
# Cuba's Offshore Oil Development: Background and U.S. Policy Considerations

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November 29, 2010

**Congressional Research Service**
7-5700
www.crs.gov
R41522

**CRS Report for Congress**
*Prepared for Members and Committees of Congress*

# Summary

Cuba is moving toward development of its offshore oil resources. While the country has proven oil reserves of just 0.1 billion barrels, the U.S. Geological Survey estimates that offshore reserves in the North Cuba Basin could contain an additional 4.6 billion barrels of undiscovered technically recoverable crude oil. The Spanish oil company Repsol, in a consortium with Norway's Statoil and India's Oil and Natural Gas Corporation, is expected to begin offshore exploratory drilling in 2011, and a number of other companies are considering exploratory drilling. At present, Cuba has six offshore projects with foreign oil companies while two more projects are being negotiated. If oil is found, some experts estimate that it would take at least three to five years before production would begin. While it is unclear whether offshore oil production could result in Cuba becoming a net oil exporter, it could reduce Cuba's current dependence on Venezuela for oil supplies.

In the aftermath of the Deepwater Horizon oil spill in the Gulf of Mexico, some members of Congress and others have expressed concern about Cuba's development of its deepwater petroleum reserves so close to the United States. They are concerned about oil spill risks and about the status of disaster preparedness and coordination with the United States in the event of an oil spill. Dealing with these challenges is made more difficult because of the longstanding poor state of relations between Cuba and the United States. If an oil spill did occur in the waters northwest of Cuba, currents in the Florida Straits could carry the oil to U.S. waters and coastal areas in Florida, although a number of factors would determine the potential environmental impact. If significant amounts of oil did reach U.S. waters, marine and coastal resources in southern Florida could be at risk.

With regard to disaster response coordination, the United States and Cuba are not parties to a bilateral agreement on oil spills. While U.S. oil spill mitigation companies can be licensed by the Treasury and Commerce Departments to provide support and equipment in the event of an oil spill, some energy and policy analysts have called for the Administration to ease regulatory restrictions on the transfer of U.S. equipment and personnel to Cuba that would be needed to combat a spill. Some have also called for more formal U.S.-Cuban government cooperation and planning to minimize potential damage from an oil spill. Similar U.S. cooperation with Mexico could be a potential model for U.S.-Cuban cooperation, while two multilateral agreements on oil spills under the auspices of the International Maritime Organization also could provide a mechanism for some U.S.-Cuban engagement on oil pollution preparedness and response.

Beyond U.S.-Cuban cooperation in anticipation of an oil spill, some U.S. businesses and policy groups have called for Congress and the Administration to allow U.S. investment in Cuba's offshore oil sector, while others oppose any support for the development of Cuba's offshore oil reserves. In the 111th Congress, legislative initiatives reflected two contrasting policy approaches toward Cuba's development of its offshore oil reserves. One approach, as reflected in S. 774, H.R. 1918, and S. 1517, would allow for U.S. involvement in Cuba's offshore oil sector, while a second approach, as reflected in H.R. 5620, would impose sanctions on foreign companies and individuals who assist the development of Cuba's petroleum resources and would not affect current prohibitions on U.S. firms' economic dealings with Cuba. Interest in Cuba's offshore oil development is likely to continue in the 112th Congress, especially if exploratory drilling begins as anticipated in 2011.

# Contents



## Figures



## Contacts

# Introduction

Long dependent on oil imports, Cuba has invited foreign companies to explore for and produce petroleum in its north offshore region, which potentially could hold almost 5 billion barrels of reserves. One of those companies, Spain-based Repsol, is expected to start exploratory drilling in 2011. A number of other companies, all government-owned national oil companies except for Repsol, are also considering exploratory offshore drilling in Cuban waters. Exploratory drilling in Cuba falls within 100 miles of the Florida coast.

Cuba's offshore development so close to the United States raises implications for U.S. policy focusing on oil spill risks and the status of U.S.-Cuban cooperation on preparedness and response in the case of a major oil spill. The Deepwater Horizon oil spill in the U.S. Gulf of Mexico heightened concerns about oil spill risks and raised the potential of U.S.-Cuban engagement regarding a potential oil spill in Cuban waters. However, the prospects for addressing these concerns are complicated by longstanding U.S. policy to isolate communist Cuba.

This report first examines Cuba's oil sector, including current production and consumption levels. It then looks at Cuba's offshore development, including the Repsol project, other offshore projects involving state-owed foreign oil companies, and the outlook for Cuba's offshore oil production. The report then analyzes considerations for the United States raised by Cuba's offshore oil development, examining oil spill risks and environmental dangers if spilled oil reaches U.S. waters, the status of disaster coordination between the United States and Cuba, and potential approaches on the issue. The report then examines the debate over broader U.S. involvement in Cuba's offshore oil development, and touches on two outstanding boundary issues related to Cuba's offshore oil development. Finally, the report examines legislative initiatives that reflect two contrasting policy approaches toward Cuba's offshore oil development – one would authorize U.S. investment in the sector, and the other would not affect current prohibitions on U.S. firms' economic dealings with Cuba and would impose sanctions on foreign companies and individuals who support the development of Cuba's petroleum resources.

# Cuba's Oil Sector

## Current Situation

Cuba currently has proven oil reserves of 0.1 billion barrels and natural gas reserves of 2.5 trillion cubic feet.[1] These are located on shore or near shore, and were the focus of oil exploration and production until recently. The U.S. Geological Survey estimates that the offshore North Cuba Basin could contain an additional 4.6 billion barrels of undiscovered technically recoverable crude oil resources, as well as 0.9 billion barrels of natural gas liquids and 9.8 trillion cubic feet of natural gas.[2,3] More than 70% of that oil may be in a portion of the North Cuba Basin

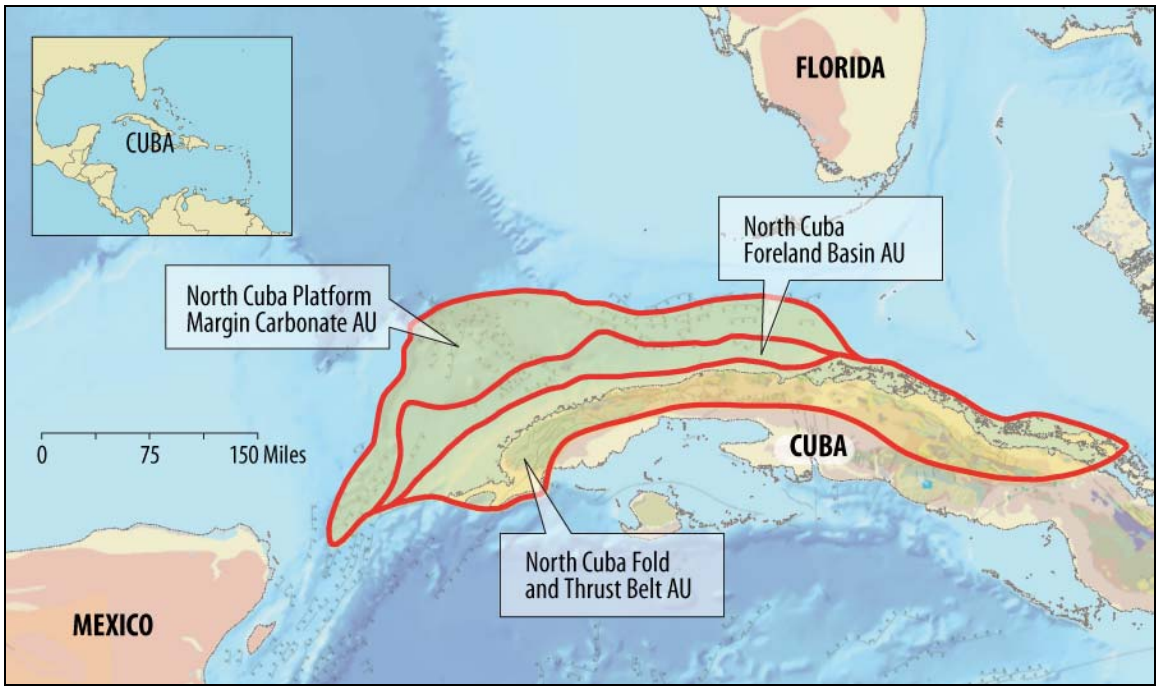
[1] Unless otherwise noted, data on oil volumes in this report come from the Energy Information Administration's *International Energy Statistics*, see http://tonto.eia.doe.gov/cfapps/ipdbproject/IEDIndex3.cfm.

[2] Christopher J. Schenk et al., *Assessment of Undiscovered Oil and Gas Resources of the North Cuba Basin, Cuba, 2004*, U.S. Department of the Interior, U.S. Geological Survey, World Assessment of Oil and Gas Fact Sheet, February 2005. http://walrus.wr.usgs.gov/infobank/programs/html/factsheets/pdfs/2005_3009.pdf.

stretching from about 70 miles west of the west end of the island for about 300 miles eastward in a narrow band known as the North Cuba Foreland Basin (see **Figure 1**). Separately, Cuban officials have claimed that Cuban offshore resources could be as much as 20 billion barrels of undiscovered crude though their figures have been questioned by some experts.[4]

**Figure 1. North Cuba Basin**

Three areas comprising the North Cuba Basin assessed by the USGS




**Source:** U.S. Geological Survey, "Assessment of Undiscovered Oil and Gas Resources of the North Cuba Basin, 2004," (February 2005). http://walrus.wr.usgs.gov/infobank/programs/html/factsheets/pdfs/2005_3009.pdf. Adapted by CRS.

**Notes:** "AU" are Assessment Units.

Cuba produced 49 thousand barrels of oil a day (Kb/d) in 2009 from the onshore or shallow, near shore fields. The output is mostly heavy, sour (sulfur-rich) crude that requires advanced refining capacity to process.[5] Cuba currently accesses offshore fields located near its northern coast through horizontal drilling from onshore rigs. Canadian companies Peberco and Sherritt developed near-shore assets from onshore block 7 (see **Figure 2**), but the Cuban government terminated that lease in 2009.

Cuba consumed 181 Kb/d of oil in 2009, down from 225 Kb/d two decades ago. Cuban domestic production increased and consumption fell after the Soviet Union curtailed its support for Cuba in

(...continued)

[3] For an explanation of reserves and resources terms and concepts, please see CRS Report R40872, *U.S. Fossil Fuel Resources: Terminology, Reporting, and Summary*, by Gene Whitney, Carl E. Behrens, and Carol Glover

[4] Jeff Franks, "Cuba oil claims raise eyebrows in energy world," *Reuters*, October 24, 2008.

[5] Energy Information Administration (EIA), "Country Analysis Brief: Caribbean," U.S. Department of Energy. November 2009, http://www.eia.doe.gov/emeu/cabs/Caribbean/OilProduction.html.

the early 1990s. Most of Cuba's oil today is used for power generation, with relatively small amounts used for transportation. This implies net imports of roughly 130 Kb/d, mostly from Venezuela, which has stepped into the former Soviet Union's role as a patron of the Cuban government. According to the official agreement between the two nations, Venezuela provides Cuba with oil at indexed prices and with long-term financing for up to 40% of oil imports at subsidized interest rates.[6] Cuba compensates Venezuela at least in part through offering medical and education services, including sending doctors to Venezuela.

According to the U.S. Energy Information Administration, Cuba currently has 300 Kb/d of simple crude refining capability. However, not all of this is currently producing and Cuba has a limited amount of additional complex capacity to process the heavy sour crudes it produces. A significant amount of the oil going into power generation is burned directly as crude instead of as refined products, which can damage power plants. Of Cuba's imports, roughly 60% are refined products, mostly distillate and residual fuel oil. The rest is crude oil.[7]

*Petroleos de Venezuela S.A.* (PdVSA), Venezuela's state-owned national oil company (NOC), is helping *Unión Cuba Petróleo* (Cupet), Cuba's NOC, to expand and upgrade Cuba's refining capacity. Their Cuvenpetrol joint venture brought online the previously defunct Cienfuegos refinery in 2007, and they are pursing further expansion there with the assistance of the China National Petroleum Corporation (CNPC) and Chinese lenders.[8] Renovations at the Hermanos Diaz refinery and construction of a new refinery at the port of Matanzas are also planned. The upgrades may help Cuba process more of its own heavy crudes, which could be especially useful if production increases, as well as for processing crude imported from Venezuela.

# Offshore Development

## The Repsol Project

Repsol YPF, a publicly traded oil company based in Spain, will begin drilling an offshore exploratory well in Cuba's exclusive economic zone (EEZ) in 2011. The project, called the Jagüey prospect, is about 60 miles south of Key West, FL, according to Repsol officials.[9] This is not Repsol's first offshore exploration venture in Cuba. It drilled Cuba's only prior deepwater well, Yamagua-1, in 2004 in offshore block 27, roughly 20 miles northeast of Havana.[10] Repsol discovered petroleum resources, but deemed them commercially insufficient to justify producing.[11]

[6] Bureau of Western Hemisphere Affairs, "Background Notes: Cuba," U.S. Department of State, March 25, 2010.

[7] Imports data is for 2007, the most recent available figures from EIA.

[8] "CNPC Secures Cuban oil contract," *China Economic Review*, November 24, 2010.

[9] Russell Gold , "Florida Sees New Threat to Its Beaches," *Wall Street Journal*, July 2, 2010.

[10] "Exploration and Production: Operations," Repsol YPF, 2005 (accessed 11/8/2010), http://www.repsol.com/es_en/corporacion/accionistas-e-inversores/inf_economicofinanciera/informes_financieros/HTML/AreasNegocio/04/default.aspx?Pagina=16.

[11] Repsol, "Global Presence: Cuba," Repsol, April 30, 2010. http://www.repsol.com/es_en/corporacion/conocer-repsol/presencia-global/cuba.aspx.

In its current project, Repsol leads a consortium which also includes Norway's NOC, Statoil, and India's NOC, the Oil and Natural Gas Corporation (ONGC).[12] Repsol has a 40% stake in the venture, with the other two partners each holding a 30% stake. The consortium has rights to six exploration blocks located off Cuba's northern shore (see **Figure 2**).

Repsol has collected seismic data and now awaits arrival of offshore oil rig Scarabeo-9, which it has contracted to carry out exploratory drilling from its owner, Italian oil services provider, Saipem.[13] Scarabeo-9 was built at a shipyard in Yantai, Shandong province, China. As of October, 2010, the rig left Yantai for Singapore, where its marine and drilling systems will be completed.[14] Sacrabeo-9 will then move to Cuba, where it is expected to arrive and begin operations sometime in 2011.

Scarabeo-9 may drill additional wells for Repsol and for other companies with Cuban offshore exploration and production licenses. According to reports, there are plans for seven wells to be drilled over the next two to four years.[15]

## Other Offshore Projects

Foreign companies have five other lease agreements for offshore blocks in Cuba. They are conducting seismic surveys, and may be preparing for exploratory drilling. Several more are negotiating to obtain leases. Apart from Repsol, the companies are all state-owned. Some of the NOCs' governments, including Brazil, Russia, and China, have recently made loans to Cuba to support development of infrastructure as well as energy, minerals, and agriculture sectors.[16]

Separate from its consortium with Repsol, ONGC contracted for two additional blocks in 2006 (see **Figure 2**). It may be preparing to move from seismic analysis to exploratory drilling as it has already started soliciting bids for necessary equipment.[17] Malaysia's NOC, Petronas, has partnered with Russian NOC Gazprom, in a contract on four blocks off the western coast of Cuba. (Gazprom and Petronas have also partnered to develop the Badra field in Iraq.[18]) They are studying seismic data and could begin drilling as early as 2011.[19] Petrobras, Brazil's NOC, signed an agreement in 2008 for one offshore block off Cuba's northern coast. It has collected seismic data and may be considering exploratory drilling.[20] Vietnam's NOC, PetroVietnam, holds

[12] Statoil is also looking to explore for oil in the Bahamas, where it has partnered with the Bahamas Petroleum Company. However, following the Deepwater Horizon oil spill, the Bahamian government suspended the consideration process for all oil exploration and drilling applications until the country has stringent environmental protocols in place to mitigate against a catastrophic oil well leak.

[13] Saipem is a subsidiary of publicly traded Italian oil major ENI S.p.a.

[14] "CIMC Raffles Delivers Scarabeo 9 to Saipem," *Rigzone*, October 7, 2010.

[15] Shasta Darlington, "Cuban offshore oil plans gain momentum," *CNN.com*, September 1, 2010.

[16] Kate Joynes-Burgess, "Russia Comes to Cuba's Aid with Economic Deal," *IHS Global Insight Daily Analysis*, July 20, 2009. Bert Wilkinson, "Caribbean: China Consolidates Influence as U.S. Frets," *Inter Press News Service*, May 28, 2009. Daniel McCleary, "Brazil to Loan $300M to Cuba to Refurbish Port of Mariel," *Dow Jones International*, July 13, 2009.

[17] ONGC Videsh Limited, "Tender for Supply of Sub-sea Well Heads and Large OD Casting Pipes for Block-N34 and N-35 of Cuba Off-shore," press release, February 8, 2010, http://www.ongcvidesh.com/TenderFiles/31.pdf.

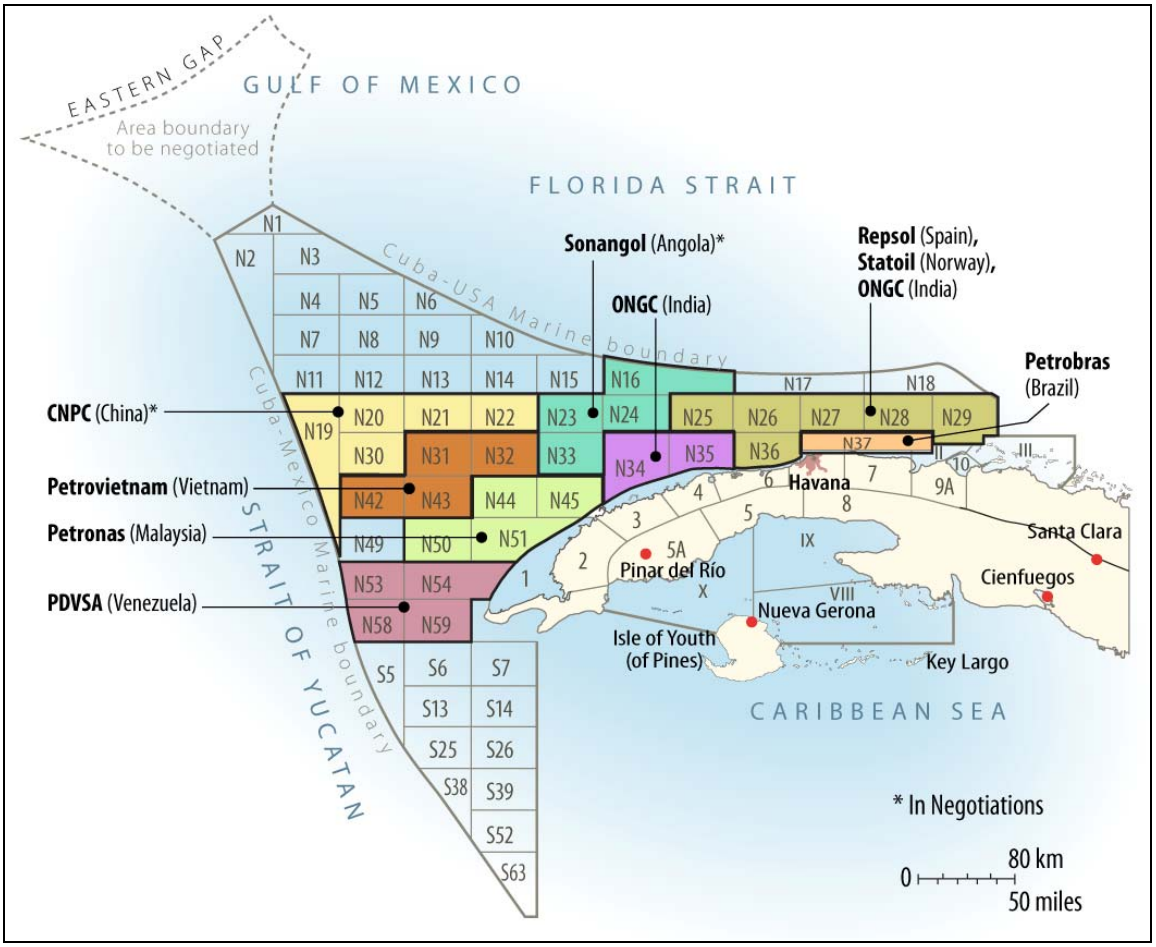
[18] "Gazprom Neft Heads for Cuba," *International Oil Daily, Energy Intelligence Group*, October 6, 2010.

[19] Gazprom has taken a 30% stake in the blocks originally contracted just to Petronas in a 2007 agreement with the Cuban government. "Gazprom Takes State In Cuban Offshore Blocks," *Rigzone*, November 16, 2010.

[20] Rosa Tania Valdes, "Lula, Fidel Castro hold 'emotional' meeting," *Reuters*, February 24, 2010.

contracts for four offshore blocks west of Cuba.[21] PetroVietnam may partner with Russian NOC Zarubezhneft, which has separate contracts for onshore and near shore blocks. Venezuela's NOC, PdVSA, has a license to explore four western offshore blocks.

**Figure 2. Cuba's Offshore Blocks**




**Source:** Jorge Piñon, Presentation given at the Inter-American Dialogue, Washington DC, October 8, 2010. Adapted by CRS.

**Notes:** Petronas recently took on Gazprom as a partner in its Cuba offshore project.

NOCs from China and Angola are in negotiations for Cuban deepwater leases. Chinese companies have never previously drilled off Cuba's coast, though CNPC does operate some onshore production in Cuba. (Even Scarabeo-9, though it was built in China, is neither owned nor leased by a Chinese company.)

[21] PetroVietnam, "E&P Worldwide – Caribbean & South America," PetroVietnam, accessed Nov 11, 2010. http://pvep.com.vn/Default.aspx?pageid=122&action=view&flash=cuba.

### Outlook for Cuba's Offshore Production

Without additional information on Cuban resources, it is speculative to judge how much could be produced and when output growth would occur. Exploratory drilling from Repsol and others could provide more information on the potential for Cuban output. If oil is found, some experts estimate that companies would have to invest in developing production capacity for at least three to five years before production could begin.[22] However, production could be delayed due to a number of factors, such as the availability of offshore oil field development services. Development will take place at a slower rate than might otherwise be the case due to U.S. sanctions, which prohibit involvement from U.S. companies and prohibit use of equipment with more than 10% U.S. content.[23] Once production starts, it will likely grow slowly over the course of years. For the foreseeable future, any incremental increase in Cuban production is likely to be small relative the roughly 85 million barrel a day global oil market.

Some analysts have argued that Cuba could produce enough oil to become an oil exporter; however, this remains very speculative at this juncture. First, it is unclear how much oil is available or how quickly it can be produced. Second, Cuba would need to offset the roughly 130 Kb/d of oil it currently imports before becoming a net exporter. Third, current Cuban oil consumption may grow, especially if the economy grows or the government loosens control over oil use as more domestic production becomes available.

Cuba is still likely to trade more oil – especially as refining capacity increases — but its net trade balance for oil may not necessarily shift to a significant oil export surplus. It depends on how much oil is found and developed and what happens to domestic Cuban demand. What is more certain is that lower net import needs may reduce Cuba's dependence on imports from Venezuela.

# Implications and Considerations for U.S. Policy

## Oil Spill Risks[24]

The Deepwater Horizon oil spill in the U.S. Gulf of Mexico heightened concerns over the potential of an oil spill in Cuban waters and the risk such a spill could affect Florida's waters and coastal areas.[25] Current plans for drilling in Cuba fall within 100 miles of the Florida coast. Were an oil spill to occur in these areas, it could have environmental impacts in the United States. Oil can be spilled from acute exploration and production accidents, through longer-term discharge from operations, or through transportation accidents, such as a tanker collision or pipeline rupture.

[22] Jorge Piñon, *Cuba's Energy Crisis: Part III*, Cuba Transition Project, part of the Institute for Cuban and Cuban-American Studies at University of Miami, January 26, 2006, http://ctp.iccas.miami.edu/FOCUS_Web/Issue72.htm.

[23] See 15 CFR 734.4, which sets forth the 10% de minimis U.S. content provision in the Export Administration Regulations.

[24] This section is uses research and analysis from CRS Specialists Peter Folger, Jonathon Ramsuer, and Harold Upton.

[25] For background on the Deepwater Horizon Spill itself, see CRS Report R41262, *Deepwater Horizon Oil Spill: Selected Issues for Congress*, coordinated by Curry L. Hagerty and Jonathan L. Ramseur.

## Risks of a Spill in Cuban Waters

In U.S. waters, oil extraction operations are primarily governed by regulations, implemented and enforced by the Department of the Interior's Bureau of Oceans Energy Management, Regulation, and Enforcement (BOEMRE).[26] In addition, several statutes, including the Clean Water Act and the Oil Pollution Act, establish a liability regime for oil spills. Offshore exploration and production operations in non-U.S. waters may not be governed by analogous regulations or fall under a liability structure that creates an incentive to minimize oil spills. Since the Repsol project is only the second deepwater well to be drilled in Cuba's EEZ,[27] Cuban officials may still be developing regulations to prevent offshore drilling accidents and contingency plans to address accidents if they do occur.[28] However, as the recent U.S. experience in the Gulf of Mexico illustrates, even the long-time existence of regulations and regulator may not always prevent an oil spill.

According to a 2008 American Petroleum Institute study of U.S. offshore oil spills, the largest cause of spilled oil is loss of well control or "blowouts" at offshore platforms.[29] Currently, only exploration wells are planned in Cuba. Their results will be analyzed before production wells and transportation infrastructure is considered. However, there have been major oil spills from exploratory wells in the past. Two of the largest accidental oil spills in world history resulted from blowouts at exploratory wells in the Gulf of Mexico – the Deepwater Horizon oil spill in the U.S. Gulf of Mexico and the 1979 Ixtoc oil spill in Mexico's section of the Gulf of Mexico.

It is difficult to assess the likelihood of a spill. According to Saipem, Scarabeo-9 is built to Norwegian standards, including extra equipment to shut off blown-out wells beyond what is required in the United States.[30] Repsol has significant offshore experience, including projects in the U.S. Gulf of Mexico. It has had issues with oil spills, which is not abnormal for an oil company.[31] Among other Cuban lease holders, Petrobras and Statoil have extensive offshore experience, including projects in the U.S. Gulf of Mexico, and are generally seen as accomplished

[26] In July 2010, the Secretary of the Interior changed the name of the Minerals Management Service (MMS) to Bureau of Oceans Energy Management, Regulation, and Enforcement (see Order No. 3302). MMS/BOEMRE's responsibilities are outlined in 30 C.F.R. § 250.

[27] "Significant Discoveries Marked '04," *Explorer* (Magazine of the American Society of Petroleum Geologists), January 2005.

[28] The International Maritime Organization (IMO) sent a technical assistance mission to Cuba in June 2010 to evaluate the level of preparation to respond to the Deepwater Horizon oil spill. The mission made several recommendations for Cuba to improve its national contingency plan, including the development of a training plan. See: IMO, "Cuba, Misión de Asesoría Técnica," June 5-13, 2010, prepared by Klaus Essig.

[29] The Department of Interior defines a "loss of well control" as "uncontrolled flow of formation or other fluids, including flow to an exposed formation (an underground blowout) or at the surface (a surface blowout), flow through a diverter, or uncontrolled flow resulting from a failure of surface equipment or procedures". Also see Dagmar Schmidt Etkin, "Analysis of U.S. Oil Spillage," American Petroleum Institute, August, 2009. http://www.api.org/ehs/water/spills/upload/356-Final.pdf.

[30] Construction of the rig was originally ordered by Norwegian firm Frigstad, but the contract was later transferred to Saipem. See more details on Scarabeo 9's specification at Saipem's website, available at http://www.snamprogetti.it/media_gallery/brochure/Scarabeo9.pdf.

[31] Repsol, "Corporate Responsibility 2009," Repsol, April 26, 2010. http://www.repsol.com/es_en/corporacion/responsabilidad-corporativa/informe-responsabilidad-corporativa/default.aspx. Note that Repsol, along with U.S. firm Pride of North America, is currently under investigation by a Spanish court for an offshore oil spill in the Mediterranean. Repsol officials have described the spill as "a minor one-time incident which was solved and cleaned up within days." (Martin Robert, "Spain court probes Repsol oil spillage: report," Reuters, July 2, 2010.)

offshore operators. Petronas, ONGC, and PetroVietnam also have offshore experience. PdVSA does not, but its offshore project appears the furthest from seeing drilling activity among existing licenses.

## Risks that Oil Spilled in Cuban Waters Reaches the United States

If an oil spill were to occur in the waters northwest of Cuba, currents in the Florida Straits could carry that oil to U.S. waters and coastal areas in southern and south eastern Florida.[32] However, any environmental impact to Florida would depend on many factors at the time of a spill, including size and location of the oil spill, ocean conditions in the area, prevailing wind direction and velocity, temperature of the water and the air, the type of oil spilled, and effectiveness of any cleanup efforts. The wide variety of factors render impossible a precise description of the environmental impact were an oil spill to occur in Cuban waters.

Even if prevailing winds and current conditions favored rapid transport of spilled oil to the Florida coastline, other factors would also affect the rate of spill dispersal and, in part, determine how much of the spill reached the U.S. coast. The physical and chemical characteristics of an oil spill change over time, a process known as "weathering." How much weathering takes place after a spill occurs would affect the nature of the oil and the degree of impact. How fast oil spreads depends on volume spilled and the viscosity of the oil.[33] As the spill spreads out, the lighter and more volatile components of the oil would evaporate at a rate that depends on water and air temperature, as well as wind speed and wave action.[34] Over time, and depending on waves and turbulence at the sea surface, the spill would start to break up, or disperse. Other factors, such as oxidation, biodegradation, interaction with sediments, all contribute to the changing character of an oil spill over time and during its transport by ocean currents and winds.[35]

Finally, the extent of any cleanup activities will influence how much of the spill persists in the environment. In general, the faster and more expansive the cleanup effort, the more likely it may limit damage to the environment. (See "Disaster Coordination" below for a discussion of policy related to preparedness and response in the event of an oil spill.)

## Assets at Risk If Spilled Oil Reaches U.S. Waters

If significant quantities of oil did reach U.S. waters, risks to the marine and coastal resources of Southern Florida could be of particular concern. The coastal and ocean resources of the region provide recreational, commercial, and ecological benefits to both local communities and the nation.

One of the more vulnerable areas that could be at risk is the Florida Keys and adjacent areas. The Florida Keys National Marine Sanctuary includes state and national parks, wildlife refuges,

[32] Waters in the Florida Straits between Cuba and Florida move eastward from the Gulf of Mexico into the Atlantic Ocean, feeding the Gulf Stream. This is the Florida Current, which stretches east and north through the Florida Straits and up the western side of the North Atlantic.

[33] International Tanker Owners Pollution Federation Limited (ITOPF), *Fate of Marine Oil Spills*, Technical Information Paper No.2, United Kingdom, 2002, http://www.itopf.com/_assets/documents/tip2.pdf.

[34] Ibid. Refined petroleum products, such as kerosene and gasoline, might evaporate completely. Heavier oils, or the heavier components of crude oil, may not undergo much evaporation; however, they may clump together and sink.

[35] Ibid.

ecological reserves, research areas, and sanctuary preservation areas. North of the Florida Keys are the Everglades and Biscayne National Parks. As one moves up Florida's east coast, barrier beaches backed by lagoons and wetlands dominate the geography. And then there are the densely populated areas of Miami-Dade, Broward, and Palm Beach Counties.

The Florida Keys and adjacent areas comprise diverse and interrelated marine systems. The Florida reef is the most extensive living coral reef in North American waters, stretching for 325 miles. Reefs, sea grass beds and mangroves in the region provide habitats for many marine animals, including a number of threatened and endangered species. These coral reefs and related coastal ecosystems are valuable because they provide protection from erosion and flooding, especially from severe storms such as hurricanes.

Depending on timing, size, and location, an oil spill can cause significant harm to individual organisms and entire populations in marine and coastal habitats.[36] Spills can cause impacts over a range of time scales, from days to years, or even decades for certain spills. Acute exposure to an oil spill can kill organisms or have non-lethal but debilitating affects on organism development, feeding, reproduction, or disease immunity. Ecosystems in which they exist can also be harmed.[37] Certain habitats in the area — such as coral reefs, mangrove swamps, and salt marshes — are especially vulnerable.[38] Long-term, chronic exposure, as occurs from continuous oil releases such as leaking pipelines, offshore production discharges, and non-point sources (e.g., urban runoff) can see impacts spread from sea life to the survival and reproductive success of marine birds and mammals.[39]

Southern Florida's natural resources are closely integrated with its economic interests. Southern Florida supports significant tourism as well as commercial and recreational fishing. Florida's tourism industry directly employs more than a million people. The 84 million tourists that visited Florida in 2008 spent around $65 billion.[40] The Deepwater Horizon spill illustrated that an oil spill can significantly harm the tourism industry of affected areas. A well-publicized oil spill can even weaken tourism in a near by area, regardless of the actual threat to human health created by the spill.

## Disaster Coordination Between the United States and Cuba

In light of oil spill concerns, there has been increased public interest on the status of coordination between Cuba and the United States. Coast Guard officials reportedly are reviewing U.S. contingency plans in the event of an oil spill in Cuban waters,[41] and a number of analysts and policy groups are encouraging U.S.-Cuban engagement on the issue.

[36] National Research Council (NRC), *Oil in the Sea III: Inputs, Fates, and Effects*, National Academies of Science, p. 4.

[37] Ibid, p. 127. These "sub-lethal" effects can occur at concentrations that are several orders of magnitude lower than concentrations that cause death.

[38] Ibid, p. 120.

[39] Ibid. p. 134. However, due to the increasing complexity of factors over time, studies on chronic effects are often met with debate and some controversy.

[40] These are 2008 figures provided by 'Visit Florida,' the state's official tourism marketing corporation. http://media.visitflorida.org/research.php.

[41] Lesley Clark, "U.S. Wary of Cuba's Drilling Plans, The Chief of the Miami Coast Guard Office Says His Agency Is Reviewing Response Scenarios for a Possible Spill Out of Cuba," *Miami Herald*, October 1, 2010.

Currently the United States and Cuba are not parties to a bilateral agreement on oil spills. In the aftermath of the Deepwater Horizon spill, however, U.S. officials in Havana kept the Cuban government informed about the oil spill in working-level discussions. With Cuba's interest in developing its offshore oil resources so close to the United States, some analysts have called for more institutionalized or formal U.S.-Cuban cooperation and planning to minimize potential damage from an oil spill. Given the comprehensive U.S. economic sanctions on Cuba, some analysts have called for the Administration to amend or rescind regulations that restrict the transfer of equipment, technology, and personnel that would be needed to combat an oil spill in Cuba.[42] Some energy analysts assert that foreign oil companies operating in Cuba need to have full access to technology and personnel in order to prevent or manage a spill.[43]

U.S. oil spill mitigation service companies can be licensed through the Treasury Department's Office of Foreign Assets Control (OFAC) and the Department of Commerce's Bureau of Industry and Security (BIS) to provide oil spill prevention and containment support to companies operating in Cuba. At least two U.S. companies so far have received such licenses. According to the Department of State, the United States expects any foreign oil company engaged in oil exploration activities in Cuba to have adequate safeguards in place to prevent oil spills and contingency plans to address a spill should it happen.[44]

Since 2001, a Florida-based company, Clean Caribbean & Americas, has received U.S. licenses to send technical advises and trainers to assist foreign oil companies in Cuba to prepare to respond to a large oil spill. The actual material and equipment is stored in Fort Lauderdale and would be sent to Cuba by air and sea in the event of a major oil spill.[45] For a Tier 1 oil spill, one that is small and localized, foreign oil companies drilling offshore in Cuba would maintain their own capabilities and equipment. For a Tier 2 oil spill, involving larger quantities of oil that could spread beyond the immediate vicinity where the spill took place, near shore oil operators and the Cuban government would supply equipment to help respond to the spill. A much larger Tier 3 oil spill, like a major tanker accident or an offshore well blowout, would require international assistance, like that provided by Clean Caribbean & Americas, which would move equipment into Cuba.[46] This type of oil spill response mechanism for large Tier 3 spills is a typical arrangement that has developed internationally over the past 30 years. CCA's President Paul Schuler maintains that involvement of Cuban and U.S. agencies in drills and exercises would enhance preparedness and response to a potential oil spill in Cuba.[47]

In late May 2010, OFAC also approved a license for the Texas-based International Association of Drilling Contractors (IADC) to travel to Cuba to discuss safety and mitigation of environmental

[42] Jorge R. Piñon and Robert L. Muse, "Coping with the Next Oil Spill: Why U.S.-Cuba Environmental Cooperation is Critical," *U.S. Cuba Relations at Brookings*, Issue Brief No. 2, May 2010.

[43] Clifford Krauss, "Cuba's Oil Plans for Deep Waters Raise Concerns," *New York Times*, September 30, 2010.

[44] U.S. Department of State, "Cuba: Oil Exploration, Question at the July 16, 2010 Daily Press Briefing," July 19, 2010. OFAC licenses cover travel and any financial transactions while BIS licenses cover the export of commodities.

[45] Telephone conversation with Paul A. Schuler, President, Clean Caribbean & Americas (CCA), November 3, 2010. For further background on the work of CCA in Latin America and the Caribbean, see its website at: http://www.cleancaribbean.org/cgi-bin/loadAll.cgi?toget=2index.

[46] For an explanation of the tiered oil spill response categories, see International Petroleum Industry Environmental Conservation Association (IPIECA), "Guide to Tiered Preparedness and Response," IPIECA Report Series Vol. 14, 2007.

[47] Telephone conversation with Paul A. Schuler, November 3, 2010. Also see: "Florida Firm Ready to Clean Up in Event of Cuba Oil Spill," *CubaNews*, December 2010, pp. 14-15.

hazards with Cuban authorities. After the meeting in August 2010, IADC President Lee Hunt maintained that the Cubans are eager to work with U.S. industry to ensure safer drilling.[48]

## U.S.-Mexico Cooperation as a Potential Model

U.S. cooperation with the Mexican government on oil spills could serve as a potential model for U.S.-Cuban government engagement on disaster preparedness and coordination. The United States and Mexico negotiated a cooperation agreement in 1980 regarding pollution caused by oil and other hazardous substances. The agreement called for the two countries to establish a joint contingency plan in order to ensure an adequate response to spills.[49] The joint plan that was developed – known as Mexus Plan – sets forth standard operating procedures in case of pollution incidents that threaten the coastal waters or marine environment of the border zone of both countries. The plan lays out the organization of the response teams for each country, including the federal and state agencies involved. It provides for joint response teams to be formed and activated when needed, and provides for coordination, planning, and logistics of the joint response. The U.S. response team is coordinated by the Coast Guard's Assistant Commandant for Marine Safety and Environmental Protection.[50]

Following the model of U.S.-Mexican cooperation on oil spills could ensure optimal bilateral engagement with Cuba on oil spill contingency planning. Such a model would likely first entail the negotiation of a cooperation agreement on oil spills followed by the development of a joint contingency plan. Even before an agreement and plan are in place, initial discussions and dialogue on the issue could increase preparedness in the case of a spill. Once the agreement and joint plan are in place, regular meetings and periodic exercises could provide for the maintenance of the joint contingency plan.

As with U.S.-Mexican cooperation, the Coast Guard would likely play a leading coordinating role. Such Coast Guard cooperation with Cuba on oil spill preparedness and response would likely be made easier because of the Coast Guard's existing cooperation with Cuba on migration and drug trafficking issues.[51]

## Cooperation through Multilateral Agreements

Both Cuba and the United States are signatories to multilateral agreements that commit the two parties to prepare for and cooperate on potential oil spills. This includes the International Convention on Oil Pollution Preparedness, Response, and Cooperation (OPRC), which was adopted under the auspices of the International Maritime Organization (IMO) in 1990 and entered into force in 1995. The convention was adopted in response to a U.S. environmental initiative in

[48] Monica Hatcher, "Cuba Drilling Poses Spill Issue Group Says Trade Embargo Could Hinder a Response by the U.S.," *Houston Chronicle*, September 5, 2010. For further background on IADC, see its website available at: http://www.iadc.org/.

[49] U.S. Department of State, "Mexico, Pollution: Marine Environment, Agreement signed at Mexico City, July 24, 1980," TIAS, 10021.

[50] United States Coast Guard, "Mexus Plan, The Joint Contingency Plan Between the United Mexican States and the United States of America Regarding Pollution of the Marine Environment by Discharges of Hydrocarbons and Other Hazardous Substance," February 25, 2000.

[51] For background on U.S. cooperation with Cuba on migration and drug trafficking, see CRS Report R40193, *Cuba: Issues for the 111th Congress*, by Mark P. Sullivan.

the aftermath of the 1989 Exxon Valdez oil spill. Under the convention, parties are required to establish measures for dealing with pollution incidents, either nationally or in co-operation with other countries.[52] The IMO is given a central role under the convention in providing information services, education and training, and technical services and assistance.

Both Cuba and the United States are also parties to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, known as the Cartagena Convention, which was adopted in 1983 and entered into force in 1986. The agreement includes a Protocol Concerning Co-operation in Combating Oil Spills in the Wider Caribbean Region. The protocol calls for an exchange of information among the signatories regarding contacts, laws, regulations, institutions, and operational procedures relating to the prevention of oil spill incidents and to the means of reducing and combating the harmful effects of oil spills. It also states that parties to the agreement should conclude appropriate bilateral or multilateral subregional arrangements as necessary to facilitate implementation. It obligates each party to assist other parties in response to an oil spill incident according to these arrangements.[53]

Short of direct U.S.-Cuban bilateral engagement on oil spill preparedness and coordination, these two multilateral agreements could provide a mechanism for some U.S.-Cuban cooperation on oil spills. For example, in order to implement the Cartagena Agreement's protocol on oil spill cooperation in the Caribbean, the IMO maintains a regional activity center in Curaçao, Netherlands Antilles, known as the Regional Marine Pollution Emergency Information and Training Center for the Wider Caribbean (RAC/REMPEITC-Caribe). The Center's objective is to strengthen the operational effectiveness of the Cartagena Agreement and OPRC through the provision of technical services, training activities, information sharing, and exercises.[54] The United States and Cuba could work through the IMO and its regional center in Curacao to engage on oil spill preparedness and coordination.

As noted above, the IMO sent a technical mission to Cuba in June 2010 to evaluate the Cuba's preparedness to respond to the Deepwater Horizon oil spill. The mission made several recommendations for Cuba to improve its national contingency plan to respond to oil spills, including the development of a training plan and increased cooperation with the IMO's regional training center in Curaçao (such as attending meeting, participating in projects, and receiving IMO assistance through this regional institution).[55]

## Potential Debate Over U.S. Investment in Cuba's Energy Sector

Since the United States imposed comprehensive economic sanctions on Cuba in the early 1960s, most financial transactions with Cuba have been prohibited, including U.S. investment in Cuba's offshore energy sector. The Cuban Assets Control Regulations (CACR, found at 31 CFR 515), first issued by the Treasury Department in 1963, lay out a comprehensive set of economic sanctions against Cuba, including a prohibition on most financial transactions. The CACR have

[52] U.S. Congress, Senate, "International Convention on Oil Pollution Preparedness, Response, and Co-operation, 1990," 102d Congress, 1st Session, Treaty Doc. 102-11, August 1, 1991, U.S. Government Printing Office, Washington D.C., 1991.

[53] U.S. Department of State, "Marine Pollution, Wider Caribbean Region, Convention between the United States of America and Other Governments, Cartagena, March 14, 1983," TIAS 11085.

[54] See the website of the IMO's regional Caribbean center at: http://cep.unep.org/racrempeitc.

[55] IMO, "Cuba, Misión de Asesoría Técnica," June 5-13, 2010, prepared by Klaus Essig, pp. 41-42.

been amended many times over the years to reflect changes in policy and remain in force today. The Cuban Liberty and Democratic Solidarity Act of 1996 (P.L. 104-114), enacted in the aftermath of Cuba's shooting down of two U.S. civilian planes in February 1996, codified the Cuban embargo, including all the restrictions under the CACR. The codification is especially significant because of its long-lasting effect on U.S. policy toward Cuba. The executive branch is prohibited from lifting the economic embargo until certain democratic conditions are met. The CACR still provides the executive branch with the ability to modify the embargo restrictions, but the President cannot suspend or completely terminate the Cuban embargo regulations without first determining that a transition government or democratically-elected government is in power in Cuba.[56]

Some U.S. business and policy groups have called on Congress and the Administration to allow U.S. oil companies to become involved in Cuba's offshore oil development. Several legislative initiatives were introduced in the 111th Congress (S. 774, H.R. 1918, and S. 1517) that would have specifically authorized such activities and amended U.S. law to allow for travel for such activities (see "Legislative Initiatives" below). A major business argument in favor of U.S. involvement in Cuba's offshore energy sector is that U.S. failure to enter into the Cuban market completely hands over potential investment opportunities to foreign competitors.[57] As mentioned above, national oil companies from Russia, China, Venezuela, and elsewhere have been investing in Cuba's energy industry. In a 2009 report, the Brookings Institution offered several additional reasons for U.S. involvement in Cuba's offshore development. The report maintains: that it would help reduce Cuba's dependence on Venezuela for its oil imports; that it would increase U.S. influence in Cuba if U.S. companies had a significant presence in the county; that U.S. companies have the expertise to develop Cuba's offshore oil and gas in a safe and responsible manner; and that it is preferable to have U.S. companies involved because they have higher standards of transparency than some foreign oil companies.[58]

On the opposite side of the policy debate, a number of policy groups and members of Congress oppose engagement with Cuba, including U.S. investment in Cuba's offshore energy development. A legislative initiative introduced in the 111th Congress, H.R. 5620, would go further and impose visa restrictions and economic sanctions on foreign companies and its executives who help facilitate the development of Cuba's petroleum resources. The bill asserts that offshore drilling by or under the authorization of the Cuban government poses a "serious economic and environmental threat to the United States" because of the damage that an oil spill could cause. Opponents of U.S. support for Cuba's offshore oil development also argue that such involvement would provide an economic lifeline to the Cuban government and thus prolong the continuation of the communist regime. They maintain that if Cuba reaped substantial economic benefits from offshore oil development, it could reduce societal pressure on Cuba to enact market-oriented economic reforms. Some who oppose U.S. involvement in Cuba's energy development contend that while Cuba might have substantial amounts of oil offshore, it will take

[56] For background, see U.S. Government Accountability Office, U.S. Embargo on Cuba" Recent Regulatory Changes and Potential Presidential or Congressional Actions," September 17, 2009; and Dianne E. Rennack and Mark P. Sullivan, *U.S.-Cuban Relations: An Analytic Compendium of U.S. Policies, Laws, & Regulations*, The Atlantic Council, Washington, D.C. March 2005.

[57] Jake Colvin, "The Case for Business," in *9 Ways for US to Talk to Cuba & For Cuba to Talk to US*, The Center for Democracy in the Americas, Washington, D.C. 2009.

[58] "Cuba: A New Policy of Critical and Constructive Engagement, Report of the Brookings Project on U.S. Policy Toward a Cuba in Transition," Brookings Institution, April 2009.

years to develop. They maintain that the Cuban government is using the enticement of potential oil profits to break down the U.S. economic embargo on Cuba.[59]

## Boundary Issues

There are two boundary issues related to Cuba's development of its offshore hydrocarbon resources. The first involves a 1977 bilateral agreement that delineated a maritime boundary between Cuba and the United States in the Straits of Florida and eastern Gulf of Mexico. The second involves an undelineated section of the Gulf of Mexico known as the eastern gap with claims by the United States, Mexico, and Cuba. (See **Figure 2**, which shows both the maritime boundary between the United States and Cuba and the eastern gap area.)

When the United States and Cuba negotiated the 1977 maritime boundary agreement, U.S. policymakers viewed it as important to avoid maritime enforcement problems and to establish an agreed limit for fisheries and continental shelf activities (such as exploitation of hydrocarbon resources). Both countries, which have opposing coasts ranging from between 77 and 90 miles apart, agreed to the provisional application of the agreement pending permanent entry into force following the exchange of instruments of ratification. While the boundary agreement was submitted to the U.S. Senate in January 1979 for its advice and consent to ratification, and the Senate Foreign Relations Committee subsequently reported the treaty favorably in August 1980, the Senate has not ratified it. According to the Department of State, final action has been deferred because of the political relations between Cuba and the United States, not because of any stated objection to the boundary.[60] Nevertheless, Cuba and the United States have exchanged diplomatic notes every two years extending the provisional application of the agreement for a two-year period. The most recent exchange of notes occurred May 20, 2010, with an effective date of January 5, 2010. As noted in State Department testimony to the Senate Foreign Relations Committee in June 1980, the provisional application of the agreement falls under the President's authority to establish boundaries, pending the full Senate's consideration of the treaty.[61] The treaty itself, in Article V, included a provision stating the parties agreed to apply the terms of the agreement provisionally, and according to the Department of State, this "constituted an executive agreement within the body of the treaty."[62]

Some members of Congress have called on the Administration to rescind the provisional application of the 1977 boundary agreement with the view that it would likely curtail Cuba's offshore oil development. U.S. withdrawal from the agreement, however, would have no practical effect on Cuba's offshore oil development. According to then-National Security Adviser James Jones in late September 2010, withdrawal from the agreement would have no discernable effect

[59] Frank Calzon, "Search for Oil Won't Cure the Economy," *Miami Herald*, October 1, 2010.

[60] U.S. Department of State, Bureau of Oceans and International Environmental and Scientific Affairs, "Limits in the Seas, No. 110, Maritime Boundary: Cuba – United States," February 21, 1990.

[61] U.S. Congress, Senate Committee on Foreign Relations, *Three Treaties Establishing Maritime Boundaries Between the United States and Mexico, Venezuela, and Cuba*, (to accompany Execs. F, G & H, 96-1), 96th Cong., 2nd sess., August 5, 1980, Executive Rept. No. 96-49, p. 19.

[62] Ibid, p. 26. Also for a discussion of the provisional application of treaties, see: U.S. Congress, Senate Committee on Foreign Relations, *Treaties and Other International Agreements: The Role of the United States Senate*, committee print, prepared by the Congressional Research Service, 106th Cong., 2nd sess., January 2001, S. Prt. 106-71 (Washington: GPO, 2001), pp. 113-114.

on the Cuban government and could create further boundary claim disputes for the United States.[63]

The eastern gap – an undelineated area of the Gulf of Mexico beyond the 200-mile exclusive economic zones of Cuba, Mexico, and the United States – could potentially hold large amounts of oil, although to date there is little hard data to confirm this. The demarcation of the area is open for negotiations among the three countries, but will likely await an improvement in relations between Cuba and the United States.[64] A potential model for these negotiations is a treaty signed in 2000 between the United States and Mexico for a western gap in the Gulf of Mexico.[65] Negotiations involving three countries, however, would likely be more complicated than a single bilateral agreement with Mexico. In May 2009, Cuba made a submission to the U.N. Commission on the Limits of the Continental Shelf (CLCS) regarding the eastern gap, but all three states – Cuba, Mexico, and the United States – maintained that the submission did not prejudice the final delimitation of the outer continental shelf agreed to by these states.[66]

# Legislative Initiatives

In the 111th Congress, legislative initiatives have reflected two contrasting policy approaches toward Cuba's development of its offshore oil reserves. One approach would allow for U.S. involvement in Cuba's offshore oil sector, while the other approach would not affect current prohibitions on U.S. firms' economic dealing with Cuba and would impose sanctions on foreign companies and individuals who assist the development of Cuba's petroleum resources.

Reflecting the first approach, S. 774 (Dorgan), H.R. 1918 (Flake), and S. 1517 (Murkowski) would authorize U.S. companies to work with Cuba for the exploration and extraction of oil, and to export without license all necessary equipment to Cuba. The bills would amend the Trade Sanctions Reform and Export Enhancement Act of 2000 or TSRA (P.L. 106-387, Title IX) to provide for a general license for travel by persons engaging in hydrocarbon exploration and extraction activities. H.R. 1918 would go further and allow for the importation of hydrocarbon resources from Cuba. In addition to these initiatives that would specifically authorize involvement in Cuba's offshore energy sector, there are several other broader legislative initiatives that would lift all economic sanctions on Cuba, thereby allowing for U.S. investment in Cuba's energy sector: H.R. 188 (Serrano); H.R. 1530 (Rangel); and H.R. 2272 (Rush). Several

[63] Lesley Clark and Sara Kennedy, "Cuba Ready to Drill for Oil Deeper Than BP," *Miami Herald*, September 30, 2010.

[64] Jorge R Piñon and Jonathan Benjamin-Alvarado, "Extracting Cuba's Oil and Gas: Challenges and Opportunities," in *Cuba's Energy Future*, ed. by Jonathan Benjamin-Alvarado, Brookings Institution Press, Washington, D.C. 2010. p. 31.

[65] The Senate Committee on Foreign Relations reported the treaty favorably in September 2000, and the full Senate agreed to the resolution of advice and consent to ratification on October 18, 2000. See: U.S. Senate, *Treaty with Mexico on Delimitation of Continental Shelf*, 106th Congress, 2nd sess., July 27, 2000, Treaty Doc. 106-39; and U.S. Congress, Senate Committee on Foreign Relations, *Treaty with Mexico on Delimitation of the Continental Shelf*, 106th Cong., 2nd sess., September 29, 2000, Exec. Rept. 106-19.

[66] The role of the CLCS is to facilitate the implementation of the U.N Convention on the Law of the Sea with regard to the establishment of the outer limits of the continental shelf beyond 200 nautical miles. The Commission considers data and other material submitted by coastal states concerning the outer limits of the continental shelf and makes recommendations to coastal states on such matters, but without prejudice to the question of delimitation of the continental shelf between states with opposite or adjacent coasts. See the homepage of the CLCS, available at: http://www.un.org/Depts/los/clcs_new/clcs_home.htm.

initiatives would also lift all restrictions on U.S. travel to Cuba, including for those involved in Cuba's offshore oil sector: H.R. 4645 (Peterson); H.R. 874 (Delahunt)/S. 428 (Dorgan); and H.R. 1528 (Rangel).

In contrast, reflecting the second approach, H.R. 5620 (Ros-Lehtinen) would impose visa restrictions and economic sanctions on foreign nationals who help facilitate the development of Cuba's petroleum resources. The initiative would amend the Cuban Liberty and Democratic Solidarity Act of 1996 (P.L. 104-114) to exclude from the United States certain aliens (and their spouses, minor children, or agents) whose companies invest $1 million or more that contributes to the ability of Cuba to develop its offshore petroleum resources. The bill would also provide for the imposition of sanctions if the President determines that a person has made an investment on or after January 10, 2005 of $1 million or more (or any combination of investments that equals or exceeds $1 million or more in any 12-month period) that contributes to the enhancement of the Cuba's ability to develop its offshore petroleum resources. If such a determination is made the President shall propose two or more sanctions from a menu of sanctions listed in the bill.

# Conclusion

Looking ahead to the 112th Congress, concern over Cuba's offshore oil development is likely to continue, especially if exploratory drilling begins as anticipated in 2011. An oil spill in Cuban waters potentially could carry oil to U.S. waters and coastal areas in Florida, and potentially could threaten marine and coastal resources. While the U.S. government has licensed some companies to provide oil spill prevention and containment support to companies operating in Cuba in the event of a large spill, policymakers may want to review whether U.S.-Cuban government engagement is warranted in order to maximize preparedness and response in the event of a major spill. Legislative initiatives from the 111th Congress reflecting contrasting approaches toward Cuba's offshore development could be re-introduced in the 112th Congress.

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