

MMS TODAY

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Retrospective: MMS in the 1990's

By Walter Bonora and Tony Gallagher

The 1990's rewrote the economic text books. Technological advances in our industry and society changed the way people lived and worked. Wall Street saw financial successes beyond its wildest dreams and people's standards of living were changing overnight. The Internet became a new name and cell phones were in everyone's pocket. With all of the changes occurring everywhere you looked, the federal government couldn't continue in its old ways. It too had to change, starting with providing better goods and services to its customers.

When Walt Rosenbusch took the helm of MMS in May 1999, he made a commitment to keep the agency the leader it has always been in offshore safety, environmental responsibility, fiscal accountability and working closely with stakeholders. "This is an agency born of reinvention, and I will keep working to build a better agency," he said.

The MMS set a course during the 90's which would take them on a journey of continuous self improvement. Through these years, the agency has gained a national and international reputation as a leader in resource management - an impressive accomplishment for an agency that was nearly forced out of existence.

An Agency Survives

Restructuring of the federal government began in March, 1993, when President Clinton announced the National Performance Review (NPR) initiative

Two years later, Clinton announced a number of actions that would occur in the Department of the Interior (DOI) as part of the NPR initiative to streamline and "reinvent government." One of these actions proposed to devolve the Minerals Management Service by dispersing its functions to other organizations.

Target date for implementation of this action was Oct 1, 1997. It was felt that the



BLM staff photo

A portion of the money used to purchase or maintain national and state parks comes from offshore minerals revenues.

abolishment of the MMS would further the administration's efforts to reduce the size of the federal government by transferring the agency's responsibilities to other organizations, including states and tribal governments

But this decision proved to be impractical. MMS's operations were more complex than realized by the government reduction planners. After several months of meetings with industry, congress, state and Indian personnel, the proposal to devolve MMS was abandoned. Everyone agreed that most of MMS's key functions could not be easily transferred and readily accomplished by other organizations.

MMS survived but realized it had been given a wake-up call about its future. If MMS was to remain a key player in the slimmed-down, modern federal government, it would have to remodel itself into a "leaner, meaner machine."

And that machine hit the ground running, tallying numerous accomplishments along the way.

Meeting the Challenge

The Minerals Management Service is the government agency charged with the responsibilities of regulating the offshore petroleum industry and safely managing the development of those offshore mineral resources. MMS is also responsible for the collection and distribution of all revenues flowing from the sale of offshore and onshore mineral

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Message from the Director

During the time that I have been privileged to serve as director of the Minerals Management Service, two of my primary objectives have been to build upon the work of my predecessors and to bring the best practices of the private sector to our public mission.

Through the efforts of all our staff, we have made tremendous progress on both fronts, and produced more efficient and fair outcomes for the taxpayers, the environment and America's energy interests.

We addressed the challenges to royalty collection and disbursement that were presented by aging computer systems and changing energy markets. By implementing business cycles and processes better aligned with industry and financial institutions, our reengineering initiative is dramatically modernizing our financial and compliance systems. When it is fully implemented in 2001, it will save taxpayers about \$75 billion over 10 years.

We put into practice royalty collection methods to improve efficiency. When I joined MMS two years ago, I pledged that I would lead the effort to make royalty-in-kind (RIK) approaches a part of our royalty collection program. For some time, we have been testing the feasibility of RIK, and determining the circumstances under which it could work, and most importantly, the benefits to the taxpayers. Now, the foundation has been laid, and we are moving step-by-step towards our final goal.

The agency met offshore challenges and opportunities by addressing the nation's energy demands and providing responsible environmental stewardship.

When oil and gas exploration, development and production increased in the deepwaters of the Gulf of Mexico, MMS put forward a responsible strategy for de-

velopment and production, and protection for the marine environment.

We acted upon a Cabinet recommendation to the President that encouraged research on the potential of marine species for developing new pharmaceuticals and biomaterials, and applying the tools of biotechnology to restore and monitor the marine environment. In September, I announced research partnerships with two major universities to investigate if offshore oil and gas platforms could potentially be a source for marine bioproducts.

We worked with our foreign counterparts to develop uniform safety and environmental regulations, and have recently formalized several agreements that provide for technical and informational exchanges on almost every aspect of offshore safety and environmental management.

The agency initiated actions to promote sustainable development. In 1999, MMS reported on steps we can take to assure orderly access to resources on the OCS, to meet the needs of the present without compromising the needs of the future. The report identified several key aspects of development on which we must be focused to foster a more sustainable future. By addressing this issue and identifying the steps needed to get there, MMS is helping lead the way in efforts to ensure a sustainable future.

We continued to reach out to all our constituents and promote stakeholder participation in the development of sensible and effective policies. As director, I have worked to strengthen our relationships with state and local governments, the energy industry and the American Indian and environmental communities. I believe we have produced better public policy because of our outreach efforts, and by maintaining this type of open-door policy and building on the relationships



Walt Rosenbusch

we have forged. MMS will always be open to new ideas and better ways of doing business.

The Minerals Management Service is a small, but important, government agency whose work benefits all Americans. Our responsible management of the outer continental shelf is critical to our nation's energy supply and the environment. We are also one of the government's largest sources of non-tax revenue. This year, we will collect over \$6 billion in royalties – revenue that will go directly into the U.S. Treasury, Indian Tribes and allottees, and to the states, who will use it for schools, roads and public works. A good portion will also be deposited into trust funds designed to acquire, restore and create parks, wildlife preserves and recreation facilities.

We have always been – and always will be – a leader in public resource management, offshore safety and environmental responsibility, and working with stakeholders to be the best minerals resource managers.

In this issue of *MMS Today*, we present a retrospective on our major initiatives and accomplishments during the Clinton Administration.

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resources on both federal and Indian lands.

By federal government standards, MMS is still a young agency. In 1999, it celebrated its first 17 years as a bureau within the Department of the Interior.

By contrast, that same year the Department celebrated its 150th birthday. However, during its relatively short tenure as an agency, MMS experienced dramatic and profound changes, because of a desire to continually improve and in response to rapidly changing business, energy and governmental climates.

Arguably, the most dramatic changes were made in response to external forces challenging MMS every day to keep pace.

These challenges came from many sources like evolving offshore technologies, safety and environmental challenges, changing energy markets, emerging global markets and transforming legislation.

In responding to these challenges, MMS displayed its commitment to operate in the collective best interest of its many customers, including U.S. taxpayers, states, Indian tribes and mineral owners, and the energy industry. The agency set the standard for other resource management agencies—that is, to be “the best in the business.”

Improvement Initiatives

Although that goal was a lofty one, it challenged the agency to make steady progress over the years. And, because of

MMS's desire to be the best, significant achievements were accomplished during the mid 1990's.

Those achievements earned the agency important recognition highlighted by two Vice Presidential Hammer Awards (1995, 1997); Federal Environmental Quality Award in 1994 and 1996 for integrating environmental values into the agency's decision-making; and the Department of Interior's Steve Kelman Award for procurement franchising in 1997.

These awards were in recognition of numerous achievements that not only changed the way MMS conducted

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business but also the way the government conducted business. For example, the Vice Presidential Hammer Award, given to MMS in 1995, was for using Plain English in writing government documents.

Government regulations and everyday correspondence had the reputation of being unintelligible. MMS introduced the idea of writing regulations in simple English. The idea was accepted by senior management in the Department of the Interior and then began to spread throughout the federal government.

Two Primary Offices

By any standard of measurement, MMS is a relatively small organization (about 1,800 employees) to be responsible for some very important functions. It handles everything from collecting and accounting for outer continental shelf revenues, to leasing offshore lands; regulating development activities to protecting the coastal and marine environment, and ensuring that when operations are completed, the site is properly abandoned.

To be successful, it must stay close to a rapidly changing industry and frequently improve and streamline its operations. Basically, the agency moves forward on two engines: Offshore Minerals Management, and the Minerals Revenue Management.

Offshore Minerals Management (OMM)

If you turn on a gas appliance in your home there is a good chance you are making the final link in an energy chain that started in offshore U.S. waters, most likely in the Gulf of Mexico. About 27 percent of domestic natural gas and 25 percent of domestic oil production occurs on the nation's outer continental shelf (OCS).

The OCS covers about 1.48 billion acres in federal waters ranging in depth from a few feet to thousands of feet. The MMS manages the exploration and development of oil and gas, and other minerals on the OCS. The majority of the activity occurs in the Gulf of Mexico. The agency's offshore minerals management oversight helps to ensure safe exploration and development; environmental protection and impact mitigation; and receipt of fair market value for mineral development.

The office's policies must stay abreast of advancing science and technology of offshore operations and the



MMS file photo

MMS is committed to achieving the proper balance between providing energy for the American people and protecting sensitive marine habitats.

constantly changing economic conditions of the energy industry. The agency currently manages more than 44 million leased acres on the OCS which help the nation meet its energy needs.

Minerals Revenue Management (MRM)

How many people think of MMS's Minerals Revenue Management (MRM), when they walk through a state park or visit a national forest? Chances are, very few because they never heard of MRM. So, who are they? And, what's the connection to parks and forests?

The revenues generated from America's mineral resources on federal lands are the government's major source of funding to purchase parks and recreation areas. The revenues collected and shared with states help individual states to also fund recreation facilities.

Minerals Revenue Management collects and disburses all of these revenues. This management, therefore, plays an important role in protecting and preserving our majestic landscapes and living treasures.

Over \$5 billion per year is collected from more than 80,000 onshore and offshore leases. About 57 percent (over \$2 billion) of the money collected goes to the U.S. Treasury, 26 percent to special purpose funds, such as the Land & Water Conservation fund, 13 percent to states, and four percent to Indians.

These funds are vital to people and projects so MRM collects and disburses the money within one month of receipt. However; the goal is to reduce the turnaround time to a few days, as MRM introduces new equipment, software and system improvements in coming years.

The office not only collects revenue but it also conducts a comprehensive compliance effort to ensure that revenue payments from lessees are on time.

This is a more complex and challenging assignment than one would think because of the nature of business transactions in the oil and gas industry.

Production is frequently traded between companies and sales are not always direct to independent third parties. To meet the challenge of accomplishing its responsibilities and to maintain a high level of efficiency, MRM is retooling and reengineering its entire organization.

MMS Programs

Just about everyone benefits from MMS programs. The majority of OCS revenues go into the federal treasury, where they help pay for federal programs and reduce the deficit. Since its creation in 1982, the agency has collected and distributed more than \$110 billion to federal, state, and American Indian accounts.

Nearly \$68 billion has gone to the U.S. Treasury alone. Some of that money helps support America's treasures such as Yellowstone and the Grand Canyon.

Approximately \$26 billion has gone to the Land and Water Conservation Fund, the National Historic Preservation Fund, and the Reclamation Fund to support water projects in Western states.

Another \$12 billion has been distributed to 38 states and more than \$3 billion has gone to the Department of the Interior's Office of Trust Funds Management on behalf of 41 Indian tribes and 20,000 individual American Indians.

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Key Legislation

During the 1990's Congress passed several key pieces of legislation affecting the way MMS does business.

In 1990, the *Oil Pollution Act* (OPA 90) was passed giving the Secretary of the Interior responsibility of certifying offshore facilities and associated pipelines, oil spill prevention, contingency planning and financial responsibility for all offshore facilities. In 1992, the responsibilities outlined in the Act were re-delegated to MMS.

In 1993 Congress passed the *Omnibus Budget Reconciliation Act* which allowed for the deduction from a state's share of federal royalties a portion of DOI's administrative costs associated with the collection and disbursement of those revenues. The law was repealed in 2000.

The *Deep Water Royalty Relief Act of 1995* was passed expanding MMS authority to grant royalty relief to petroleum operators in deep water regions of the Gulf of Mexico.

In 1996, President Clinton signed the *Federal Oil and Gas Royalty Simplification & Fairness Act* to improve the management of revenues from OCS and Federal onshore mineral leases.

On March 15, 2000, the agency issued the *Federal Oil Valuation Rule* which became effective June 1, 2000.

Under the new rule, MMS will use publicly available market prices rather than using posted prices as an indicator of market value of affiliated sales. This will realize an increase of about \$68 million per year.

Royalty-in-Kind

Historically, most mineral revenues have been received in the form of royalty in value—or in simple terms—dollars. However, the agency has the option of taking royalty “in kind” (RIK) whereby it will take a set percentage of the mineral produced. The deciding factor is that MMS wants to do what is in the best interest of the taxpayer while still being fair to industry.

Currently, there are several on-going pilots: crude oil in the Gulf of Mexico, natural gas from the Texas 8 (g) zone of the Gulf of Mexico, and natural gas from federal leases in the



INTERMAR staff photo

Sandbridge Beach after beach renourishment efforts.

Gulf, as well as the ongoing program in Wyoming. These pilots will determine if RIK is in the nation's best interest and, if so, build the business case and framework for making RIK an integral part of the revenue management process.

The implementation of an operational RIK program will position MMS to make better asset management decisions and administer the overall revenue management process like a business.

This winter, MMS will evaluate results of the RIK pilot projects. The agency believes the analysis will confirm its early successes and confirm the agency's vision for RIK as a valuable tool in mineral resource management.

Commitment to the Environment

The agency is committed to ensuring safe and environmentally sound OCS development. It strives for the proper balance between providing a domestic energy source for the American people and protecting sensitive coastal and marine habitats.

Through the years MMS has devoted significant funding to environmental studies. This research gives MMS the necessary data about the effects of OCS activities on the marine, coastal and human environments.

Since 1974, the Environmental Studies Program has spent over \$650 million and completed over 900 research projects. These studies encompass bio-

logical, physical oceanographic, ecological and socioeconomic issues associated with offshore mineral exploration and development.

Most recently, the agency launched a three-year research effort with University of California, Santa Barbara, and Louisiana State University to examine whether offshore oil and gas structures may contain marine organisms with biotechnology applications.

“Marine biotechnology is a rapidly growing field,” said Deputy Secretary of the Interior, David Hayes who announced the research project in Santa Barbara, in September.

“It is no secret that, like the rainforests, the oceans harbor life forms with untold potential for commercial and pharmaceutical uses. From this exciting research, we hope to gain additional insight into the potential of life forms and organisms that are encrusted on the legs of platforms in the Gulf of Mexico and offshore California.”

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Jack Irion

Diving Into the Past

By
Jack B. Irion



Few people are lucky enough to know what they want to do from childhood and then succeed in realizing that dream as an adult. I'm one of those fortunate ones. For some reason I knew I wanted to be an underwater archaeologist since I was 10, like other kids wanted to be cowboys, firemen or astronauts. The impetus came largely from the books my great aunt sent me with tales of lost civilizations and ancient treasures.

One of those books, titled *Under the Mediterranean*, and my fascination for the television show *Sea Hunt*, set my feet on the path to my destiny. For a land-locked kid in suburban Dallas, the lure of travel to exotic lands and the idea of unlocking the secrets of history beneath the sea proved irresistible. Fortunately, my parents supported my decision to pursue an archaeology major at the University of Texas, although I'm sure they had no idea how I'd make a living at it.

Then, fortune played a role when the university undertook a major excavation of the oldest shipwreck found in the United States, the 1559 wreck of a Spanish ship off South Padre Island, Texas. For me, the summer of 1973 was a dream come true.

One of the attractions of underwater archaeology is that nearly every shipwreck has a great story to tell, and this one was no different.

The vessel was part of a fleet that had left Mexico on its way back to Spain when a hurricane dashed it on the shores of the Texas coast. All of her passengers, including the wife of famed explorer Ponce de León, survived the wreck. All but one met their end at the hands of the cannibalistic Karankawa Indians that inhabited the Texas coast.

A Spanish priest lived to tell the tale, including how the end came quickly for his companions after they

lost the one weapon that had kept the Karankawa at bay, a crossbow. The priest, shot with a Karankawa arrow and, thought to be dead, was buried in a shallow grave. He later dug himself out, and miraculously made it back to Mexico.

Occurring less than a generation after the conquest of Mexico by Hernán Cortéz, this tiny shipwreck was a time capsule from a critical period in the history of the New World.

Because of the unique experience of working on this wreck, I was accepted the following year to participate in the excavation of a classical shipwreck off the coast of Turkey with the renowned George F. Bass. He is considered to be the "father of underwater archaeology" and pioneered the use of land excavation techniques underwater. To work with him was a rare privilege, but the experience wasn't all smooth sailing.

To begin with, when I arrived with my new bride of one week in Bodrum, we learned that the permit for the wreck we were to work on had not been granted by the Turkish authorities and that, instead, we would be working on a Roman wreck over 130 feet deep, more than twice the depth we'd anticipated. My wife, Karen, had only just taken dive training. Her second open-water dive was to be 138 feet in the wine-dark Aegean Sea of Homer's *Odyssey*.

To complicate matters further, this was the summer that Turkey nearly went to war with Greece over Cyprus. With communications between the two countries cut, Karen and I had to make our way back to Athens across a no-man's land between two belligerent armies poised for war.

Oddly, this experience didn't quell my wanderlust, and the following years saw trips to Italy and Mexico, and eight expeditions to Belize. Eventually, the birth of my first daughter made it necessary for me to get a real job, and I landed work as a field technician with a consulting

company in Austin, Texas.

Again fortune smiled my way when the company won a contract with the Mobile District Corps of Engineers to undertake a major underwater archaeological testing project in Mobile Bay and I was placed in charge. One of the last sites we tested contained over a dozen ships sunk by the Confederate Army to block the channel into the city against the Union fleet during the Civil War.

For the next 13 years, I worked as a marine archaeologist for consulting companies on sites all over the U.S. and Puerto Rico and recorded over a dozen historic shipwrecks. All of them had dramatic stories – like the C.S.S. *Louisiana*, the ironclad that couldn't move under its own power and was scuttled in front of Fort St. Phillip below New Orleans after Farragut's fleet ran the gauntlet of defenders to capture the city; or the *Princess*, whose boiler exploded while carrying a boat-load of lawyers to Mardi Gras before the Civil War; or the U.S.S. *Tawah*, the only U.S. Navy vessel to be sunk by enemy cavalry.

As exciting as it is to dive beneath the water and stand on a deck untrod since the Civil War, it is even more of an emotional "high" to come across some long-forgotten document that tells the story of the vessel and how it came to be there.

These ships were all an important part of our past. Their story is the story of the United States and how we came to be who we are today.

When I entered federal service in 1995, I was told that my research days would likely be over. Fortunately, this was not to be. As a member of the MMS scientific dive team, I have participated in expeditions throughout the Gulf of Mexico to research vessels like the Civil War gunboat U.S.S. *Hatteras*, the 1847 wreck of the steamship *New York* and most recently, the iron-hulled steamship *Josephine*.

Academic Partnerships Foster Scientific Excellence

by Walter Bonora



Scott Bull examines surfgrass beds along Southern California's shoreline.

photo by Charlie Boch

For graduate student Scott Bull, the opportunity to study a threatened habitat and an important marine plant species was more than he had hoped for while working on his thesis in marine biology at the University of California, Santa Barbara. Beds of surfgrass, a flowering plant that lives underwater to depths of 20 feet, grow along the coastline of Santa Barbara, as well as much of the shores of the Pacific coast of North America

"Surfgrass beds provide food, shelter and nursery grounds for a variety of invertebrates and fish," said Bull. "But these grass beds can be damaged by pollution, coastal development and other human activity."

In a study, partially funded by the Minerals Management Service, scientists and graduate students like Bull are seeking possibilities for maintaining, and enhancing the health of these beds.

"We're asking where are the bottlenecks and what are the options for conservation and restoration," said Bull. That question forms the basis for his research project conducted under a larger initiative known as the Coastal Marine Institutes (CMI), whereby scientists and students investigate numerous research questions in regions affected by offshore oil development to understand the social and environmental effects of that development.

Similarly, graduate students in Louisiana and Alaska struggle with scientific questions important to their

regions. Their common link is MMS ongoing commitment to fostering scientific excellence.

It all developed about ten years ago, when MMS began looking for opportunities to strengthen relationships with states where offshore oil and gas activities take place. Its vision was to improve the credibility and use of environmental research conducted by outside parties for the agency.

"To do this, we formed partnerships with UCSB, Louisiana State University and the University of Alaska to address various management issues," said MMS Director, Walt Rosenbusch. "Through this initiative, we have successfully forged partnerships and strengthened relationships with the academic community and participating states."

By matching funds with the universities, (more than a combined \$42 million to date) the agency and respective states have been able to carry out research on important questions that might not otherwise be attainable. Using scientists and highly qualified researchers and graduate students, CMI research provides valuable information for addressing key management issues.

The span of research includes oceanographic and ecological studies from deep water areas to intertidal zones, and social and economic studies designed to answer questions about potential effects of marine mineral extraction activities.

There have been hundreds of studies over the last ten years designed to yield

information to help make offshore oil and gas development safer for people and the environment. A sampling of these studies follows:

California

In central California, MMS scientists and researchers from UCSB monitor the health of marine life inhabiting rocky intertidal habitats to determine the effects of offshore oil development on these communities.

Rocky shores are home to numerous species like abalone and mussels, necessary for the survival of other species. Lobsters spawn in mussel beds, and abalone are a favorite food of sea otters.

Data collected from these studies is used to monitor changes in populations and habitat quality and determine what measures are needed to protect these species if they are found to be in jeopardy.

The research is focused on the marine environment in the Santa Barbara Channel and Santa Maria Basin and builds on the foundation of more than two decades of collaborative MMS research in the area. A recently initiated project evaluates the biotechnology potential of marine organisms that encrust the subtidal structure of offshore platforms

Previous studies that support this research include the publication of an 11-volume Taxonomic Atlas of marine organisms to identify the creatures. The atlas includes reports on ocean circulation patterns to understand larval distribution of the organisms from source populations to the platforms, investigations of how the organisms colonize the structures and how the platforms function as artificial reefs.

These studies involved researchers from disciplines as diverse as oceanography, ecology, marine biology and the social sciences.

Alaska

In July, 2000 researchers from the University of Alaska, Fairbanks, and the North Slope Borough began a joint project designed to track, via satellite, beluga whales migrating through broken sea ice in the Beaufort Sea and Arctic Ocean. Assisted by native

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photo by John Romero

Jenny Dugan of UCSB describes invertebrates growing on offshore platforms to a member of the local media.

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Alaskan subsistence hunters living in the remote coastal village of Point Lay, researchers hope to capture and tag 17 beluga whales during the next two summers to learn about their seasonal movements between the Chukchi Sea and Beaufort Sea and in the Arctic Ocean.

The results of this study are expected to provide new information about the natural history of this important subsistence species and will be useful in the environmental review of oil-related developments in the Beaufort Sea.

Researchers from the University of Alaska and specialists from Cold Regions Research and Engineering will prepare an updated Geographic Information System (GIS) based Alaska Sea Ice Atlas. The atlas will be used for risk assessment for navigation and mineral developments.

All ice-covered OCS and coastal waters of Alaska will be mapped. National Weather Service ice reports for the Beaufort, Chukchi, Bering Seas, and Cook Inlet will be included. The database will allow users to view a statistical average over a broad area, a time series of conditions at a point, or an individual historical ice report.

Gulf of Mexico

In 1992 the agency's Gulf of Mexico regional office entered into an agreement establishing a Coastal Marine

Institute with Louisiana State University (LSU). Over the years, the CMI has produced information dealing with everything from examining the interactions of neotropical bird migrants with platforms to assessing environmental and safety risks of the expanding role of independent offshore oil and gas producers.

Some studies have focused on 3D-seismic technology to improve the identification of geohazards, while other have measured the coastal currents of the northern Gulf of Mexico. In all these and other efforts, LSU has been a full partner in developing studies of mutual benefit to both the state and MMS.

With over 3800 platforms, the "steel archipelago" formed by OCS structures in the Gulf have produced unique, artificial reefs which have added to the biodiversity of marine life. Not only are they important marine ecosystems in their own right, which merit serious study of "platform ecology", but they serve as extra hard-bottom and as a refuge for marine organisms that are found there.

"The oil and gas activity in the Gulf has created an exciting experiment where many of the theories concerning artificial reef communities can be tested and compared with natural, marine ecosystems," added Rosenbusch.

As use of the ocean changes, more structures for aquaculture, renewable energy production and for yet unimagined uses will be located in the sea. The lessons learned from the Gulf's OCS experience will serve as a foundation for

the wise use of the sea long after all the platforms will be removed. An exciting legacy of knowledge towards a more sustainable future is ready to be written by those students who are interested in exploring this new frontier.

Biotechnology

In September, MMS signed an agreement with UCSB and LSU to examine whether offshore platform legs may contain marine organisms with biotechnology applications.

The steel legs of these platforms are encrusted with invertebrates and plants that may be suitable for harvesting as medicines.

"With this three year study we hope to gain a better understanding of the biotechnical potential of the life forms growing around certain offshore structures," said Deputy Interior Secretary David Hayes, in making the September grant announcement at the University of California, Santa Barbara.

Marine biotechnology is an up-and-coming field. It is no secret that, like the rainforests, the oceans harbor life forms with untold potential for commercial and pharmaceutical use. For example, compounds from some species of marine invertebrates, like the starfish, show promise as tumor-fighting agents. Another compound made from marine coral exoskeleton currently is used as an implant in the treatment of bone fractures. More than 50 marine organisms—from mollusks to starfish—are targeted by the studies.

"If the man-made offshore oil and gas structures prove to be viable substrate," said Rosenbusch, "then this type of marine bio-harvesting could significantly lessen the need to harvest organisms from the natural ecosystem. This could help protect the marine habitat as well as provide a sustainable source for beneficial natural products."

The agency's partnership with the aforementioned universities thus far has been a success.

More studies are underway and the knowledge gained from the Coastal Marine Institute program will further enhance the agency's commitment to balancing the search for energy and minerals with protection of the environment.

(Contributors: From MMS, Pat Roscigno, Jim Cimato, Cleve Cowles, Jim Lima; and from UCSB, Russ Schmitt, Bonnie Williamson, and Jenny Dugan)



Cold Counting on the Chuckchi *by Albert Barros*

It was 11:45 p.m. and I was perched on shorefast ice about four miles northeast of Barrow, Alaska, gazing out at flaw zones in the mostly frozen Chukchi Sea. The wind chill was 51 degrees below zero; the snow was blowing sideways and the sun was setting.

With two other counters, I was watching a narrow slip of open water for a glimpse of a bowhead whale and straining to hear its distinctive “blow” as it came up for air. We were standing on a 15-foot tower that we had built by stacking chunks of ice on a snow mound, cementing the blocks in place with a seawater and snow slurry. A strip of canvas was doing its best as a wrap-around windbreak at the top of the platform. Polar bears roamed nearby, and we were camped on a sheet of ice that might shift at any time.

In the fading light of this unforgiving world, I reassured myself that this was an important survey that could help to preserve an endangered whale. But I also knew our effort could enable a native people to maintain the integrity of their culture. And I was fascinated by the link between *Balaena mysticetus* and the Inupiat people of Arctic Alaska.

Inupiat whalers, whose villages lay along the bowhead’s annual migration route off the North Slope, have hunted the whale for thousands of years. Named for its bow-shaped skull, and best known for its thick blubber and mouthful of comb-like baleen that strains plankton for its food, the bowhead can grow to a length of 65 feet and weigh as much as 80 tons.

As a member of the Nez Perce Tribe of Idaho, I grew up on a reservation and participated in tribal hunting and fishing activities.

So it wasn’t hard to appreciate the relationship between the Inupiat and the bowhead whale. The hunt is an essential part of Inupiat culture, not only for the important subsistence food it can bring, but also because of its significance and symbolism. It fosters teamwork and leadership. Special knowledge is required. The whale hunt provides a rite of passage and acceptance, and an acknowledgment of one’s place in the community. The gift of the whale itself to the hunters is part of the interrelationship between man and nature.

In the 1970s, however, the International Whaling Commission, fearing the



photo by Albert Barros

The perches from which the census team searched and counted the whales were generally 15 feet high and constructed on an ice mound.

species was gravely endangered, banned the hunting of bowheads. That threatened a key cultural tradition of the Inupiat, who were convinced that bowheads were abundant, based on their traditional knowledge of the species and its habitats.

The shore-based census began in 1972 as a way to help resolve the issue by providing the commission—and U.S. government agencies—hard data on the bowhead population, hunting pressure and trends. The last complete whale census, conducted in 1993, reconfirmed the Inupiat beliefs, estimating that there were about 8,200 bowheads and that the population was increasing at a rate of about 3 percent per year.

This year’s census was a cooperative effort financed by the North Slope Borough and the National Marine Fisheries Service with a donation from British Petroleum. The support of the Alaska Eskimo Whaling Commission and the Barrow Whaling Captains is key to the census effort.

Though the bowhead is an endangered species protected by U.S. law, Inupiat whalers have been allowed to take a limited number—up to 50—each year for subsistence use. Understanding how important the census is to Inupiat



A bowhead whale surfaces while on its way to the Beaufort Sea. The bowhead, which can grow to 60-foot long and weigh as much as 80 tons, is the only species of whale living exclusively in the Arctic. (*photo courtesy North Slope Borough Wildlife Department*)

whaling activities and wanting to learn more about the spring hunt, I had volunteered to assist the whale census program for 15 days.

Bowheads pass Barrow from late April through May on their annual spring migration from the Bering Sea through the Chukchi Sea to summering grounds in the eastern Beaufort Sea off Canada. In the fall, the whales retrace their route.

Bowheads use open water caused by “flaw zones” in the ice during their spring migration. Ice begins forming along this coast in September and October and grows in thickness through the winter. Drifting ice collides with shorefast ice, forming pressure ridges. Often, in waters less than 30 meters deep, large pressure ridges are “grounded” on the sea floor.

Periodically, sea currents and wind push the pack ice offshore, creating a flaw zone between the shorefast and pack ice. Channels of open water develop in this zone and bowheads migrate through these areas as well as under the ice.

Our census used visual and acoustic systems to “double count” the whales. Observers on the perches watched for bowheads that moved through the open channels. It takes a good eye to spot them on the surface. Though huge, bowheads can be illusive.

Another method, developed by Chris Clark of Cornell University, uses hydrophones in at least three sites to locate the whales by the sounds they make as they pass the station.

“We know some whales pass without making a sound because we see whales and don’t hear them on the hydrophones,” said Clark. “We also know that

from previous page

some whales pass under the ice because we hear them and don't see them. With the two methods we can come up with an accurate count."

After watching the listening operation in the acoustic shack and helping with hydrophone maintenance, I decided the visual duties on the perch were preferable. Though we were exposed to the cold and a few visiting polar bears, I enjoyed watching the whales as they surfaced, rolled over, interacted with other whales and fluked—flipped their tails into the air before submerging.

During the 15 days I participated, we counted 1,400 bowheads.

Our camp accommodations were sparse and teamwork was critical for safety. We lived in three tents with sleeping bags and a cook tent with a propane heater that operated 24 hours a day for warmth and melting ice for drinking water.

To minimize the amount of equipment in camp, and in case we needed to evacuate quickly, we shared almost everything, including "hot bunks." We worked in three shifts so the counting could be carried out around the clock. Typically, I spent four hours on the perch; two hours in the cook tent—eating, rehydrating and getting warm; and then four more hours on the perch.

As our shift drew to a close, the next team would get up, eat, prepare some-



photo by Roger Kunayak Jr.

Author **Albert Barros** tows essential supplies. The census team was forced to move its camp twice because of changing ice conditions.

thing to drink for their first four hours, and come out to relieve us. We would go back to the tents to eat, rehydrate and finalize counts; afterwards, we crawled into the sleeping bags the other crew had just left.

We evacuated camp twice because of changing ice conditions. We collapsed the tents, packed everything onto sleds towed behind the snowmobiles and moved to where the ice was safe. Our first move took a little longer than it should have, but the second went smoothly because people knew what was expected of them.

We carried a two-way radio and a shotgun for protection against polar bears. There also was a 12-gauge shot-

gun with slugs in each tent. Usually, when a bear gets too close, a shot is fired in its direction to scare it away. During the years the North Slope Borough has conducted the whale census, only two polar bears have been killed in self-defense. The campsite also had a special fence with an audible siren to warn the campers of a bear in the vicinity.

(Albert Barros is a community liaison staff member of the Minerals Management Service's Alaska Region.)

Cover *story from page 4*

Safety on the High Seas

The way in which the agency regulates its outer continental shelf oil and gas program is at an important crossroads.

During much of the 50-year history of this program, a prescriptive approach was adopted for assuring safe and environmentally sound operations.

Today, a clear shift towards performance-based regulation is taking place. This shift is occurring at a time when the Gulf of Mexico is once again being viewed as a world class production province.

"The number one priority for the offshore program is ensuring safe and clean operations," said Carolita Kallaur, associate director for the agency's offshore operations. "We are concerned about safety of offshore workers as well

as protection of the marine environment." The agency's safety program includes a combination of required plans, permits, training requirements and inspections, as well as a number of cooperative efforts with industry to improve performance.

In 1991, the agency introduced the concept of a safety and environmental management program to industry. The basic concept behind the program is that industry would voluntarily implement a structured, systems-level safety management program. By 1995 most operators in the Gulf of Mexico were on board with this program.

"Safe and clean operations make good business sense," added Kallaur. "Responsible companies will see savings in lower property damage, lower employee compensation and a reduction in insurance costs. It also provides the public with confidence in the integrity of offshore operations"

Beach Restoration

For several years MMS has worked with coastal states interested in using OCS sand for restoring their beaches.

In 1998, MMS completed an agreement with the U.S. Army Corps of Engineers and the National Park Service to use federal sand for restoring the portion of Assateague Island in Maryland. Also in 1998, the agency reached agreement with the city of Virginia Beach to use offshore sand to construct a beach restoration and hurricane protection project along a five-mile stretch of Sandbridge Beach, Virginia.

From 1995-2000, MMS conveyed nearly 8 million cubic yards of OCS sand for shore protection projects.

see **Cover Story** page 13

Across MMS

For additional information on most of the following stories, visit our website at: www.mms.gov.

Reengineering in High Gear at the Agency

MMS staff article

The Minerals Management Service is reengineering its business processes and accounting systems to vastly improve royalty collection and disbursement. Spurred by aging computer systems, changing energy markets and the need to implement business cycles and processes that are better aligned with industry and financial institutions, the MMS completely reorganized its Royalty Management Program, including a name change to Minerals Revenue Management.

Minerals Revenue Management is responsible for collecting, accounting for and disbursing revenues from federal mineral leases. To better accomplish this mission, the organization is implementing new business processes that are projected to provide cost savings to the government of about \$75 million over ten years. In addition to being more resource efficient, the new processes will reduce business cycle time, or the time it takes to start and complete tasks, by more than 50 percent. Also, customer satisfaction will be greatly enhanced as the agency expects to provide 24 hour turn-around payments to royalty recipients. In the past, it took two to four weeks for recipients to receive payments.

According to MMS Director Walt Rosenbusch, "The evolution of the oil and gas industry in recent years has presented us with new challenges to improve the way we do business. I firmly believe that we are meeting those challenges by implementing new business processes for managing mineral revenues. Our reengineering initiative will help ensure that this agency remains the best minerals resource manager."

Minerals Revenue Management will be integrated and fully supported by state of the art technology. The program is process centered, focused on outcomes, less costly and viewed by both customers and competitors as the best. This reengineering initiative is a dramatic modernization of the agency's automated infrastructure.

MMS collects about \$5 billion per year from mineral leases on federal and Indian lands. These revenues are distributed to a number of recipients including states with mineral leasing on federal lands, American Indian tribes and individuals, and the U.S. Treasury (General Fund, Land and Water Conservation Fund, National Historic Preservation Fund and the Reclamation Fund). The MMS ensures the American people receive a fair return on their mineral resources while monitoring offshore industry activities for compliance with environmental and safety requirements.

34 States Net \$575 million

MMS staff report



MMS file photo

Money distributed by MMS to states is often used to maintain their parks and recreation areas.

The Minerals Management Service distributed more than \$575 million to 34 states during the first nine months of 2000.

"This year's three-quarter mark far exceeds last year's \$391 million for the same period and, in fact, supercedes the \$541 million total for all of 1999," stated MMS Director Walt Rosenbusch.

The money represents the states' cumulative share of revenues collected for mineral production on federal lands located within their borders and from federal offshore oil and gas tracts adjacent to their shores. It is distributed directly to state treasuries for use as the

individual states deem necessary, without federal oversight. Often, it is used for schools, roads and other public works.

Disbursements are made to states on a monthly basis, as bonuses, rents, royalties and other revenues are collected. A state is entitled to a share of the mineral revenues collected from federal lands located within that state's boundaries.

For the majority of federal lands, states and the federal government share the revenues: 50 percent to the state, 40 percent to the Reclamation Fund for water projects, and 10 percent to the U.S. Treasury. Alaska gets a 90-percent share as prescribed by the Alaska Statehood Act.

Certain coastal states with federal offshore tracts adjacent to their seaward boundaries receive 27 percent of those mineral royalties as well. Remaining offshore revenues are deposited in special accounts of the U.S. Treasury, including the General Fund, National Historic Preservation Fund and the Land and Water Conservation Fund.

Four states: Wyoming, New Mexico, Colorado and Utah; received more than 85 percent of the total.

States' Share of Federal Money

Alabama	\$10,194,730.27
Alaska	\$3,834,303.44
Arizona	\$62,834.48
Arkansas	\$891,678.44
California	\$17,047,736.03
Colorado	\$32,503,708.25
Florida	\$5,049.93
Idaho	\$1,543,572.99
Illinois	\$101,403.23
Kansas	\$935,237.79
Kentucky	\$32,896.66
Louisiana	\$12,844,176.88
Michigan	\$356,056.24
Minnesota	\$12,326.49
Mississippi	\$801,917.03
Missouri	\$609,914.71
Montana	\$15,898,896.40
Nebraska	\$11,013.82
Nevada	\$1,988,468.12
New Mexico	\$182,436,930.67
North Carolina	\$118.51
North Dakota	\$3,377,492.09
Ohio	\$112,914.73
Oklahoma	\$1,301,030.38
Oregon	\$32,475.57
Pennsylvania	\$14,542.51
South Dakota	\$436,768.15
Tennessee	\$6,582.31
Texas	\$9,919,330.87
Utah	\$26,347,765.65
Virginia	\$87,594.32
Washington	\$1,100,743.79
West Virginia	\$184,860.80
Wyoming	\$250,861,737.44

MMS Participates in Deep Sea Exploration

MMS staff report



photo by Dan Fornari

Scientists from the Minerals Management Service participated in an exciting undersea research project exploring the mysteries of the deep waters of the Gulf of Mexico. Using the deep submergence vessel *Alvin*, MMS, in collaboration with the Department of Energy and NOAA's National Undersea Research Program, joined scientists from Texas A&M, William and Mary, and the University of South Carolina to learn more about the Gulf's seldom explored deep ecosystems.

During a 17-day exploration cruise that began in mid-October in Galveston, Texas, and ended November 1, in Key West, the on-board scientists gathered crucial information about

Deepsea
submersible,
ALVIN

see **ALVIN** page 13



Developing Offshore Mineral Resources with Fewer Platforms

Pacific Region staff article

Platform Heritage
stands in 1,075 feet
of water. (MMS staff photo)

Science and technology continue to play an integral role in offshore oil and gas production and development. Last year, ExxonMobil successfully utilized extended-reach drilling and completion technology to tap oil and gas reserves off the coast of Santa Barbara that were once thought accessible only by installing another platform. This year, ExxonMobil has successfully drilled and completed a second extended-reach well from the same offshore platform, and is currently completing a third well into its Sacate Field several miles away.

"ExxonMobil, and its drilling contractor Helmerich & Payne International Drilling Company, continues to do an exemplary job in carrying out the extended-reach drilling project," said J. Lisle Reed, MMS Pacific Region director. "This technology will enable the operator to develop the entire Sacate

field offshore Santa Barbara County from its existing Platform Heritage. The operator can now develop the reserves without having to install another platform," said Reed.

Extended-reach drilling technology allows an operator to access hydrocarbons in distant reservoirs from a centralized "drilling island." In this case, the offshore platform is the drilling island that serves as the starting point for the well. The well starts out nearly vertical for the initial 1000 feet or so, and then the drill bit is steered in the direction of the distant target reservoir. Drilling then proceeds in a nearly horizontal orientation until the distant reservoir is reached.

To date, ExxonMobil has utilized their existing Platform Heritage to drill three extended-reach wells into the Sacate field several miles away.

The second well, SA-002, has a measured depth of 24,660 feet, and a vertical depth of 6,704 feet. The SA-002 well eclipsed ExxonMobil's SA-001 well which set a U.S. record last year for an extended-reach well in domestic waters and a world record for an extended-reach well in water depths greater than 700 feet. The third well, SA-003, has a smaller measured vertical depth than the first two wells, but it is unique in that it accesses reserves in both the Monterey and Sandstone reservoirs of the Sacate field. Additional extended-reach wells are planned to develop the entire field.

These successful wells, and the proposed additional ones, will enable ExxonMobil to develop the entire Sacate field from its existing Platform Heritage, thus eliminating the need to install the company's fourth approved facility.



The Global Perspective

MMS Conducts Simulated Lease Sale with China

by Walter Bonora

With emerging interests in how best to develop offshore oil and gas resources in several countries, the Minerals Management Service is frequently called on for its expertise.

From Russia to China, and Kazakhstan to Bangladesh the MMS has lent it's support in exchanging scientific and technical information related to offshore oil and gas, and mineral activity.

"We have tremendous experience in regulating the offshore industry," said Carolita Kallaur, associate director for the agency's Offshore Minerals Management program. "And it is in the best interest of all concerned – host countries, the environment, world trade, the oil industry — to share that knowledge with countries that have developing oil and natural gas resources."

Consistent with the trend toward international commerce, today's offshore oil and gas industry has become even more global in scope. MMS thus finds itself regulating the U.S. offshore activities of an international industry.

In addition to maintaining U.S. leadership in developing international standards, MMS is increasingly being asked to participate in international projects that further U.S. foreign policy goals.

In September, Kallaur led an MMS contingent, along with representatives from U.S.-based CONOCO, UNOCAL, Chevron and Phillips to Beijing, China to show the Chinese just exactly how a lease sale is conducted.

The purpose of the trip was to show how a competitive bid, and an open and transparent regulatory system could create a win-win environment.

The current system in China is based on individual negotiations between the Chinese government and a foreign producer. For example, a company would sit at a table with Chinese officials and hammer out an agreement that would allow them to drill and explore off their shores.



staff photo

Representatives from the U.S. and China met in Beijing for a simulated lease sale.

The U.S. method is based on open competition with any number of participants. The lease sale exercise, led by a representative from CONOCO, also provided the Chinese opportunities to learn from the agency's best practices.

"They are looking for ways to improve their regulatory process to ease the way for foreign investors," said Carol Hartgen of MMS.

Hartgen, the agency's chief of International Activities and Marine Minerals Division, stressed that the exercise brought together both countries regulators in an informal forum that proved entertaining and constructive.

Zhong Weigzhi of China's Ministry of Land and Natural Resources commented that China welcomes foreign investors.

"We place a high emphasis on the development of China's resources but we are also very interested in sustainable development," he said.

"The Chinese participants were very astute and receptive," according to Tom Sellers of CONOCO. "They seemed to grasp the policy and procedures that MMS explained, and excelled at the actual simulation of offshore bidding and drilling processes."

Two key players in the exercise were Rene Orr and Kung Huang of MMS. Orr's efforts were instrumental in pulling together all of the participants and elements for the exercise, and Huang's ability to speak Chinese was important to the success of the exercise.

"It is important that the U.S. continue to play a leadership role in shaping oil and gas development in the 21st century," said Kallaur.

The agency's international role is essential to help foster a balanced approach for offshore development worldwide and to share U.S. best practices.

ALVIN from page 11

Exploring the Deepest Regions of the Gulf

marine organisms such as tubeworms, mussels and clams that live in chemosynthetic communities. Also, the scientists will attempt to characterize the health and function of the deepwater environment and compare it with other oceanic regions.

“This fascinating deep-sea mission provided the MMS an opportunity to understand more about the mysteries of the deep water environment and the organisms living on the bottom of the ocean floor,” remarked MMS Director Walt Rosenbusch. “This research project will also provide information to help ensure that oil and gas found in the deep waters of the Gulf will be developed in an operationally safe and environmentally sound manner.”

Owned and leased by the Woods Hole Oceanographic Institute, *Alvin* and its



Photo by Robert Avent

The **ALVIN** on board the research vessel *Atlantis*. With excellent lighting, navigation and communications, *Alvin* can take a pilot and two scientists to the abyss for up to ten hours.

support vessel *Atlantis* are equipped with highly sophisticated underwater tools to monitor deep-sea environments. This research began in the OCS region of the Gulf known as Alaminos Canyon, the site of the deepest exploration well in the Gulf, in water 7,000 feet deep.

The scientists also conducted dives in the Green Canyon area, one of the most studied seep sites in the Gulf where seep creatures like giant tubeworms, mussels and clams feed on hydrocarbons.

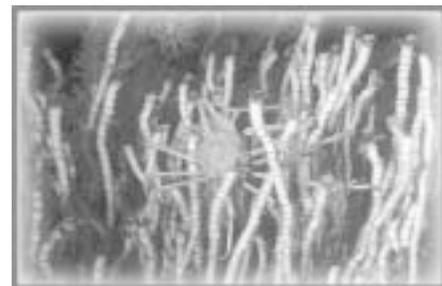


photo by Jonathan Blair

Residents of the deep: **tubeworms** living on gas hydrate mounds

Cover story from page 9

Conclusion

The agency continues its efforts to be the best mineral resource manager in the business while being ever vigilant that its core responsibility is to have safe offshore operations and to protect the marine environment.



MMS is committed to protecting the marine environment today and for future generations

(MMS file photo)

A small agency with a large impact, it never stops looking for better ways to serve the American people; to ensure that the nation receives the best value for its resources now and into the future.

“We will continue to use a common sense approach to management,” said Rosenbusch, “and we will continue to conduct the quality, scientific research necessary to make sound decisions.”

Additional MMS Milestones of the Last Decade

1993 – Royalty Management Program (now Minerals Revenue Management) named a Quality Improvement Prototype Award Finalist by President’s Council on Management Improvement and Federal Quality Institute.

1995 – MMS initiates a pilot project to collect offshore natural gas royalties in kind, paving the way for a Royalty in-Kind (RIK) pilot program.

1997 - Most bids received at a lease sale.

1997 – MMS begins special royalty internship programs for Indian tribal employees.

1999 - Oil production from the deep water portion of the GOM surpassed production from shallow water areas.

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