Oil Potential Off U.S. Coasts: Knowns and Unknowns

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By Alan Kovski

Nearly all the U.S. offshore is open for consideration of oil and gas leasing,
but geologists point out not all offshore areas are likely to produce hydrocarbon riches.

Industry and academic geologists told Bloomberg Environment they see a lot of potential for oil and gas discoveries beneath some U.S. federal waters, notably including the eastern Gulf of Mexico near Florida, a broad area off Southern California, and in the Arctic.

Geologists see a much more uncertain but intriguing potential along the East Coast. They offer only skeptical remarks or idle curiosity when asked about some other parts of the Outer Continental Shelf.

Arguments over whether offshore drilling should be allowed erupted anew Jan. 4 when the Trump administration proposed to open more than 90 percent of federal offshore leasing areas to oil and gas exploration through a new five-year leasing program. But statements by governors, environmental groups and others in that debate generally don’t address whether there’s anything to find in any given location.

There is healthy skepticism and hopefulness in the oil industry about whether such an expansion of offshore exploration will happen, Charles Sternbach, president of the American Association of Petroleum Geologists, told Bloomberg Environment. He had sought opinions on the subject from his “brain trust” of AAPG members who are executives in oil and seismic companies.
“There was a sense of optimism—guarded optimism,” Sternbach said.

**Where to Drill? (Or Not)**

Geologists said the most promising areas are the eastern Gulf of Mexico and offshore Southern California, areas where discoveries already have been made.

The Chukchi and Beaufort seas off the northern coast of Alaska look promising but especially expensive, given the rigors of Arctic sea ice and weather and the regulatory strictures. Three lease sales in the Chukchi and three in the Beaufort are included in the draft five-year leasing plan from the Bureau of Ocean Energy Management, an Interior Department agency.

Most Alaska coasts are less promising for oil and gas.

When President Barack Obama in 2014 barred leasing in Bristol Bay off southwestern Alaska, it was accepted without a political fight because the oil industry had shown no interest in the area. That area—the North Aleutian Basin in federal offshore planning areas—was left out of the Trump administration’s draft proposed plan.

Parts of the Atlantic are said to hold potential: Past exploration drilling in U.S. Atlantic waters touched several areas and found some natural gas, but most of the U.S. continental shelf in

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the Atlantic remains to be explored.

There has been little or no attempt to study the Pacific continental shelf off the coasts of Washington, Oregon, and the northern half of California. Only slight amounts of hydrocarbons have been found onshore in the Pacific Northwest, and the offshore is virtually a blank slate. The onshore geology there does not bode well for finding oil in the offshore.

Marine sanctuaries also protect much of the near-shore coast from central California to the Olympic Peninsula of Washington.

### Promise, Politics, and Florida

The eastern Gulf is the most accessible, and exploration drilling there has demonstrated good prospects for petroleum, said geologist Mark Shuster, associate director of the energy division in the Bureau of Economic Geology at the University of Texas at Austin.

It would represent a practical expansion of existing oil and gas activity in the Gulf of Mexico, according to geologists.

“The eastern Gulf of Mexico has been long known to have reserves that are just waiting to be had,” Sternbach said.

Leasing within 125 miles of the Florida coast is barred by law until 2022. The
new five-year leasing plan being written by the Bureau of Ocean Energy Management to run from 2019 to 2024 could allow exploration in that part of the eastern Gulf after the restriction ends, but that possibility appears to be foreclosed.

Interior Secretary Ryan Zinke announced Jan. 9—five days after he unveiled the draft leasing plan—that he was “removing Florida from consideration for any new oil and gas platforms” after having conferred with Gov. Rick Scott (R) of Florida.


**Undeveloped California Fields**

Governors, state legislators, and members of Congress from many coastal states, including California, have since asked that they be given the same consideration that Scott received.

There are 38 producing leases in federal waters off Southern California, where production platforms have stood in the Santa Barbara Channel for decades. Shuster said the next steps for development could be north and south along the coast.

A little to the north of the Santa
Barbara Channel are the Point Arguello and Point Pedernales fields, the farthest north of the developed fields in the area. The Point Pedernales field is in the offshore portion of what is called the Santa Maria Basin, where there are several discovered but undeveloped fields.

There are oil seeps in the sea floor in the Santa Maria Basin, said Dan Francis, a geology professor at California State University at Long Beach. It is part of a very large territory off the Southern California coast where more oil fields could be developed, he said.

During a congressional hearing Jan. 19 on the subject of offshore exploration, Rep. Jim Costa (D-Calif.) did not dispute the idea that there is more oil to be found off the coast of his state. It is a matter of balancing oil development against other priorities, he said, implying the balance in California tilts against more offshore oil exploration.

“We have significant reserves in California that we know are there, and we've known for decades that they're there,” Costa said. “California, Florida, and other coastal states have made determinations on how they want to balance.”

**Atlantic Potential Undetermined**
If new exploration along the southern portion of the Atlantic Coast were to occur, oil probably would be the key, Shuster said. The economics of development “probably wouldn't make much sense if it's just gas,” he said.

Shuster, a former Royal Dutch Shell geologist, said a sedimentary basin off North and South Carolina stands out as having potential for oil accumulations. It has not been explored other than through seismic surveys, which can map possible areas but cannot by themselves identify oil or gas accumulations.

There also is potential for oil discoveries where the outflow from rivers produces thick enough layers of sediment—spreading out from Chesapeake Bay, Delaware Bay and other areas.

Fifty-one exploratory wells were drilled in U.S. Atlantic waters in the late 1970s and early 1980s. Most were relatively close to the coast, leaving deeper waters above thicker sedimentary layers unexplored, said Donald Van Nieuwenhuise, director of the petroleum geoscience programs of the University of Houston.

Areas of thick sediment called the Southeast Georgia Embayment and the Blake Plateau off the Georgia and northern Florida coasts are among the best areas for Atlantic exploration, Van Nieuwenhuise said.

The coastal shelf is very wide off New England and Long Island, providing
more areas for exploration in some thick sedimentary layers, Van Nieuwenhuiise said. Some hydrocarbons were found in that region in the 1970s-1980s drilling.

Gas fields off the coast of Nova Scotia in Canada and oil fields farther north off Newfoundland encourage companies to consider looking off New England for hydrocarbons. Whether leasing will ever again happen there or anywhere else along the Atlantic Coast remains to be seen.

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