

1.3.2 Improving Cooperation in US/Mexican Marine Science to Better Manage Offshore Hydrocarbon Activities in the Gulf of Mexico

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1.3.2.1 Abstract

Energy reforms that have spurred rapidly increasing exploration activities in Mexico, especially in areas near the United States-Mexico maritime boundary in the Gulf of Mexico (GOM), with a ramping up of offshore production activity proposed by the Trump Administration in US waters, make it imperative that the two nations begin to work more closely together to manage hydrocarbon resource development. In light of the evolving regulatory regime in Mexico and the potential transboundary impacts associated with increased offshore oil and gas activity in the GOM in the next decade, it is important for scientists and regulators from both countries to engage in a process of coordinating their activities. These efforts should include prioritizing research needs; conducting joint, or at least coordinated cruises; and finding methods to effectively share and analyze collected scientific data. If the two nations fail to cooperate fully, management efforts will not occur or will suffer from redundancy and duplication of effort. A better understanding of the environmental regulatory requirements in Mexico should also be promoted so that scientists from industry, government, academia, and non-governmental organizations can begin to plan for collection and monitoring activities and prioritize the type of information that would best meet Mexico's needs. A significant amount of funded science in the GOM in coming years will address the need for complying with each nation's regulatory and environmental permitting mandates. Bringing both nations' regulatory and science communities together to determine the best path forward to accomplish this important task should be a high priority.

1.3.2.2 The Need for Transboundary Cooperation in the Era of Deepwater Oil Production

An essential feature of governing offshore energy development is obtaining scientific information needed to effectively assess, predict, and manage potential impacts from hydrocarbon exploration and production activities. There are strong reasons for United States and Mexican scientists to work towards maximizing cooperative efforts in marine environmental research and data collection. Increased production is likely in the GOM during the next five to ten years. In fact, there is probably nowhere in the world where targeted scientific information is more crucial than in the GOM. Today, with more than 3,500 existing offshore structures and 33,000 miles of pipelines, the GOM is one of the world's most important and intensively developed offshore production areas. Mexico and the United States have exploited hydrocarbons in their respective portions of the GOM for decades. Unlike earlier production, which was primarily in shallow nearshore areas, technological advances have pushed current production further out onto the deeper continental shelf to the point that of the more than 567 million barrels of oil produced in the US GOM in 2009, 80% took place in depths of 1,000 feet or deeper (Richards 2011). We have far less scientific knowledge about the deeper and more remote areas of the GOM than the shallower areas closer to shore.

Accelerating this trend toward deepwater production is Mexico's recent decision to reform its energy industry. On 5 December 2016, Mexico completed its first deepwater oil auction in the GOM. This ended a 75-year monopoly held by state-owned Petróleos Mexicanos (PEMEX), and opened Mexico's offshore areas, with their huge hydrocarbon potential, to foreign investment. By all measures, the auction was highly successful with international oil giants such as France's Total, the China National Offshore Oil Corporation, and Exxon Mobil and Chevron of the US winning bids on exploratory blocks that are estimated to contain as much as 11 billion barrels of oil and natural gas (Malkin and Krauss 2016). Given this success, the Mexican Government has indicated that it intends to hold a second auction with much more acreage in October 2017.

The rapidly increasing exploration activities in Mexico, especially in areas near the US-Mexico maritime boundary, coupled with a ramping up of offshore production activity proposed by the Trump Administration in US waters make it imperative that the two nations begin to work more closely together to manage hydrocarbon resource development in the GOM. Collaboration in collecting, analyzing, and storing marine scientific information is essential to support both governments' responsibilities in carrying out their regulatory and management duties.

Mexico and the United States recognize that the GOM is one large marine ecosystem and that environmental damage to one portion of the Gulf can have transboundary consequences. A number of bilateral cooperative agreements to more effectively manage oil and gas development in the GOM have been negotiated. For example, the MEXUS agreement controls how the two nations respond to transboundary oil spills (US Coast Guard 2000). The 2012 "Agreement on the Exploitation of Transboundary Hydrocarbon Resources in the Gulf of Mexico" creates a legal framework that allows the two nations to jointly exploit the shared oil and gas resources that straddle the maritime boundary and promotes the creation of common environmental standards (US Department of State 2012). Most recently, the American Petroleum Institute (API), which represents the US oil and gas industry, reached an agreement with the National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector (ASEA), Mexico's oil and gas regulatory agency, to assure that ASEA will be able to include API recommended environmental and safety standards and practices into its own regulations.

Bilateral efforts, such as these, which seek to promote more efficient and safe methods of managing oil exploration and production, are extremely important as Mexico continues to open its offshore areas to development in the future. However, all are dependent on having a strong understanding of the state of marine and coastal science in the southern GOM. In this regard, it is important to note, based on the information from the plenary sessions of the GOMWIR, and the discussions within and between members of the GOMWIR working groups, that our scientific knowledge of the marine and coastal environments in Mexico's portion of the Gulf is less robust than in the US portion. One of the goals of GOMWIR is to determine where gaps exist in this scientific knowledge and how best to prioritize future collaborative research efforts.

In addition, both nations require scientific information from government and non-government marine scientists to carry out specific legislative mandates within their own territories. For example, the US Bureau of Energy Management (BOEM), tasked with managing development of the nation's offshore resources, has an Environmental Studies Program that informs its offshore leasing activities. This program's mandate is derived from provisions of the National Environmental Policy Act (NEPA) and the Outer Continental Shelf Lands Act (OCSLA). OCSLA Section 20 establishes three primary goals:

1. To establish the information needed for assessment and management of environmental impacts on the human, marine, and coastal environments of the OCS and the potentially affected coastal areas;
2. To predict impacts on the marine biota which may result from chronic, low-level pollution or large spills associated with OCS production, from drilling fluids and cuttings discharges, pipeline emplacement, or onshore facilities; and
3. To monitor human, marine, and coastal environments to provide time series and data trend information for identification of significant changes in the quality and productivity of these environments, and to identify the causes of these changes.

Information from this program is also used to meet additional legislative mandates to protect the marine environment such as those in the Endangered Species Act, Marine Mammal Protection Act, Clean Air Act, Magnuson-Stevens Fishery Conservation and Management Act, Historic Preservation Act, and other federal statutes. Without adequate scientific information, BOEM would have a difficult time conducting

environmental reviews, including NEPA analyses, and producing compliance documents required from a whole host of applicable environmental statutes.

Mexico has similar legislative mandates and priorities. One of the greatest challenges posed by the rapid pace of Mexico's energy reforms is developing a fully functioning regulatory regime to deal with potential environmental impacts of its growing offshore hydrocarbon activities. ASEA has been authorized to establish regulations regarding the conditions and actions that will be taken for any environmental damage that occurs. Article 3 of the Internal Regulations of ASEA establishes that the executive director of the agency will have the authority to "coordinate the studies of economic assessment of environmental externalities and risks associated with the facilities, activities, and operations of the sector based on a methodology which takes best international practices into account" (Serra 2017).

ASEA is still developing the expertise and effective capacity to regulate and monitor all of the exploration and production projects that may be developed in Mexican waters. Consequently, the agency is not currently planning on creating a unique set of guidelines, but rather to rely on "best international practice" for all lessees, which will then be reviewed and approved by ASEA officials. It is currently unclear exactly how this process will be implemented. However, regardless of whether the so-called best practices come from countries such as the United States, United Kingdom, Norway or elsewhere, there will be a strong need for a broad spectrum of scientific research and monitoring capabilities to address these regulatory requirements.

1.3.2.3 Conclusions

In light of the rapidly evolving regulatory regime in Mexico and the potential transboundary impacts associated with increased offshore oil and gas activity in the GOM in the next decade, it is important for scientists and regulators from both countries to engage in a process of coordinating their activities. These efforts should include prioritizing research needs; conducting joint, or at least coordinated, cruises; and finding methods to effectively share and analyze collected scientific data. If the two nations fail to cooperate fully, management efforts will not occur or will suffer from redundancy and duplication of effort. A better understanding of the environmental regulatory requirements in Mexico should also be promoted so that scientists from industry, government, academic, and NGOs can begin to plan for collection and monitoring activities and prioritize the type of information that would best meet Mexico's needs. Funding sources for priority research needs as well as support for training future scientists from both nations should be located and encouraged.

A future workshop beyond GOMWIR that serves as a bridge to bring together the scientific needs of mission-driven agencies, such as ASEA and BOEM, with the expertise of working marine scientists from both nations would be extremely beneficial. A significant amount of funded science in the GOM in coming years will address the need of complying with each nation's regulatory and environmental permitting mandates. Bringing both nations' regulatory and science communities together to determine the best path forward to accomplish this important task should be a high priority.

1.3.2.4 References

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