OUTER CONTINENTAL SHELF (OCS) SCIENTIFIC COMMITTEE (SC)

May 22, 2007

Expanded Proceedings

Welcome and Instructions

Dr. Robert Diaz, OCS SC Chair, called the meeting to order and welcomed everyone.

MMS Director's Presentation and Discussion with the Committee

Mr. Robert LaBelle, Deputy Director for Offshore Minerals Management (OMM), represented the Director, Ms. Johnnie Burton, and reported to the Committee the status of the Mineral Management Service's (MMS) oversight and associated issues.

Mr. LaBelle stated that the work and accomplishments of the OCS SC are critical to the success of the Offshore Environmental Program and to MMS. He announced that the Director has decided to retire after 5 years of dedicated service and return to her home state of Wyoming. She wanted to thank the OCS SC for its service and for helping to meet the Nation's need for offshore energy. Over her tenure, she always held the Committee and its members in the highest regard and ensured that good science played a key role in policy decisions. He also announced that Mr. Chris Oynes, formerly Director of the Gulf of Mexico OCS Region, is now the Associate Director for OMM.

He told the Committee that Dr. James Kendall, Chief of the Environmental Sciences Branch and MMS Chief Scientist, has been accepted in the Department of the Interior's (DOI) Senior Executive Service training program which is quite an accomplishment with stiff competition across the Department. Since Dr. Kendall will be away from his normal duties during this training program, Mr. James Cimato will be acting Executive Secretary for the OCS SC for the next 18 months.

He announced that MMS is celebrating its 25th anniversary and presented a pin to each Committee member and MMS staff who was in attendance. The MMS was established in 1982 and since that time has:

- regulated the production of 11 billion barrels (bbls) of oil and 116 trillion cubic feet (tcf) of natural gas,
- collected and disbursed about $165 billion, and
- collected the great amounts of environmental and socioeconomic information needed to safely conduct offshore oil and gas exploration, development, production, and decommissioning.

With the devastation caused by Hurricanes Katrina and Rita during the summer of 2005, he wanted to applaud the Gulf of Mexico OCS Region's employees for their resiliency and perseverance in the face of great personal sacrifice. Through hard work and dedication, they were able to meet the demanding requirements of the leasing schedule as well as management of all the OCS exploration, development, and production activities in the Gulf of Mexico.

He commented that one of the major challenges to OMM is meeting the requirements of the new 5-year oil and gas leasing schedule for 2007-2012. On April 30, the DOI announced a 5-year plan to open 48 million acres of offshore land to oil and gas exploration. The program proposes 21 lease sales in eight planning areas, including 12 in the Gulf of Mexico and eight off Alaska. It also includes a triangle containing three million acres 50 miles off the Virginia coast which are still subject to moratoria. Virginia's state legislature and its governor support the offshore exploration of natural gas as a way to produce more jobs and a new source of revenue to support public schools.

He continued that in the announcement of the leasing plan, DOI Secretary, Mr. Dick Kempthorne explained that the program could produce 10 billion bbls of oil and 45 tcf of natural gas over 40 years, generating almost $170 billion in net benefits for the Nation. The plan is expected to become final in July following a 60-day review by the President and Congress.

The Environmental Studies Program (ESP) has begun the process of collecting information needed to proceed with the sales in an environmentally sound manner. Several members of the Committee had participated in workshops held last November and December in Anchorage, Alaska, which were conducted to summarize available information and solicit recommendations to fill major environmental and socioeconomic data gaps in the Chukchi and North Aleutian Basin (NAB) Planning Areas.

During these workshops, it became clear that some of the needed studies required a “jump start” to allow information to be collected and made available in a timely manner. For this reason, the development of several studies was put on a fast track with current fiscal year (FY) funding.

He mentioned another major environmental challenge for MMS which is the development of a national program for alternative energy and alternate use of the OCS as mandated in the Energy Policy Act (EPAct) of 2005. While drafting the proposed regulation, it was learned that interest is already being shown by coastal states, offshore renewable industry sources, and the investment community. He asked for the Committee’s help to meet the environmental concerns of this new program as MMS expands the current focus of environmental studies to support decision making beyond the oil and gas program.

The deepwater Gulf of Mexico continues to be a major focus of industry interest for offshore oil and gas development. He said that at this time, seven of the Nation’s top 20 oil fields are in OCS deepwater and over 100 deepwater discoveries have been made.

He highlighted two deepwater studies that have received special recognition within the DOI as well as by the broader ocean research community:

1) The *Deep Gulf Habitats Project: Investigations of Chemosynthetic Communities on the Lower Continental Slope of the Gulf of Mexico*. Also known as “Chemo III”, this an ongoing partnership between MMS, the U.S. Geological Survey (USGS), and the National Oceanographic Atmospheric Administration’s (NOAA) Office of Ocean Exploration. It is providing ground breaking exploration and science discoveries on deepwater chemosynthetic communities and coral habitats in the Gulf in water depths

ranging from 4,000 to 9,000 feet. Earlier this month, in recognition of the outstanding interagency cooperation, the Secretary of the Interior recognized this multi-million dollar project with the DOI Cooperative Conservation Award.

2) *Archaeological and Biological Analysis of World War II Shipwrecks in the Gulf of Mexico: Artificial Reef Effect in Deep Water* also received the DOI Cooperative Conservation Award in 2006 and was recognized with the prestigious National Oceanographic Partnership Program's (NOPP) Interagency Excellence in Partnering Award. In addition to the critical archaeological information produced by this study, it also provides important data on the deepwater artificial reef effects of shipwrecks as evidenced by the unexpected large growths of the coral *Lophelia* observed on the Gulf Penn after 60 years after its sinking.

He mentioned that several other deepwater studies of equal importance to MMS decision making has also been undertaken. The recently completed *Characterization of Northern Gulf of Mexico Deepwater Hard Bottom Communities with Emphasis on Lophelia Coral* is the first comprehensive study of the distribution of *Lophelia pertusa*, its biology, and community ecology in the Gulf of Mexico. Another nearly completed project of the Gulf's deepwater program, the *Northern Gulf of Mexico Continental Slope Habitats and Benthic Ecology Study*, characterized the soft bottom habitat of the continental slope to the deepest waters of the Gulf, about 3,800 meters. Studying this deepest zone of the Gulf was accomplished through the cooperation of 10 different institutions in three countries and included joint efforts with Mexico and participation of Mexican scientists at sea with the MMS study team.

He said that these few studies demonstrated how results of these deepwater projects are used by MMS in its adaptive management approach to provide appropriate protective measures to the deepwater communities. Two Notice to Lessees (NTL), the *Chemosynthetic Communities NTL* and the *Remotely Operated Vehicle Surveys in Deepwater NTL*, have been developed and updated in response to findings of these studies.

He concluded by saying that he looks forward to the OCS SC's participation in the review of studies that have been nominated for future funding by the MMS ESP, thanked the members for serving on the Committee, and for helping MMS to achieve its environmental goals.

Open Discussion
There were no questions for Mr. LaBelle.

Gulf of Mexico OCS Region Update
Mr. Lars Herbst was unable to attend the meeting; therefore, Mr. Joe Christopher presented the update for the Gulf of Mexico OCS Region.

He touched upon the EPAct of 2005 (http://www.mms.gov/ooc/press/2005/press0808a.htm), the Gulf of Mexico's Energy Security Act of 2006 (http://www.mms.gov/ooc/PDFs/010907MMSFactSheet.pdf), the current status of the Gulf of Mexico OCS, and what is being done to prepare for the 2007 hurricane season (http://www.mms.gov/PDFs/Preparations2007HurricaneSeasonBackgrounder.pdf).

Three key components of the EPAct affected the MMS:

- alternative energy and alternative use,
- the establishment of the Coastal Impact Assistance Program (CIAP) and,
- an automated royalty credit system.

He explained that Congress has set aside a billion dollars for the CIAP which will be disbursed to the States affected by OCS activities with the first disbursement taking place in the fall and that allocations have been announced for each State. These funds are authorized for five purposes:

- projects and activities for the conservation, protection, and restoration of the coastal areas including wetlands,
- mitigation of damage to fish, wildlife, or natural resources,
- planning assistance and administration of costs,
- implementation of a federally approved marine coastal or comprehensive conservation management plan, and
- mitigation of the impact of OCS activities through funding of offshore infrastructure projects and public service needs.

Since it is the lead agency for CIAP, the MMS has the responsibility to confirm that this money is being used for these purposes.

The Gulf of Mexico Energy Security Act was enacted in December of last year which added 8.5 million acres for leasing consideration, added acreage to the Central Sale which is scheduled for September of this year, and added an Eastern Gulf Sale which is scheduled for 2008 in conjunction with the Central Gulf Sale in March of 2008. It implemented a removal of Presidential withdrawal, removed the Congressional moratorium, and subsequently, the President removed his withdrawal of the area south of 181. It implemented revenue sharing to the coastal States and created a situation where companies can receive bonus credits in exchange for existing leases they own in the Eastern Gulf and use those credits for other OCS sales.

Mr. Christopher presented a power point map which displayed the affected areas. He said that there is a military mission line which prohibits activities east of that line. He also pointed out on the map the original 181 area that had been produced as an Environmental Impact Statement (EIS) 5-6 years ago and stated that the area will be leased in the future. West of the military mission line and to the east of the boundary between the Central and the Eastern planning areas is Sale 224, which is over100 miles offshore Florida, will be held in March 2008 in conjunction with the central planning area sale scheduled then.

Another power point map showed the area referred to as south of 181 which the MMS will be required to do an EIS.

He stated that Gulf deepwater development is in its 12th year of major expansion. There were 107 projects in production at the start of 2006; seven new projects came online in 2006, producing oil and gas; and three very large projects will start production in 2007-2008.

Independence Hub is a new major production in 2007-2008 that is almost exclusively gas with a billion cubic feet per day production. Thunder Horse is another new production but, due to technical problems, is not yet online. It is estimated that 250,000 bbls of oil per day will go online. The Atlantis should come online at 200,000 bbls of oil per day.

He said that the Chinook is going to be the first Floating Production, Storage, Offloading project in the Gulf and that its deep water operations plan has been approved.

He announced that there will be 700 leases in the Lower Tertiary available in the FY 2007-2008 Western and Central Planning area sales.

He reported that, as of May 4, 2007, there are 78 total drilling rigs; 107 working rigs; 36 drilling rigs in water depths greater than 1,000 feet; 34 drilling rigs in water depths greater than 1,500 feet; and nine drilling rigs in water depths greater than 5,000 feet.

In general, there are 4,000 structures offshore, 33,000 miles of pipeline, 40,000 wells drilled, and 120 deepwater projects online. The deepest production is the Nakika, at 7,500 water depth, the Independence Hub is the deepest facility at 8,000 feet water depth, and the deepest drilled well is Toledo at about 10,000 feet water depth.

A number of changes are being made in advance of the upcoming hurricane season, including:

1) Air space between the water and the bottom of the deck has been increased for jack-up drilling operations.

2) The number of moorings on Mobile Offshore Drilling Units (MODU's) has been increased from 8 to 12.

3) Reporting requirements have been changed to allow for the availability of more real-time information.

Mr. Christopher stated that 2006 was a record-breaking year for new technology such as the High Integrity Pressure Protection System which is for subsea production facilities where operations are in extreme water depths with extreme pressures from the reservoirs. Subsea separation and boosting are other new technologies being used where there are subsea production facilities and there will be separation of a lot of the water at a subsea facility. Boosting refers to pumping up to the host facility.

He announced that there is a new NTL relating to currents that apply to MODUs and floating production facilities in water depths greater than 400 meters. Between 400 and a thousand meters, an Acoustic Doppler Current Profile (ADCP) had been used which points down from the surface or up from the bottom to register currents and provide remote sensing of currents in the water column.

Mr. Christopher described a study, *Archaeology and Biological Analysis of World War II Shipwrecks in the Gulf*, which was a collaborative effort between MMS and NOPP and has been

enormously successful. It has won two awards, the Department of Cooperative Conservation Award and the NOPP's Excellence in Partnering Award.

Mr. Christopher described the Mardi Gras Shipwreck which is about a 200-year-old wreck and is going to be the deepest scientific archaeology exploration of a shipwreck. Texas A&M University is performing the work and MMS archaeologists are observing and participating in the activities which will be done using remotely operated vehicles (ROV). The artifacts that are recovered will go on display in the Louisiana State Museum, Cabildo at Jackson Square.

Another wreck was discovered nearby in the Mississippi Canyon leasing area during an ROV survey of a pipeline route and there was some thought that this may actually be associated with the Mardi Gras Shipwreck site.

The U-166, which is part of a World War II shipwreck, was discovered 3-4 years ago and the Coast Guard had thought it had sunk it off the Atchafalaya. The wreck was located off the mouth of the Mississippi River and a survey company working on a pipeline actually found it.

Another shipwreck recently discovered is the Green Lantern, so called because a green lantern was found on it. It is in 2,500 feet of water and is an unknown schooner from the 19th Century.

He described three new major production sites in 2007-2008:

- Independence Hub being operated by Anadarko,
- Thunder Horse being operated by BP, and
- Atlantis, also being operated by BP.

Open Discussion

Dr. Michael Fry asked if there was a major storm, how would a facility like Thunder Horse, which is expected to put out about 250,000 bbls of oil per day, be shut down. Mr. Christopher responded that all platforms are required to have subsea safety valves that can be shut down. These safety valves are located several hundred feet below the mud line and are very effective. Mr. Dennis Chew added that it is not just one well but multiple wells and said that he doesn't believe there is an issue to shutting them down.

Dr. Michael Castellini asked Mr. Christopher to explain the CIAP and categories that are being predicted, whether or not the environmental studies group has a role in any of those, and if there is potential for OCS SC review. Mr. Christopher answered that there have been studies done such as those relating to Ship Shoal off of Louisiana. In terms of the CIAP, once the project is approved, the State submits a plan that includes every project that they think needs to be funded, and MMS does a review to make sure that the general description provided fits within the five categories. Later, the State will come into the Grant Applications for each of those projects or one project may have multiple grant applications and those will also be reviewed. Ultimately, MMS will be conducting on-site reviews of these projects to certify they are being done according to what had been submitted. To participate in this process, Mr. Greg Gould added, one would need to approach the State or other political subdivision since MMS does not have any role in selecting how and where the money is spent and that money would not necessarily have to be used on offshore activities.

Dr. Tyler Priest asked if the implementation of revenue sharing impact the States' under the Energy Security Act. Mr. Christopher said that it is his understanding that the States will immediately begin getting revenue sharing from the Sale of 224, the Eastern Sale, but it will be 2016 before they start sharing from all the rest of the activity in the Gulf.

Mr. Victor Carrillo said that much of the interest derived from the Lower Tertiary is the ultra deepwater and commented that it is in very close proximity to the boundary with Mexican waters. He asked what coordination is occurring between the U.S. and Mexico in terms of developing those resources. Mr. Christopher replied that there has been coordination. Dr. Alexis Lugo-Fernandez added that MMS has been talking with Petroleos Mexicanos (PEMEX). PEMEX is involved in a large research program for the next 5 years and wants to be producing in deepwater by 2012. The MMS is negotiating an agreement between sharing technology and information with PEMEX as well as attempting to set up a coordination of research within the American and the Mexican waters. He added that PEMEX is going to be actively participating in the upcoming U.S./Mexico workshop that MMS is sponsoring in New Orleans on June 26 through 28, 2007.

Alternate Energy Update

Ms. Maureen Bornholdt, Program Manager, Alternative Energy/Alternate Use Program, stated that the quantity of domestic renewable energy produced on Federal lands is small in comparison to conventional resources. However, the growing cost of conventional energy resources and the need to diversify our energy portfolio has spurred an increased interest in renewable energy development on Federal lands both onshore and offshore.

Section 388 of the EPAct of 2005 amended the OCS Lands Act (OCSLA) and granted the department discretionary authority to grant leases, easements, or rights-of-way for activities on the OCS that produce or support production, transportation, or transmission of energy from sources other than oil and gas http://www.mms.gov/offshore/RenewableEnergy/OCSPolicyCmteMtg022107.pdf. Simply put, the new authorities under EPAct gave the department the ability to explore the future development of promising new ocean energy sources in the OCS such as wind, wave, ocean current, and solar energy. Additionally, the department was given the authority to grant leases, easements, or rights-of-way for other OCS activities that make alternate use of existing OCS facilities.

There are four tenets that MMS is building its program around:

- the need for meaningful dialogue with stakeholders,
- creating new regulatory processes,
- focus on regulatory role, and
- use sound science, engineering, and environmental protection principles.

Stakeholder meetings were conducted in Oregon, Massachusetts, New Jersey and New York to share experiences and relevant knowledge associated with regional planning and siting energy facilities. The five questions asked of the participants were:

- identify stakeholders,

- describe key issues and concerns,
- characterize energy needs and trends,
- describe current and future technology development, and
- identify State/local regulations.

Stakeholders' issues and concerns included:

- industry losing momentum while MMS develops its regulations,
- nexus with State and local ocean planning initiatives,
- baseline environmental data acquisition may be difficult as well as expensive, and
- technology testing or "non-grid" project will get caught up in complex permitting.

Stakeholders' energy needs and trends. Increased interest into diversifying energy sources, including alternatives and renewables:

- anticipated Pacific coast RPS: California 33% by 2020; Oregon 25% by 2025; Washington 15% by 2020,
- possible energy shortfalls forecasted for the Northeast, and
- New Jersey and Delaware are involved with the Regional Greenhouse Gas Initiative that caps CO2 emissions.

Stakeholders' State and local regulations:

- State ocean planning initiatives are underway,
- interface with State regulators and public utilities commissions could be challenging due to disparate information requirements and regulatory deadlines, and
- States are interested in partnering to identify appropriate site(s) for OCS-based test facilities and to collect baseline data.

Stakeholders' present and future technology:

- several ongoing efforts that focus on developing deepwater (up to 150 feet) wind energy facilities,
- options for storing surplus generated energy are being developed,
- Northwest's focus is on developing ocean wave energy technologies,
- Northeast's focus on wind energy technologies, and
- increasing talk about OCS hydrogen.

She said that there are two provisions under Section 388 of the EPAct on which the MMS is focusing:

- production, transportation, or transmission of energy from sources other than oil and gas [Alternative Energy] and
- use of currently or previously OCSLA-authorized facilities for energy-related purposes or for other authorized marine-related purposes [Alternate Use].

One of the provisions within Section 388 that has set the parameters for MMS regulations is a competition requirement. This is a requirement that the Secretary shall issue a lease, an

easement, or a right-of-way on a competitive basis unless there is a determination that competition doesn't exist.

Other key considerations in addition to competition are:

- safety,
- protection of the environment,
- coordination with affected State & local governments and Federal agencies,
- fair return for use of OCS lands, and
- equitable sharing of revenue with States.

Other major regulator elements are:

- lease issuance (competitive and noncompetitive coordination),
- lease administration (bonding and payments),
- project plan reviews (site assessment and construction and operations),
- conduct of approved plan activities (installation, production, environmental, and safety monitoring and inspections), and
- decommissioning.

Ms. Bornholdt added that all of these different phases will be subjected to compliance with the law.

To understand what broad implications could be to the environment, the MMS has published a draft programmatic EIS which looks at the generic interface between different technologies, ocean winds, ocean waves, and ocean currents with the marine and human environments. The draft programmatic EIS was published in March, public hearings have been completed, and the comment period on the programmatic EIS closed yesterday.

It is hoped that by the end of the summer, the final EIS will be issued, the proposed notice of rulemaking will be issued, and the comment period will commence.

Fall is the target date to issue a record of decision on the programmatic EIS, and in 2008, it is hoped that the final rules will be published in order to hold workshops to explain what has been done.

She continued that two existing wind farm projects, the Cape Wind Energy Project (http://www.mms.gov/offshore/RenewableEnergy/CapeWind.htm) and the Long Island Offshore Wind Park (http://www.mms.gov/offshore/RenewableEnergy/LIOWP.htm) are also being managed. Each of these projects is undergoing technical and engineering reviews as well as environmental review through an EIS; therefore, the MMS will not issue decisions until the Alternative Energy Program is in place. These two projects are exempt from competition per Section 388 which means there will be no competition as to where they will be located.

Ms. Bornholdt explained that the Cape Wind Project is located about five miles offshore in Massachusetts and is composed of about 130 turbines, 3.6 megawatt machines. With regard to

the draft EIS and its schedule, the draft EIS is being evaluated which will consider a range of the following alternatives:

- no action,
- phased build-out,
- smaller configuration, and
- sites offshore Rhode Island, Massachusetts, and Maine are analyzed for comparative purposes.

The target date to file the draft EIS is summer 2007; hold a 60-day comment period, and hold public hearings in fall 2007.

The Long Island Offshore Wind Project is a much smaller proposal. It is about four miles off the south shore of Long Island, New York, with about 40 turbines. This particular draft EIS will also consider a range of alternatives:

- no action,
- one alternative site off of Long Island,
- one alternative site in deepwater, and
- one alternative site onshore.

The publishing of this draft EIS is unknown at this time because there is still information gathering on behalf of the Long Island Power Authority and Florida Power & Light, the two operators working with the MMS on that project.

The MMS has contracted with Research Planning, Inc., to conduct a 9-month study entitled *The Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects on Alternative Energy Uses of the Outer Continental Shelf.*

This worldwide synthesis environmental impacts study will:

- examine potential impacts,
- examine data gaps, and
- provide a summary of existing literature.

It will also focus on:

- physical processes (tides, currents, waves),
- benthic and fish resources,
- flying animals (birds, bats, insects),
- marine mammals and sea turtles,
- aesthetics,
- space-use conflicts,
- greater availability of information on impacts from wind development (wave, tidal, current),
- studies of existing offshore wind parks are informative, but results may be difficult to transfer to U.S. settings,

- many studies use predictive assessments, and
- strong need for long-term monitoring to provide empirical data.

Ms. Bornholdt announced that the MMS is sponsoring a workshop on June 26-27, 2007, in Herndon, Virginia, to gather information from the summaries and the studies, and breakout into small groups to evaluate and identify specific data gaps and study needs by resource area. The MMS will gather the findings of the workshop and begin to design a study plan that will be turned over to the OCS SC for review and interface.

She introduced the Marine Mapping Initiative whose goal is to identify OCS locations of Federally-permitted activities, obstructions to navigation, submerged cultural resources, undersea cables, offshore aquaculture projects, and any area designated for the purpose of safety, national security, environmental protection, or conservation and management of living marine resources.

The repository of this data will be the Marine Cadastre which is an integrated submerged land information system consisting of legal, i.e. property ownership, physical and cultural information in a common reference framework. This endeavor is an ambitious, multi-year endeavor that requires joint planning, interaction, and commitment by Federal, State, local, and tribal entities working through public and private partnerships.

Ms. Bornholdt concluded her talk stating that this has really been an exciting opportunity to contemplate some of these other possible uses of our OCS resources, to broaden understanding of the interface between some of these technologies and the marine and human environment, to identify challenges that have not been addressed, and to address them with MMS's scientific studies program.

Open Discussion

Dr. Castellini mentioned that Ms. Bornholdt stated that she has very good feelings for socioeconomic aspects and asked her if it is a coincidence that the projects she described are beyond three miles offshore. He asked if anyone is thinking about State waters or is it because no one wants wave farms or wind parks to be seen. Ms. Bornholdt replied that there is an interest in placing these in State waters and rivers. The MMS has received proposals off the State of Oregon and one proposal off the State of California for State waters wave farms, so there seems to be entities that prefer them closer to the shore so some testing can be done. She added that, in regard to wind parks, there is interest off the Massachusetts coast. However, there are those individual impacts and the concern of "what am I going to see?" It is her opinion that big structures like wind parks will be farther offshore.

Dr. Castellini asked if she had a feeling for whether or not Company X is going to get a better deal from the State or a better deal from the MMS in terms of erecting these farms/parks inshore or offshore. Ms. Bornholdt responded that, right now, especially since there is no program, the State could provide a better deal. However, it is a mixed bag because what is heard from the State is concern about funding because it is a brand new project. She mentioned that Oregon is working together at the local level and with the State level to understand and be flexible about this new opportunity so that economically it can be a boom. On the other hand, there is also commercial fishing and recreation fishing off their shores which is very important.

Dr. Castellini said that, in referring to his notes from last year's meeting in Santa Barbara, California, during Ms. Bornholdt's presentation, she had said OCS rigs could be used for another purpose and he asked whether or not there has been consideration that someone will say, "we will build the rig under this circumstance; when it is no longer productive, I've got a great portable nuclear generator that I want to put on it". Ms. Bornholdt explained that MMS has the discretion to authorize alternate uses of OCS rigs when that use is not presently regulated by a Federal agency. If someone wanted to use an OCS rig as a nuclear facility, MMS would first need to determine whether the Federal Nuclear Regulatory Agency covers nuclear facilities on the OCS.

Dr. Fry said that he is interested in what the regulatory consensus will be especially between Federal agencies and relationships with the States. He said that he would think that all offshore wind farms, currents, and tidal facilities would be appropriately regulated by a Federal agency and wondered whether or not there are any plans on which agencies will be involved and how is the MMS going to coordinate with the States. Ms. Bornholdt referred to Section 388 which designates the Secretary of the Interior to be the lead permitting agency for alternative energy, renewable energy. With regard to Cape Wind, the Federal Aviation Administration, the Coast Guard, the Environmental Protection Agency (EPA), Fish and Wildlife Service (FWS), NOAA, just to name a few, whenever there is an activity or a proposal and there is a nexus for Federal regulatory compliance, the MMS will seek out and work with those Federal sister-agencies so that whatever environmental documents, whatever application comes in, they can also be use for their regulatory compliance. This coordination is also envisioned in Section 388 which requires the Secretary of the Interior to coordinate with all relevant Federal agencies. With regard to the States, Dr. Rodney Cluck, our Project Manager, has been in constant contact with Massachusetts, with their Public Service Commission, with the Coastal Management Program, and with the Department of Environmental Protection in coordinating their processes with MMS's. The regulation encourages, but it cannot require, applicants to coordinate with the States before they come in with their application.

Dr. Fry said that there had been a discussion of a formal Memorandum of Understanding between the FWS and MMS and asked if that is going forward. Ms. Bornholdt replied that she is aware that the MMS is working with the FWS on a Memorandum of Agreement (MOA) associated with the Migratory Bird Treaty Act. She stressed that any kind of MOA would also have those provisions and will be comprised with regard to renewable energy.

Dr. Michael Rex brought up an issue that was subject to discussion during the last OCS SC meeting which was the complications of leasing-for-multiple-use that was in for review. He asked that since things like petroleum exploration, using wave energy, or wind parks may have different environmental impacts, would these be built for different purposes and whether or not the MMS has come to terms on how a particular piece of rental would be leased, potentially, for different use. Ms. Bornholdt stated that it is still a challenge; MMS is envisioning that when lease sales are held for renewables, it will either be for defined renewables or a combination of renewables. The lease contract that will be written would depend upon whom and for what. If it is for wind, it is for wind only. As an example, if a company has a renewable lease, they build a wind farm, they are in the middle of their lease term, and learn that there is an incredible wave opportunity coming along and they want to change the lease contract. This is where the

competition element comes in. They have to compete for that wave. So, it would be competed under an alternate use subpart.

Regarding a potential new lease and how MMS might want to balance oil versus wind, Dr. Castellini asked what the MMS will do if BP decides to put wind on all of its existing rigs. Ms. Bornholdt answered that that is alternate use and it would be looked at. The regulations will have a provision to regulate that particular add-on. She explained that it also depends if the oil and gas structure is still operating or if it is at the decommissioning point because if it is still operating, MMS would need to take a look at it at this point in time under the 250-type regulations. If it is decommissioned, reference would be made to Section 388.

Dr. Diaz asked whether or not royalties and lease sales are structured enough to pay for the running of the program by MMS. Ms. Bornholdt answered that it is not because this is an emerging industry that is not well capitalized.

Dr. Diaz said that he would be concerned if this program did not receive sufficient funding and go the way of the Sand and Gravel Program which was terminated due to lack of funding.

Mr. Ken Shadderly, Shell, asked if the rule making will include offshore aquaculture. Ms. Bornholdt replied that there is no Federal offshore aquaculture law in place, so using existing OCS facilities could be done; however interfacing with the MMS would still be required to make sure that it is still safe for the oil and gas population.

Mr. Shadderly stated that the current rules require that the lease be cleared within 1year after cessation; therefore, is it anticipated that will be relaxed and then there could be a transfer of liability to another organization or entity that could then conduct the alternate uses. Ms. Bornholdt responded that it gets confusing since these facilities are not owned by the Federal Government and yet we have to compete for the use; therefore, what is envisioned is prior to beginning the decommissioning process, anyone who would like to use the facility would need to approach Shell or whatever oil company, and then work with MMS to work out a lease. The liability would not be totally transferred - just the liability for that specific use. The oil company still would have to continue on with its liability obligation.

Subcommittee on Alternative and Renewable Energy (SCARE)

Dr. Fry explained that SCARE was formed at the 2006 meeting and other members include Drs. Mary Scranton, Eugene Shinn, Lynda Shapiro, and Richard Hildreth. The Subcommittee had been asked to review two documents and comment:

1) The *MMS Draft Programmatic Environmental Impact Statement for Alternative Energy Development and Production and Alternate Use of Facilities on the Outer Continental Shelf*; March 2007; and

2) A literature review prepared under contract entitled *Worldwide Synthesis and Analysis of Existing Information Regarding Environmental Effects of Alternative Energy Uses on the Outer Continental Shelf, Review Draft*, April 2007.

Subcommittee members had reviewed and commented on each of these reports, and presented an update to the Committee. The Subcommittee had also consulted with the ESP staff on a possible review of documents pertaining to the Cape Wind project offshore Massachusetts, although details of the review have not been finalized.

The Programmatic EIS is a framework of the program's issues, plans, and regulations. Dr. Fry mentioned that he feels there needs to be considerably more flesh on that framework to be able to know exactly how MMS will go about selecting which program to go forward with only an Environmental Assessment (EA) and which ones will need a full blown EIS.

The Worldwide Synthesis document brought up quite a few different kinds of issues. The review includes offshore wind, current, and wave technologies. During Ms. Bornholdt's presentation, she talked about tidal energy five miles offshore, three miles offshore. He commented that he doesn't understand how one can differentiate between current and tidal. Certainly, in State waters there is a real role for tidal energy, but further offshore, it will be the current energy. With the Worldwide Synthesis, a whole variety of technology is presented. He presented a power point of the Frankfurters of the Sea technology which are articulated booms that rock with the waves and presumably have gear turbines that produce electricity. He stated that there must be a lot of mooring cables and a lot of electrical cables that aren't seen that would really pose some environmental questions.

Current turbines will need some environmental assessment. With offshore wind, there are some projects already underway. He presented Horns Rev and Nysted which are large projects offshore Denmark. These turbines are about 110 meters high, almost 400 feet, and the rotor diameter is 80 meters. The turbines are about half a kilometer apart, 5,060 meters.

He stated that there were concerns as to construction noise and he presented a Power Point that illustrated possible affects on marine mammals. He said he believes the marine mammals are able to hear these noises from a long way away and would be likely to stay away. There are measurement circles for noise impacts, but these do not have distances for how far away marine mammals can hear noise or how close they are before they are affected physically.

He described Horns Rev Project and noted that when it was constructed, there were densities in marine mammals that were baseline in the different areas. During construction, the number of animals in the impact area decreased significantly. After the construction noise ended, the animals came back. During operations, there were increases in the number of porpoises, but whether this was an increase in the number fish because of exclusion of fishing vessels in that area, he did not know nor did he know whether or not the Danish government has done this kind of analysis, yet.

He confirmed that there are some effects on the birds, excluding some sea ducks and loons. Some species have returned after a few years, which others have not. How long it will take or whether the birds will become use to these structures is not known and whether there is an actual significant impact from changes in the course of birds that have to fly around objects.

He summarized by stating that a review of these documents is not trivial and believes the Subcommittee is very interested in continuing to work with the program to review these types of documents. He said he is looking forward to the workshop being held in Herndon June 24 – 25, where research planning is going to talk about strategic plans. One of the issues that have come up is storage technology and whether or not there would be technology to develop a hydrogen storage offshore in order not to have to connect to the grid. With this technology, things could be moved much further offshore. Is the U.S., in its Energy Policies, going to do this kind of research?

Open Discussion

Dr. Rex mentioned that he has not seen any documents about the implications of climate change for the site of these things. Dr. Fry said he, too, had heard very little mention of that, other than a very positive general feeling about wind and wave technology as a part of the replacement for fossil fuel burning. He believes the environmental community is very much in favor of wind energy and they just want to make sure that the environment does not suffer more immediate effects while contributing to bettering the situation of climate change.

Report from the last OCS Policy Committee Meeting

Mr. Victor Carrillo, the newly elected Chairman (replacing Nick Tew), is a commissioner for the Texas Railroad Commission – a statewide elected position in which he oversees the oil and gas industry, pipeline safety, and surface mining (coal). He is a geologist by education, with a Masters in Geology, and worked as a geophysicist for Amoco for several years prior earning his law degree.

He stated that one of the Committee's accomplishments was the election of new officers with Mr. Jim Carlton being elected Vice Chair and "Ram" Ramchandran as Parliamentarian.

He said that during the last Committee meeting, they had an excellent number of presentations and discussions, including a roundtable discussion of issues from the various regions. Director Burton and Mr. Oynes both addressed the Committee along with the Assistant Secretary of the DOI, Mr. Stephen Allred. Mr. Carrillo summarized some of Mr. Allred's presentation that emphasized the ongoing importance of oil and gas exploration and production. Mr. Allred expressed that there is no clear alternative to oil and gas until perhaps after 2030; however, for the foreseeable future, the short to midterm, there is not. He emphasized the importance of the new revenue-sharing bill and what is recognized as the Lower Tertiary Deep Water Trend in the Gulf of Mexico that is very significant and could be a major source of oil and gas for the U.S. These deepwater Gulf of Mexico projects are long-term projects, many taking 5-10 years to go full cycle and to actually begin production. He also emphasized that a strong program for offshore renewable energy needs to be developed.

Mr. Carrillo cited a paragraph from the 5-year leasing plan, "Domestic petroleum production continues to decline and imports are continuing to increase. While alternative sources are expected to contribute a growing portion of the Nation's domestic energy production, no new technology is forecast to make a paradigm shifting contribution to domestic energy production in the next 15 years. Crude oil and natural gas are expected to provide the lion's share of the Nation's energy for the foreseeable future. The OCS is one of the largest suppliers of crude oil

for the U.S. and is the third largest supplier of natural gas after Texas and Alaska. Without the huge increase of deep water oil and gas production in the Gulf of Mexico OCS since 1995, the recent decline in domestic production would have been twice as severe."

In summary, Mr. Carrillo said that the Nation's current and projected energy situation requires continued leasing, exploration, and development of OCS land in an environmentally sound manner.

Regarding the Committee's report on the OCS Alternative Energy and Alternative Use Program, he reported that there is a lot of interest in alternative energy sources, particularly, wind.

He said that Texas is in a unique situation since its jurisdictional boundaries extend to roughly 10 miles out. Therefore, there is a lot more room to work with whether it is in regard to oil and gas leasing or wind leasing. Texas' Land Commissioner recently signed an agreement for the Nation's first and largest offshore lease for wind energy. It proposes a 150-megawatt, 50 turbine project about 6-9 miles from shore. There is also another project along the coast offshore where the Land Commissioner recently authorized the installation of an 80-foot meteorological tower off the Galveston coast to study wind characteristics for a future project expected to be 250 megawatts.

He explained that in his area of State jurisdiction, while Texas may coordinate with Federal offices, the specifics of leasing, etc., are with the State.

Reports were given on the ongoing efforts of sand projects and marine minerals. He said that the OCS Policy Committee's Hard Minerals Subcommittee is working on a resolution to try to remedy the Sand and Gravel Program's lack of funding. This is an issue of key importance to many states.

Finally, the Committee summarized some areas of future study and interest, including:

- Access issues. There are divergent opinions on the Committee, the trend being that would encourage further opening up of OCS areas for responsible exploration and production activity.
- Workforce and manpower issues are increasingly important.
- Sand and gravel issues. The Committee wants to continue working on that to try to find means to secure funding for this very important program.
- Alternative energy.
- Explore ways where the Committee's subcommittees can be a resource for individuals to better inform Congressmen and their staff about some of these important issues.
- Explore how the Committee can perhaps be part of the educational process regarding some of the consequences of not increasing the U.S.'s domestic natural gas supply. People need to be educated about the consequences of what might happen if this Nation does not take action fairly quickly on further developing domestic resources. The Committee believes it is a national energy security issue and may establish a subcommittee on education.

Open Discussion
Dr. James Coleman asked if funding for the Sand and Gravel program is completely eliminated or just reduced. Mr. Carrillo responded that he believes it is just reduced. Mr. LaBelle stated that is as accurate characterization of this right now and everything is being done to get more resources. Mr. Carrillo added that one of the topics the Committee discussed was exploring ways for the individual States to cooperate and work together on the studies portion in order to get more done without necessarily having additional funding.

Overview of the Gulf of Mexico Alliance
Mr. Bryon Griffith explained that the 2005 hurricane season shattered records and communities as 27 named storms and 13 hurricanes impacted America's coastal States - Florida, Alabama, Mississippi, Louisiana, and Texas. These events brought worldwide attention to the Gulf of Mexico region and underscored the economic impact the coast has on the rest of the Nation. These impacts demonstrated the need for a strong alliance between the Gulf States in order to strengthen the response to common challenges. Recognizing the Gulf of Mexico's significance beyond Florida's waters, Florida Governor Jeb Bush, in the spring of 2004, extended a call to action to the Gulf Governors to renew their commitment to the Nation's oceans by creating and leading a regional effort to protect the Gulf of Mexico. As a result of a shared vision for a healthy and resilient Gulf of Mexico coast, the Gulf States, together with its Federal partners, formalized the Gulf of Mexico Alliance.

In December 2004, President Bush's U.S. Ocean Action Plan recognized the leadership the five Gulf States had demonstrated in forming the Gulf of Mexico Alliance. With the added involvement of the Federal Government, the growing Alliance of the Gulf communities, regions, entities and even Nations, has become a national and international model for cooperation.

The first action taken by the Gulf of Mexico Alliance was the development of the Governor's Action Plan for Healthy and Resilient Coasts.

The Alliance identified five priority issues that are regionally significant and can be effectively addressed through increased collaboration at State, local, and Federal levels:

- improvement in Gulf water quality with an emphasis on healthy beaches and shellfish beds,
- restoration and conservation of coastal wetlands,
- environmental education,
- identification and characterization of Gulf habitats to inform management decisions, and
- reductions in nutrient loadings.

Each State would lead a regional framework for each of the issues.

Through an inventory of detailed implementation activities by Alliance members, the Federal Workgroup, and other partners, the Governors' Action Plan challenges the new Alliance partnership to make tangible progress on these five priorities over the next 36 months.

Mr. Griffith displayed the current structure of the Federal Partnership Framework.

He showed power point presentations of each of the following issues and described the problem and the Federal partnership response:

- Nutrient Reductions,
- Water Quality,
- Coastal Wetlands,
- Habitat Identification, and
- Environmental Education.

Open Discussion

Dr. Shinn asked if the USGS had any involvement. Mr. Griffith responded that USGS, MMS, and the FWS are the three service agencies that DOI has participated directly with and who will actually meet in July in St. Petersburg, Florida, to take assessment of the Alliance's progress 1 year later for the publishing of the Plan. The USGS has formulated a marine strategy and is alternating some of its resources to get at some of these Governor's program proposals. Mr. Griffith pointed out that MMS's administration of the CIAP offers great potential to begin to assist addressing many of these project areas through implementation.

Dr. Joseph Smith asked Mr. Griffith to comment on what the coastal Governors are doing to engage more inland States which are probably major contributors of the overall nutrients that come down the rivers. Mr. Griffith replied that the Governors have chosen to recognize that not only will hypoxia need to be addressed, but also related suffering estuaries must also be addressed. He added that there is a relationship that has come on the coattails of the Federal task force framework which is to try to figure out how to engineer a better understanding with inland States.

Dr. Diaz asked if each participating State has an office dedicated to the Alliance. Mr. Griffith explained that each State has a representative senior staff team leader in each one of the areas. Basically, as of now, the day-to-day staffing, the day-to-day architecture of keeping this program rolling forward comes from his personal office in the Stennis Space Center and through NOAA's National Ocean Service programs. He said that he has numerous Federal staff leads from the 13 Departments/Agencies participating in each one of these areas. The largest part of the staff support comes from NOAA and the EPA. He announced that the Coastal Services Center's Gulf

Regional satellite office has just been established in the last several months at the Stennis Space Center; therefore, staffing of that operation at the Stennis Space Center is currently underway.

Dr. Priest asked Mr. Griffith to expand on the efforts the Alliance is making with Mexico and other parts of the region. Mr. Griffith explained that the Governors' Alliance manages the six Gulf States through two direct avenues:

1) Gulf States Accord which was signed in 1995 by the representatives of the eleven States of the U.S. and Mexico that share the Gulf of Mexico region. The objective of the Accord is to establish working partnerships among these States to promote economic and infrastructure development, as well as educational and cultural exchanges.

2) The Alliance is working with key interests at the Governor's level in Veracruz to consider the formation of a parallel MX Governors' Alliance.

Efforts to workout collaborative programs in advance

Mr. Cimato stated that the MMS looks at other Federal programs to see where there are opportunities for collaboration. MMS's interaction with the NOPP has certainly been a successful collaboration over the years, with the first project in 2002. He added that repeatedly, there have been excellent opportunities for working with others on initiating research that would reap mutual benefits.

The DOI fosters coordinated research programs and, through the initiatives of the Secretary's office, each of the bureaus identify research on priority issues that be conducted through partnership.

Collaboration begins in the planning stage during the development of study plans. Mr. Cimato said that we reach out to a broad stakeholder community to identify information needs that are relevant for the offshore programs. Stakeholders' issues and information needs at both the national level as well as at the regional level are considered. Collaboration also occurs through the numerous interagency committees which MMS participates on.

He explained to the Committee that ESP planning includes:

- stakeholders - anyone with an interest in the OCS Program,
- multiple and diverse inputs from citizens and organizations, and
- national and regional level.

He announced that there are two upcoming workshops:

- An *Alternative Energy Strategic Studies Plan Workshop* which is an important step for the MMS in communicating and developing a collaborative relationship with other Federal agencies, affected State and local groups, and industry. The workshop will identify potential environmental studies to fill identified information gaps in topical areas including the biological sciences, social sciences, and coastal processes.
- A *USA-Mexico Workshop on Deepwater Physical Oceanography of the Gulf of Mexico* scheduled for June 26-28, 2007, in New Orleans. This workshop will plan field and modeling studies of the deep water physical oceanography of the Gulf of Mexico Basin. Recent observational and modeling results will be reviewed and future needs and opportunities for coordination and collaboration between U.S. and Mexican field and modeling studies will be examined.

At the project level – we've moved from planning to program execution. The Lophilia Study illustrates a high level of collaboration with several universities and also with our sister agency, the USGS, performing components of the work in a complementary fashion.

Gulf of Mexico OCS Region

Dr. Pat Roscigno reported that the Region is always looking for new partnerships and new opportunities to leverage money. He stated that getting new partners doesn't actually result in

loss of control of the project. He sees partnering as an enriching process that adds a level of complexity and detail to the study that if MMS went by itself would not be able to produce.

He told the Committee that the Region has had successes with its Sperm Whale Seismic Studies Program, the Benthic Ecology Program, and Deepwater Physical Oceanographic Program. He was on a Committee to a 3-year study by the Department of Transportation and USGS looking at the impact of global climate change on infrastructure in the Gulf of Mexico that has just been completed and he sees opportunities for new partnerships.

He said that to him, this has been a real eye-opener in that a lot of the issues in the OCS are going to be intimately tied in with global climate change. Depending on which scenario you are looking at, it could be something that could be adapted to and worked on over the decades or there might be opportunities for testing situations occurring, too.

One of the lessons he has learned from being on that Committee for the last few years is that one really has got to start thinking now about designing structures. If structures are going to be set out in the ocean, one has to start making adjustments for global climate change whether it is severe or not.

Pacific OCS Region

Dr. Fred Piltz reported that collaboration is certainly not new to the Pacific O CS Region since it has been done as long as he's been in the program. He mentioned the following initiatives:

- The Multi-Agency Rocky Intertidal Network (MARINe) where there are more than 20 other Federal, State, and private partners that have been involved in monitoring the entire Pacific coast for 10 or 15 years.
- The Region is also working with USGS on mapping the bottom of the ocean in various parts of southern California and looking into the chemistry of natural oil seeps.
- Working very closely with the State of California and the Department of Fish and Game. One of the Region's staff is managing a project being funded by the Oil Spill Response Group using their funds.
- The Region is involved in sitting in various meetings with the Pacific Coast Ocean Observing System (OOS) and a staff member is on the Board of Governors for the Southern California OOS.
- The West Coast Federal Working Group which is part of the West Coast Governor's Agreement on Ocean Health, was signed by the three State Governors: California, Oregon, and Washington, in September of 2006.

Dr. Piltz stated that, in his opinion, one significant difference is due to Dr. Kendall's continued involvement and pro-active encouragement for the MMS to become involved in these issues. He announced that he is one of the Co-Leads now in the DOI. The Co-Lead on the West Coast is Mr. Griffith along with the EPA and NOAA.

There are some other significant differences between the programs as it is evolving on the West Coast with that program that is evolving in the Gulf of Mexico or the Northeast Regional

Alliance. The Region will probably focus on fewer topics than the Governors want to address; there are seven topics in the draft strategy paper right now, one of which is Eco- management, which is not really a goal or a strategy. It is more of a method and it will hopefully fall out leaving six areas. The two areas that have the most interest for the West Coast States are those that have traction such as alternative energy and mapping.

All three states – California, Oregon, and Washington - are very serious into detailed habitat mapping of the Pacific Coast, mostly in State waters but will include Federal waters. The State of California has talked about potentially adding $15 million, which is estimated to be a $25-40 million project just with regard to mapping.

Alaska OCS Region

Dr. Richard Prentki stated that the Alaska OCS Region has done a lot of collaboration work also. One done currently is the Arctic Nearshore Impact Monitoring in Development Areas (ANIMIDA). A lot of logistical support was received from the oil industry on the Northern Slope because the Region has worked through its lease areas.

Another one is the North Slope Science Initiative, which is a Federal and State agency with the North Slope Environmental Compliance in the land areas that adjoins the Chukchi and planning areas. There is potential sharing of research efforts; the Compliance has a little bit of its own funding that MMS may be able to use to support a portion of MMS studies.

Another example of collaboration is the group of oil companies that will be spending about $7 million, U.S. dollars, to look at oil and ice behavior and cleanup capabilities. The MMS has managed to get into that program since there is a study of oil and ice and snow, which the oil companies wanted the data from before the study is concluded. The data was explained early on so that the oil companies will allow MMS access to their data when they do their work and also a license to use the new data when it comes out.

Another example is the Chukchi Offshore Monitoring in Drilling Area (COMIDA) profile. The Region is working on essentially a sampling with what is being called the Alaska Program being funded by the EPA. If that goes through, MMS will coordinate with them on their study.

Dr. Prentki also mentioned the Bullhead Whale study, which is a high tech multi-disciplinary approach.

One last example is a study in which there is a national consortium of partnerships between various agencies and universities where the MMS has actually started studying the social economic studies.

Some Highlights of the MMS *Environmental Studies Program* and Our Goal for the Next Day-and-Half

Mr. Cimato explained that the MMS's focus is on the research being done and made a few remarks regarding the all-important program review the Committee gives.

He stated that the mission of MMS is to manage the energy and 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.

The MMS ESP mission is to provide the information needed to predict, assess, and manage impacts from offshore energy and marine mineral exploration, development, and production activities on human, marine, and coastal environments.

He stated that the ESP budget for FY 2006 was about $19 million and that the distribution of research allocations last year emphasized new activity in Alaska and more research resources are being directed to address the evolving information issues and needs in that area. There were about 36 projects started last year program-wide. In addition to the $19 million budget last year, OCS information needs were also addressed through USGS which has a budget on the order of $2 to $2.5 million that can be directed to address some of MMS's biological information needs.

Last year Mr. Cimato reported to the Committee that when MMS makes awards for research, several procurement vehicles are used, such as cooperative agreements (CAs), interagency agreements, and contracts. Each year, MMS reports how much money is spent to the National Science Foundation, which prepares a report to Congress on how all Federal research dollars are being spent. From year to year, funding to universities has remained reasonably stable.

This year, the ESP has a budget of $17 million. Of that, close to half is available for new research projects and it is anticipated that 25-30 new projects, including those through the Coastal Marine Institutes (CMI), will be started.

FY 2008 budget. Mr. Cimato expects a slight increase in the FY 2008 budget with about half being available for new research projects. Topics will cover oil and gas and renewable energy information needs.

The MMS has worked hard to develop partnerships with NOPP, NOAA, and the Office of Naval Research. He stated that MMS has been engaged in NOPP for several years and these projects always lead to good things.

Examples include:

- Chemo III,
- shipwreck studies, and
- currently participating in the NOPP Broad Agency Announcement on marine mammals and the ice-diminished arctic.

In the last year, increased emphasis has been placed on federal agencies when making awards for grants and CAs to post the opportunities to the federal website grants.gov. DOI has promoted this and MMS began posting announcements this fiscal year.

Mr. Cimato explained this year there have been three notices of opportunities posted. One was for the Louisiana State University (LSU) CMI, which is one of MMS's stellar CAs; another was

a CA with the University of Alaska CMI; and the third was an announcement regarding other cooperative work that would be initiated this year within the ESP.

Mr. Cimato mentioned that the MMS is working hard trying to inform as broad a public as possible on the research opportunities that are available. Along with the MMS website and grants.gov, there are routine procurement announcements, the continued sponsorship of information meetings, and numerous workshops and symposia to get the word out and to inform people of the research opportunities for this focused applied research program.

Mr. Cimato then described the activities for the remainder of the meeting. For the next couple of days, the Regions and Headquarters staff are going to present to the Committee, in its Discipline Breakout Groups, draft study plans that cover FY 2008, 2009, and some of 2010. He invited the Committee to offer critical review and challenging discussion.

In determining priorities, focus remains on:

- mission relevance,
- technically feasible,
- scientific merit,
- timing,
- applicability, and
- affordability.

Meeting mechanics. Mr. Cimato explained to the Committee that it will break into Discipline Breakout Groups: biology, physical, and social sciences. Each Discipline Breakout Group will be led by a Committee member and there will be an MMS team lead to assist with taking notes. At the end of the day, there will be a session to summarize recommendations.

Mr. Cimato also asked the Studies Chiefs to briefly highlight the research in their Regions.

Pacific OCS Region.

Dr. Piltz announced that the Region has completed a summary of the last stage of the University of California Santa Barbara's (UCSB) CMI and that he distributed two CDs to each Committee member. One CD contains the final study report and the other CD has PDF files of the journal articles that came out of the CMI at UCSB for the period of 1994 to 2000. The Region is finishing up the CMI agreement that is currently in place and it is hoped that the University does a similar summary of both articles which he will distribute in the near future.

He reported that there have been several liquid natural gas proposals off California – the most recent one was denied by the State agencies and the Governor. He believes that there are at least three others in the planning and talking stages. There is a Liquefied Natural Gas (LNG) facility that is been built off of Baja, California; and he's not sure where it stands in terms of its completion and what is going forward with the Government of Mexico. So, there will be an LNG coming into the Pacific Coast although to come into the U.S., it will come up through a pipeline through Mexico.

In the Pacific, the Region has held a meeting to try to develop an index of intertidal health since there is a variety of sea ecology. This would be a numerical index to describe the tidal health based on a lot of the work that has been done on the Pacific Coast.

The MMS was a major sponsor of the West Coast Governor's Agreement on Ocean Health which has been signed since the last OCS SC meeting. The MMS staff and scientists are members of the Steering Committee which has held several sessions. One of the sessions was on decommissioning and, subsequent to that, a major meeting occurred on decommissioning in the State of California. He mentioned that it does appear that Fish and Game was looking at drafting legislation or regulations for rigs to reef program but he is unsure when that might actually reach the public; however, there have been serious steps taken. He also announced that there are several new operators in the Pacific Region, one of whom is looking at enhancing existing production off of Long Beach. So, there is still continuing interest in the Pacific.

Gulf of Mexico OCS Region

Dr. Roscigno told the Committee that he is pretty excited about the upcoming loop current studies in the Gulf of Mexico OCS since those studies should provide a lot of information in a key area that is going to be developed in the next few years. There are issues with interaction of platforms with the current, the whole involvement of loop current, and hurricane intensification, and, at the same time, tying loop currents in with the rest of the deep water.

In light of that, it is hoped that the Mexican associates come forward with their oceanographic program so that the loop current study can be modified for a year and tied into their monitoring system. This would almost create a baseline study of the loop current in the deep waters of the Gulf of Mexico deep water for about a year, which he believes would contain very important information.

On a more general level, there are a lot of challenges in deep water including challenges in emerging issues. He fears that with all of the regional and national needs, there may not be enough funds to cover all information needs. The Region has been trying to become more efficient working with other agencies in MMS but more money will be needed down the line.

Alaska OCS Region

Dr. Prentki stated that a monitoring project is winding down in the Beaufort; therefore, the Alaska OCS Region will be doing some publications or presentations that have come out of that. Two major focal points are two workshops: the North Aleutian and the Chukchi monitoring workshops that were held last fall and there are several studies in consideration in the next couple of days which came out of those workshops.

Open Discussion

Dr. Coleman asked if the East Coast studies were being run out of the National office.
Mr. Cimato replied that it depends since the Gulf of Mexico OCS Region is responsible for administering OCS leasing in the Gulf as well as the Atlantic. So, when the Gulf identifies a research project that would be apropos to the Atlantic, they will be managing those projects. There will be some projects that Headquarters may be directly responsible for, but normally, it would be the Gulf of Mexico OCS Region.

Summary of Alaska Subcommittee Activities

Dr. Castellini told the Committee that the COMIDA Planning Workshop was held November 1-3, 2006, in Anchorage, Alaska, and Subcommittee members Drs. John Trefry, Lynda Shapiro, and Peter Schweitzer were in attendance. Those who attended the NAB Planning meeting were himself, Drs. Will Schroeder and Duane Gill.

COMIDA Workshop. He explained that the purpose of the COMIDA Workshop was to discuss and identify specific needs for monitoring environmental effects of OCS exploration and development in the Chukchi Sea.

Below are titles for the various tasks the Alaska Subcommittee identified as specific needs:

- Physical Oceanography and Fates and Effects
- Data mining
- Chemical and hydrocarbon monitoring
    - Supporting physical studies
- Biology, including Benthos, Fish and Waterfowl
    - Quantitative benthic characterization
    - Effects of Onshore and Offshore Development on Birds
    - Sea Forage Fish
    - Characterize the Chukchi Sea Ecosystem
- Protected Species
    - Seasonal distribution and abundance of marine mammals: acoustic assessments
    - Seasonal distribution and abundance of marine mammals: aerial
    - Seasonal distribution and abundance of marine mammals: tagging
- Socioeconomic and Subsistence
    - Impact assessment for offshore subsistence hunting (2008; 2011)
    - Impact assessment for near-shore subsistence hunting (2010; 1013)
    - Impact assessment for offshore subsistence hunting (2012; 2015)

(Dr. Castellini's report, recommendations, and MMS's response to the recommendations are included in his attached presentation.)

NAB Planning Meeting. The NAB Planning Meeting brought together scientific, agency, user, and public members to describe the major issues relative to possible lease sales in the NAB.

Dr. Castellini reported that the Subcommittee commented on the meeting process, requested materials for review as the agency moves through the next several steps of recommending studies, and provided a "first-look" review of the scientific findings of the meeting. He announced that a full report on the meeting and the results of the workshop will be provided by Argonne sometime in December.

(Dr. Castellini's report, recommendations, and MMS's response to the recommendations are included in his attached presentation.)

Open Discussion
Dr. Rex asked that someone clarify what exactly the relationship is between an EIS and the environmental studies that MMS does. Mr. Cimato said that the EIS' are typically written in-house so it is not a contractor doing it. Secondly, the MMS has been managing the ESP for about 30 years or so and one of the most important things is that the research is done in order to obtain the information for these documents. When the report is received, it is reviewed along with the EIS. Dr. Prentki added that the Alaska OCS Region works very closely with the EIS writers and that they are the primary customer. For the COMIDA studies, the next sale in the Chukchi is coming up very soon. The COMIDA projects are going to be a post-EIS product, and will be monitored after the sale. Dr. Roscigno added that the EIS's in the Gulf of Mexico OCS Region also run ESP studies; therefore, it is the same person doing the studies.

Dr. Fry said that he assumes the FWS is involved when it comes to interagency confrontations with seabirds and NOAA when it comes to seals and other marine mammals. He asked that, with the development of the NAB, is there a process underway to analyze how the oil gets out of there to Los Angeles or wherever it is going to go, if taking tankers through the Unamak Pass, or will there be a pipeline to Anchorage, and have there been any environmental studies to support either of those things. Dr. Prentki replied that current scenarios have been developed and that the oil and gas will probably be piped to the southern side of the Aleutian Peninsula and tanked from there. Dr. Cleve Cowles said that the FWS has been consulted. One point to make about the North Aleutian is that it is still part of the proposal; no final decision has been made. What has been done over the past months is hard work in anticipation of that decision so that MMS will be positioned to get information.

Summary of Deepwater Subcommittee Activities
Deepwater Subcommittee members who attended the 24th Information Transfer Meeting (ITM) held in January 2007 in New Orleans, were Drs. Joe Smith, Will Schroeder, Mike Rex, and Robert Diaz.

The Subcommittee held a follow-up discussion on the meeting presentations and prepared a brief report commenting on three aspects of the deepwater ESP: research on deepwater corals, effects of deepwater oil and gas exploration on and development on the continental shelf, and vessel resources for deepwater research. Dr. Smith summarized the main points of this discussion and reported to the full Committee.

The Subcommittee recommended:

- synthesis of learnings prior to commissioning the next generation studies of deepwater corals,
- that MMS work with other agencies to shift blue water vessel and submersible resources to the Gulf of Mexico OCS Region, and
- the OCS SC should ask for updates on agreements for international collaborations.

The Subcommittee also noted that a question was raised at the ITM concerning the desirability of extending the existing deepwater exploration and development effects study to the ~2500 m depth range from the current study depths of ~1000m . The Subcommittee saw no clear need

for study at greater depth unless there was some indication forthcoming of qualitatively different impact mechanisms.

(Dr. Smith's report, recommendations, and MMS's response to the recommendations are included in his attached presentation.)

There Were No Questions.

Overview of the Coastal Marine Institute

Dr. Larry Rouse announced that the CA was renewed in FY 2004 reflecting the continued success of the program. Since its inception in 1993, closer cooperation has been achieved, 128 projects have been funded, and MMS has funded $25,538,367.

He explained that the rationale for these CAs is to use existing talent at local universities that have an expertise in understanding the three regions with the idea that they can collect and disseminate environmental information on the OCS that is of use to both the MMS and the whole Gulf of Mexico.

He explained that the CA is a one-to-one match, meaning that for every dollar that comes from the MMS, the State, the University, and contributions from oil companies, match that.

The CMI at LSU focuses on:

- collecting and disseminating environmental information for decisions,
- addressing local and regional environmental and resource issues,
- strengthening the MMS/State of Louisiana partnership,
- high-quality local expertise,
- credible study results,
- improving local capabilities,
- interdisciplinary research,
- MMS/Louisiana consensus, and
- cost reduction by co-funding research on problems common to MMS and the state.

Recent research projects that have been funded through the CMI include:

- Sociology and Economics
    - *Factors Affecting Petroleum Exploration and Development and Their Impacts on the Attractiveness and Prospectivity of the U.S. Gulf of Mexico Deep Shelf and Deep Water,*
    - *An Examination of the Development of LNG Facilities on the Gulf of Mexico,*
    - *Social Capital and Offshore Oil Development in St. Mary Parish, Louisiana,*
    - *Environmental Justice A Comparative Perspective in Louisiana,* and
    - *An Assessment of the Opportunities for Alternative Uses of the Hydrocarbon Infrastructure in the Gulf of Mexico.*
- Toxicology and Biology
    - *Foraminiferal Communities of Bathyal and Abyssal Hydrocarbon Seeps, Northern Gulf of Mexico: A Taxonomic, Ecologic, and Geologic Study,*

    - *Determination of Net Flux of Reactive Volatile Organic Compounds at the Air-Water Interface in the Gulf of Mexico,*
    - *Digital Conversion and Analysis of Dive Tapes From Fifteen Dive Seasons,* and
    - *Participation in the Census of Marine Life Project SyNAD3, a Synthesis Including MMS-Supported Deep-Sea Data.*
- Platform Ecology
    - *Fidelity, Residency, and Migration Rates of Red Snapper at Petroleum Platforms and Artificial Reefs in the Northern Gulf of Mexico,*
    - *Determining the Geographical Distribution, Max. Depth, and Genetic Affinities of Corals on Offshore Platforms, Northern Gulf of Mexico,*
    - *Platform Debris Fields -- Extent, Composition, and Biological Utilization,* and
    - *Assessing Trophic Linkages Between Platforms and Pelagic Fishes Using Ultrasonic Telemetry and Active Acoustics.*
- Physical Process
    - *Observation of Deepwater Manifestation of Loop Current Rings,*
    - *Variability of Deep Water Mass Properties and the Loop Current in the Eastern Gulf of Mexico,*
    - *High-Resolution Model of Current-Topographic Interaction in the Gulf of Mexico, Breton Sound IMPROV Site,* and
    - *Production Induced Seafloor Subsidence in Offshore Oil and Gas Fields as a Possible Contributor to Onshore Fault Reactivation and Land Subsidence.*

2006 Projects include:

- *Spatial Restructuring and Fiscal Impacts in the Wake of a Disaster,*
- *Post Hurricane Assessment of OCS-Related Infrastructure and Communities in the Gulf of Mexico Region,*
- *Deep-Water Coral Distribution and Abundance on Active Offshore Oil and Gas Platforms and Decommissioned "Rigs-to-Reefs" Platforms,*
- *Effects of Loop Current and Loop Current Eddies - Analysis Using the Real-time MMS ADCPs from Oil Platforms,*
- *Platform Recruited Reef Fish, Phase II: Do Platforms Provide Habitat that Increases the Survival of Juvenile Reef Fishes?,*
- *Diversifying Energy Industry Risk in the Gulf of Mexico,*
- *A Study of Long-Term Trends in Environmental Parameters (Chlorophyll, Dissolved Organic Material, and Total Suspended Matter) Along the Louisiana/Mississippi Shelf Using NASA Remote Sensing Data and Products,*
- *Gulf Coast Subsidence and Wetland Loss: A Synthesis of Recent Research,*
- *Marginal Production in the Gulf of Mexico and Lost Production from Early Decommissioning - Economic, Environmental, and Regulatory Perspective,* and
- *Management of the CMI at Louisiana State University.*

Dr. Rouse introduced Dr. David Dismukes who gave an update on the Center for Energy Studies CMI Projects; Drs. Gregory Stone and Richard Condrey, who gave an update on the *Environmental Investigation of Long-Term Use of Ship Shoal Sand Resources*; Dr. Chunyan Li who gave a presentation on characterizations of the deep water flows under hurricane and non-

hurricane conditions using oil platform ADCPs; and Dr. Mark Benfield, who gave a brief presentation on ecological relationships between platforms and pelagic fishes.

Open Discussion
Dr. Rex asked Dr. Rouse to give the Committee an idea of the funding range that LSU provides for in the median and also what portions of the projects have a matching fund. Dr. Rouse replied that grants cannot be matched by Federal funds. Most of the match has been from university funds, i.e., faculty salaries and graduate student support from the university. The university will fund ship time or equipment on individual projects ranging from 1-3 year projects.

CMI Studies on Energy and Economics
Dr. Dismukes explained that the Center for Energy Studies was created in 1982 by the Legislature. The center's mission is to conduct timely and important research on topics that impact the State with energy industries and how that impacts the Louisiana economy, the environment, and our citizens in general. He also described each of the divisions within the center and explained that it is dedicated primarily to doing applied research as well as service for the State.

He described the MMS study categories and gave background on each:

- Infrastructure Studies. Studies focused on the infrastructure in the Gulf of Mexico that addresses pertinent environmental and economic issues.
- Modeling Studies. Studies completed to provide modeling capability on issues of interest to the MMS.
- Regulatory Studies. Studies completed in support of regulatory issues of interest to the MMS and often as part of a need for specific information in support of regulation.
- EIS Studies. Studies performed to support MMS requirements in EIS data collection, reporting and analysis.
- Topical (General) Studies. Studies performed at the request of MMS or suggested by researchers for topics of general interest

He stressed the scholarly and vital importance of the CMI Program – not only for MMS but for LSU as well. He added that it has been certainly an important program over the last year or so and a number of controversies and issues have arisen in terms of Gulf activities. It has created a number of publishing opportunities and speaking engagements for the general citizenry on these offshore energy industries and their importance. Based on the counts, he believes there has been anywhere from 100 to 118 publications and presentations.

Open Discussion
Dr. Priest asked Dr. Dismukes to talk about the MMS role in the LNG industry. Dr. Dismukes replied that once this started, there were jurisdictional issues and questions arising as to whom would have the primary authority on these issues. There was some concern that MMS would be in that role and needed to have some research on these issues pretty quickly. As that got ironed out between the Coast Guard and the Federal Regulatory Commission, they started taking more of a dominant role in that process. The MMS's role was downgraded somewhat, but it is important for MMS because it does impact a number of the primary activities in terms of leasing

properties in the Gulf of Mexico, offshore production activities, and whether or not there are conflicts in a stated area out in the Gulf of Mexico with LNG tankers. There have been other issues in terms of things the MMS has to look at in terms of the supporting infrastructure that will be impacted significantly by LNG investments in the region. Pipe line vessels are an important issue and would add supplemental benefits to many of the gas pipe lines and gathering systems.

Ship Shoal Sand Resource Study

Dr. Stone stated that his group at LSU has been working with the MMS at the Ocean Studies Institute, Department of Oceanography, for quite some time and explained that his presentation would focus primarily on ship shoal. What is exciting about this project is that it is not only coastal hydrodynamics and physical process in geologically, but it is also the biological processes.

He described the overall objectives of the *Environmental Investigation of Long-Term Use of Ship Shoal Resources Study* as:

- quantify potential long-term impacts of mining Ship Shoal for large-scale barrier restoration,
- examine bottom boundary layer physics and sediment transport on Ship Shoal benthic habitat characteristics (meio-/macro-fauna), and
- Quantify links between physical, geological and biological processes.

He recognized Dr. Coleman, a Committee member, who is an expert on coastal erosion, and said that coastal Louisiana loses up to 60 feet per year. Some of the standard specifics in terms of wetland loss are up to the LSU football field every 15 to 30 minutes, so there is a profound problem.

As Dr. Coleman's work has shown, along with other scientists from Coastal Studies, one of the major problems is androgenic. But, another major problem is a significant reduction in sentiments applied to the coast. Since there is not a lot of sediment offshore, something fairly innovative had to be done. This is where MMS, several years ago, got involved. One of the sand bodies offshore is Ship Shoal which contains millions upon millions of cubic meters of sediment that can be reworked mechanically onshore to help in coastal restoration efforts.

He mentioned transgressive sand shoals occur when sediments out on the shelf have been abandoned due to rising sea levels. So, the importance is that wave currents are constantly reworking this material and it is gradually working onshore, but the finer grade sediments are being dwindled out of these deposits and that is what makes them attractive in terms of potential targets for beach replenishment along the coast.

He said that one of the major issues is what the impact will be if portions of the transgressive sand barriers are removed over time by the hydrodynamics, the geology, sediment transport, and the biological processes associated with sand removal. He mentioned that sediment sands have been dredged from offshore and pumped onshore but it exasperated the problem due to a substantial change in the hydrodynamics.

Other than observing Ship Shoal and other shoals that are not only viable sand targets, there has also been lot of numerical modeling. The last point he mentioned is what bonds the biological and the geological physical processes are those who want to know why there is the biodiversity on the shoals, what are the important implications, and how does one relate that for the hydrodynamics.

Dr. Condrey pointed out some of the biologically highlights that have been found on Ship Shoal, such as blue crabs spawning. One of the integrated features found on the shoal as compared to the offshore area, is that the shoal is shallow enough currently for a significant amount of benthic primary productivity.

Dr. Condrey reported that the shoal is sinking in relation to the surface of the water. There were three historically conducted surveys in 1853, 1889, and 1936. When compared to recent survey depths, it was found that the recent depths were generally a fathom deeper than the charts indicated. This has an important biological consideration because, while finding viable productivity on the shoal surface sinks in relationship to the sea surface, primary productivity on the shoal is going to be lost.

In terms of the meiofauna and macrofauna, the shoal is a biological hot spot. It is a sandy area surrounded by a muddy area, and a higher species richness of everything is being found. Combinations of polychaetes are being found that should not be co-existing in very close proximity to one another which indicates that there is a lot of micro-habitat occurring on the shoal. The reason it is a hot biologically effective hotspot is due to the fact that the shoal is shallow enough that the hypoxic waters don't seem to come up on the shoal. No hypoxic events being sampled on the shoal were ever encountered.

He said that there have been indications from the abundant amphipods found on the shoal that the area is not routinely impacted by hypoxia; therefore, it seems to be a refuge for a number of organisms during hypoxic events. At the same time, the predation by larger macrofauna coming in is not sufficient to reduce the population. A number of species have also been found on the shoal which would be found off shoal areas. It became evident that during these hypoxic events, the shoal was a hypoxic refuge and would also provide for recruitment to the offshore areas.

The crabs that were found were very healthy. A gut content analyses was conducted on the crabs to see what they were doing on the shoal and it was found that they were utilizing a variety of resources found on the shoal, especially shrimp, crab, the gastropods, and the bivalves. The crabs taken from the eastern part of the shoal contained more shrimp than crabs and the crabs taken from the western part of the shoal, contained the gastropods and the bivalves. That reflects the distribution that we see of the bivalves and the snails on the shoal.

Dr. Condrey reported that current conditions around the shoal are indicative of factors that may enhance the survival of blue crab larva once released into that area. Blue crabs are an important source for endangered sea turtles, especially the Kemps Ridley and the Loggerhead. A few sea turtles have been seen swimming around the shoal, but this study focused on blue crabs and not sea turtles. Conservative management will be interested in the possibility that these turtles are foraging on the shoal during the time blue crabs are using it for spawning activities.

Open Discussion
Dr. Fry asked in regards to biological diversity and the number of organisms, what it means for using the ship shoal for beach and coastal restoration. Dr. Condrey said that it depends on how and where the shoal is mined. He explained the first area to be mined is the east Ship Shoal block 13 which is an area of lower diversity. All of the species, the macrofauna that were found in that particular area, were also found on the shallower part of the shoal. On the shallower part of the shoal, a number of species that do not occur on the eastern part of the shoal were found.

Dr. Castellini asked Dr. Condrey to remind him of the depths of the shoal on each side.
Dr. Condrey explained that it gets down to around four fathoms on the east side and two to three fathoms on the west side.

Dr. Castellini referred to a prior statement about the shoal sinking a fathom over so many years and questioned the significance of this find. Dr. Condrey explained that, with the turbidity in Louisiana waters, he would argue that it is significant. When going off the shoal and the one station that is in clearer water, primary productivity, benthic primary productivity is negligible and that station is in comparatively shallow waters. He commented that although he is not the primary productivity expert, looking over the site of both down to the bottom, a fathom difference in depth in Louisiana is definitely a big difference in primary productivity given the turbidity.

<u>Data Analysis for Acoustic Doppler Current Profiles from the Offshore Oil Platforms</u>
Dr. Li presented the Committee with preliminary results from data analysis for ADCPs from the offshore OCS region oil platforms.

On April 21, 2005, the MMS issued an NTL that required oil companies to report ADCP data from their platforms and post this on a web page that can be accessed by the public. The ADCP data were used by the oil companies for structural design, critique criteria, and routine operations. These data sets are being used by the CMI to provide a very unique data set that has never been possible anywhere at anytime in any other OCS region in the world.

He then presented a Power Point slide describing some of the platforms as being fixed and some as being moved every few months. In cases where the platforms stay for a year or so, quasi-fixed stations are used.

The objective of one study he mentioned was to look at much larger scale dynamics of the OCS region of the northern Gulf of Mexico influenced by loop currents. During Hurricanes Katrina and Rita, and other hurricane seasons, most stations were shut down. A couple remained out in deep water because it was thought there would probably be no affect from the hurricanes; however, unique and fantastic results were obtained from these deep water stations.

He continued with his Power Point presentation and explained in great detail what was being shown.

Platform Ecology

Dr. Benfield is an Associate Professor in the Department of Oceanography and Coastal Sciences and has been working with industry offshore for over10 years.

He reported that a common feature of the solid platform structures is fish and he explained that the Blue Runner, also known as the hardtail, is the species that he is studying under the CMI. It is the most abundant pelagic fish around platforms and is consumed by almost all of the larger predatory fish. They form large surface schools with tens of thousands of individuals that are visible at the surface during the day. They are voracious feeders and previous studies have indicated that their diet is largely zooplankton and micronekton. These species also feed at night and it is believed that the lights on the platforms are enabling these fish to feed 24/7 giving them a big, energetic advantage over fish that are not in proximity to platforms.

He said that organisms have been studied around the ST-151 platform and surrounding fields, about 40 miles offshore southwest of the Louisiana delta, using a telemetry system. Eight underwater hydrophones linked to a small lab enabled one to listen to sound pulses from tagged fish. The sound propagates outwards and it arrives at the hydrophones at different times. These time delays allow the position of the fish to be localized in two dimensions and the tags transmit the depth of the fish to provide a 3D location.

He stated that 47 fish prior to Hurricane Katrina were tagged and, even though Hurricane Katrina went nearly over the platform, almost 3 weeks of great data sets were recorded in a very high temporal resolution.

An example of the movements of one fish, observed for an hour, indicated behavior consistent with surface observations of schools. It swam around the platform and frequently darted into the structure, perhaps in response to vessel traffic or predators.

Another observant made was that the fish displayed a very peculiar behavior down to about 20 meters at night and then ascending at dawn. A multispectral radiometer was used to look at the underwater light field with high resolution profiling around the platforms. It is believed that the fish go down to about 25 meters to avoid predators and where there is enough light for them to feed. They ascend to the surface during the day when predators are not feeding.

He explained another project that was presented to MMS using industrial ROVs to look for mesopelagic organisms; NOAA's Office of Ocean Exploration has been funding the project for the past year and a half.

Proposed Final Program Outer Continental Shelf Oil and Gas Leasing Program 2007-2012

Ms. Renee Orr was unable to attend the meeting; however, Mr. Joe Christopher gave her presentation.

Mr. Christopher quoted President Bush in his National Energy Policy, "America must have an energy policy that plans for the future, but meets the needs of today. I believe we can develop our natural resources and protect our environment."

He stated that the proposed final OCS program embodies the very essence of that vision by facilitating environmentally responsible energy development on the OCS in order to help meet America's growing energy needs. The program balances the need for domestic resources with protection of the human, marine, and coastal environments and recognizes the concerns of affected States and localities.

Oil and natural gas prices continue at historic highs and the Department of Energy and environmental impact analysis forecasts continued growth in domestic consumption. U.S. petroleum demand is expected to grow from 20.7 million bbls per day in 2005 to 27.6 million bbls per day in 2030.

The OCS is a vital source of domestic oil and natural gas for America, especially in light of sharply rising energy prices and increasing demand for these resources. This energy production will create jobs, provide greater economic and energy security for America, and can be accomplished in a safe and environmentally sound manner.

- The OCS leasing and development program plays a very important role in meeting our Nation's energy needs.
- Natural gas derived from the OCS supplies about 20 percent of our domestic gas production. Sixty-three million American homes are heated by natural gas, and about 90 percent of the new energy plants that come online in the next decade will be powered by natural gas.
- Offshore oil resources account for about 30 percent of our domestic oil production; this share is expected to increase to almost 40 percent in the next decade.
- OCS contains billions of bbls of oil and tcf of natural gas that can be safely produced. The offshore energy industry has a remarkable safety record – two major hurricanes passed through the Gulf of Mexico in 2005 without causing a single significant spill from an OCS well.

He said that most of the oil in North American oceans is from natural seepage and that only two percent is from offshore oil and gas development. Offshore energy production is one of the largest sources of non-tax revenue for the Federal Government and will generate billions of dollars for the U.S. Treasury. Revenues from OCS energy production are shared with coastal states adjacent to OCS energy production. The proposed final program will provide hundreds of millions of dollars of new revenue for States to pay for roads, bridges, environmental restoration, and other critical needs. OCS revenues also support historic preservation and environmental conservation projects in all States through the Historic Preservation Fund and Land and Water Conservation Fund.

The Minerals Revenue Management distributes the collected money to U.S. Treasury accounts from offshore leases. In recent years, annual deposits have been nearly $900 million to the Land and Water Conservation Fund and $150 million to the Historic Preservation Fund. The remainder is sent to the U. S. Treasury's General Fund. Additionally, a portion of royalties from certain offshore federal leases adjacent to seaward boundaries of coastal states are shared with those states.

In preparing the new 5-year program, which the Secretary of the Interior approved, MMS consulted extensively with members of Congress, State, local and tribal officials, industry, and environmental organizations and received comments from more than a hundred thousand interested citizens. This mandatory review and comment periods totaled 8½ months to complete.

After more than 2 years of intense effort and three rounds of public comment, the Secretary announced the Proposed Final OCS Oil and Gas Program for 2007-2012, that included 21 lease sales in eight planning areas—eight sales in four areas in Alaska, 11 sales in three areas in the Gulf of Mexico, and one sale in the Mid-Atlantic off the coast of Virginia. The proposed final program could result in the production of 10 bbls of oil and 45 tcf of natural gas over a 40 year period and would result in $170 billion in net benefits for the Nation over the life of this production

He explained that prior to any sales being held, environmental studies on a range of topics pertinent to identify issues are conducted. Potential studies would be in the disciplines of physical oceanography, fate and effects of pollutants, endangered and protected species, biology, marine ecology, social science and economics, and environmental monitoring. The MMS works closely with the local governments, Native villages, federally recognized tribes, industry, and others to understand and address issues and concerns and develop appropriate mitigating measures.

He displayed Power Point Presentations that described the sale areas and proposed studies for each area in each region.

He announced that the proposed final program and required documents were submitted to the President and Congress on April 30; the Secretary may approve the program after 60 days, and the new program will take effect on July 1, 2007.

Open Discussion

In regards to the Presidential withdrawal areas, Dr. Fry asked if there has been an assessment as to what the resources are in those areas and what proportion of the resource could actually be developed. Mr. Christopher said that is one of the issues. Without being able to get in there to do exploratory work, there are unknown resources.

Dr. Shinn commented that there are wells drilled in that moratorium area. Exxon drilled Destin Dome throughout 12 and found a lot of gas. So, there are resources there. Mr. Christopher agreed and said that there is a lot of information about that particular area. The MMS spent 3 years on the EIS to develop a project supported by Chevron and others in that area and the estimates were that there was enough natural gas to supply all of the State of Florida's needs for 9 years.

Dr. Shinn added that there is a 581 mile long gas pipeline that runs into Tampa Bay, the Gulf Stream Pipeline, which is six feet wide and six feet deep. Mr. Christopher responded that there are some statistics. One is that offshore oil resources account for more than 25 percent of our domestic oil production now. This share is expected to increase to almost 40 percent in the next decade.

Dr. Piltz pointed out that MMS's resources are conducted with USGS approximately every 5 years doing a National assessment of all of the hydrocarbon potential around the U. S. It was completed a few months ago and a summary of that is posted on the MMS website showing all the details at the field level. Of course, as Mr. Christopher correctly pointed out, in some areas where there had been actual drilling and some areas where there haven't been any recent geophysical surveys, the results are based on old data. This old data might be analyzed with newer technology and newer computers, but the numbers that are out there are the best MMS and USGS can produce. Mr. Gould agreed and said that it's also under the Gulf of Mexico Security Act for another inventory as well which is up for funding now.

Mr. Christopher commented that we are looking at ways to do seismic and there are a lot of issues involved. The point is there is not a lot of new information that goes into it. Mr. Gould replied that is an important point. USGS is basically doing a re-analysis based on software or upgrading software on data that was collected back in the early 1980s.

Dr. Castellini asked whether or not the entire moratorium area has to be lifted or can just parts of it be lifted. Mr. Christopher answered that the idea is that the State of Virginia expressed interest in this area. But the only way that sale will ever happen is if the Congressional moratorium is lifted and then the Presidential withdrawal is removed.

Mr. Gould explained that the area has two moratoriums – a Congressional moratorium and a Presidential Withdrawal. Mr. Christopher added that an analog is the South 181 area, which was under a Congressional moratorium that was lifted with the passage of the Gulf of Mexico Energy Security Act; and then the President, subsequently, in January of this year, removed the Presidential withdrawal of the area.

The Offshore Imperative, Shell Oil's Search for Petroleum in Postwar America

Dr. Priest said that he was hired by Shell Oil Company in 1998 to write the history of Shell Oil U.S.A. and has been working on the history of offshore oil off the Gulf of Mexico for quite a while. The history of offshore oil in the U.S. is really the history of Shell Oil since the beginning of the industry in the late 1940s.

He told the Committee that Shell Oil has set every historical milestone for the industry into deepwater, the company has sponsored innovations in mobile drillings, submersible rigs, jack-up rigs, invented the semi-submersible rig, and was the company that pioneered the way into deepwater.

It was an exciting project that he worked on for 4 years. About 75 oral history interviews were done plus a lot of other research. In March of 2002, just as he was expecting this book to go to the printer, Shell pulled it. Dr. Priest found out later that the president at that time resigned and was replaced by a new American CEO. The Director of Corporate Communications could have sent it to the printer and had it printed, but decided to send it over for one final blessing. It was then that the book was killed for a lot of different reasons. Shell was in a budget-cutting mode and the new management was from Europe, London, and the Hague. They didn't see the need to publish a history glorifying the American operating company.

What was really happening was the de-Americanization, or globalization, of Shell Oil. The new management for the downstream side of the business, Shell Oil's strengths were in the upstream Environment Management Plan. They claimed that there were some litigation concerns, but it had already gone through legal review. Dr. Priest agreed to do more interviews, work with management, and write a second book, which is the one that was published.

He then described in great detail the history of Shell in the U.S. and the history offshore. For more information and to order this book, please go to http://www.tamu.edu/upress/BOOKS/2007/priest.htm.

Dr. Priest pointed out that there are some good stories in the book. As the discovery and production of onshore oil in the U.S. faced an uncertain future after the Second World War, the offshore frontier in the Gulf of Mexico beckoned. Shell Oil Company pioneered many of the early moves into the Gulf, and during the next 50 years the company led the industry every step of the way into deeper water.

For Dr. Priest, this survey provides essential historical context for understanding strategic decision-making, scientific research, management of technology, and corporate organization and culture within modern oil companies.