Battelle Northwest and is a former OCS Scientific Committee Member. His areas of interest are marine chemistry fates and effects. Recent work includes assessment of sea surface contamination in the Gulf, and an examination of mercury, lead, selenium, and arsenic in both freshwater and marine environments.

MONTAGNA, Dr. Paul

Dr. Montagna is 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 expert in statistical design and analysis. He was worked on numerous OCS studies in Alaska, California, and the Gulf of Mexico. Dr. Montagna's contact information is: Dr. Paul Montagna, University of Texas at Austin, Marine Science Institute, 750 Channel View Drive, Port Aransas, TX 78373. Tele: 361-749-6779, E-mail: paul@utmsi.utexas.edu.

NEFF, Dr. Jerry

Dr. Neff is an internationally recognized authority on the fate and effects of petroleum hydrocarbons, oil well drilling fluids, and produced waters in marine freshwater, and terrestrial environments. During the past 30 years, he has performed more than 100 research and monitoring programs on these and related subjects for government and industrial clients worldwide. He has performed extensive research for the oil industry, the U.S. Federal government, and foreign governments on the marine environmental fate and effects of heavy metals and petroleum hydrocarbons from offshore drilling and production operations, and clean ballast water discharges from tankers. He has participated in Natural Resource Damage

Assessments for several oil spills, including the *Amoco Cadiz* crude oil spill in France, the *Exxon Valdez* crude oil spill in Alaska, the *Haven* oil spill off Genoa, Italy, the Trecate oil spill in rice fields north of Milan, Italy, and the *Seki* oil spill in the United Arab Emirates. The focus of much of this research was on the bioavailability and bioaccumulation by aquatic organisms of chemicals, particularly PAHs from permitted and accidental oil industry discharges. The work also included studies of the sources (including natural seeps) and weathering of crude and refined oil in the environment. Several of the oil spill studies included assessments of injury and compensatory damages to commercial and recreational fisheries resources in areas affected by the spills.

ACRONYMS

API	American Petroleum Institute
AQ	Air Quality
CMI	Coastal Marine Institute
DOE	Department of Energy
DOI	Department of the Interior
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESP	Environmental Studies Program
EFH	Essential Fish Habitat
EROS	Explosive Removals of Offshore Structures
FPSO	Floating Production, Storage and Offloading
GOOMEX	Gulf of Mexico Offshore Operations Monitoring Experiment
ITM	Information Transfer Meeting
LNG	Liquid Natural Gas
MMPA	Marine Mammal Protection Act
MMS	Minerals Management Service
NEP	National Energy Policy
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NSB	North Slope Borough
NTL	Notice to Lessees and Operators
OCS	Outer Continental Shelf
OOC	Offshore Operators Committee
PWAP	Pressure Wave/Acoustic Properties
SC	Scientific Committee
TAR	Technology Assessment Research
tcf	trillion cubic feet
USGS	U. S. Geological Survey

MINERALS MANAGEMENT ADVISORY BOARD
OCS Scientific Committee Meeting
Alexandria, Virginia
OUTLINE OF TRANSCRIPTS
April 23, 2002

MINERALS MANAG MINERALS MANAGEMENT ADVISORY BOARD
OCS Scientific Committee Meeting
Alexandria, Virginia
OUTLINE
April 25, 2002

DEPARTMENT OF THE INTERIOR Minerals Management Service

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 Holiday Inn and Suites in Alexandria, Virginia. **DATES:** Tuesday, April 23, and Wednesday April 24, 2002, from 8:30 a.m. to 5:00 p.m.; Thursday, April 25, from 8:30 to noon.
ADDRESSES: The Holiday Inn and Suites, 625 First Street, Alexandria, Virginia 22314, telephone (703) 548.6300.
FOR FURTHER INFORMATION CONTACT: Mr. Robert L. LaBelle or Ms. Julie Reynolds at the address or phone numbers listed below.

SUPPLEMENTARY INFORMATION: The OCS Scientific Committee is an outside group of 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 23. Presentations will be made by the Director, MMS, the Associate Director for Offshore Minerals Management, and a representative from the OCS Policy Committee. After these presentations, the rest of the day will be filled by presentations from the MMS regional studies chiefs on their research
priorities and needs in the context of regional decisionmaking.

On Wednesday, April 24, the Committee will meet in discipline subcommittee breakout sessions to review the specific research plans of the regions for Fiscal Year 2003 and 2004.

On Thursday, April 25, the Committee will meet in plenary session to discuss subcommittee reports and to conduct Committee business.

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

A copy of the agenda may be requested from MMS by calling Ms. Julie Reynolds at (703) 787-1211. Other inquiries concerning the OCS Scientific Committee meeting should be addressed to Mr. Robert LaBelle, Executive Secretary to the OCS Scientific Committee, Minerals Management Service, 381 Elden Street, Mail Stop 4040, Herndon, Virginia 20170-4817 or by calling (703) 787.1656.

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

Dated: February 21, 2002.
Thomas A. Readinger,
Associate Director for Offshore Minerals Management.
[FR Doc. 02-7800 Filed 3-29-02; 8:45 am]
BILLING CODE 4043-MR-P