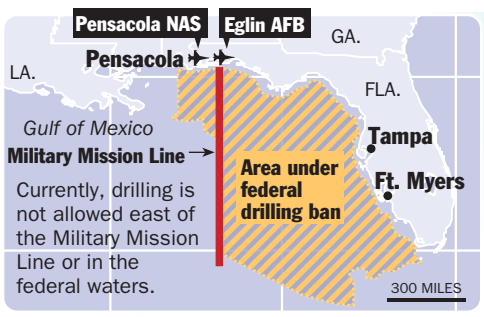
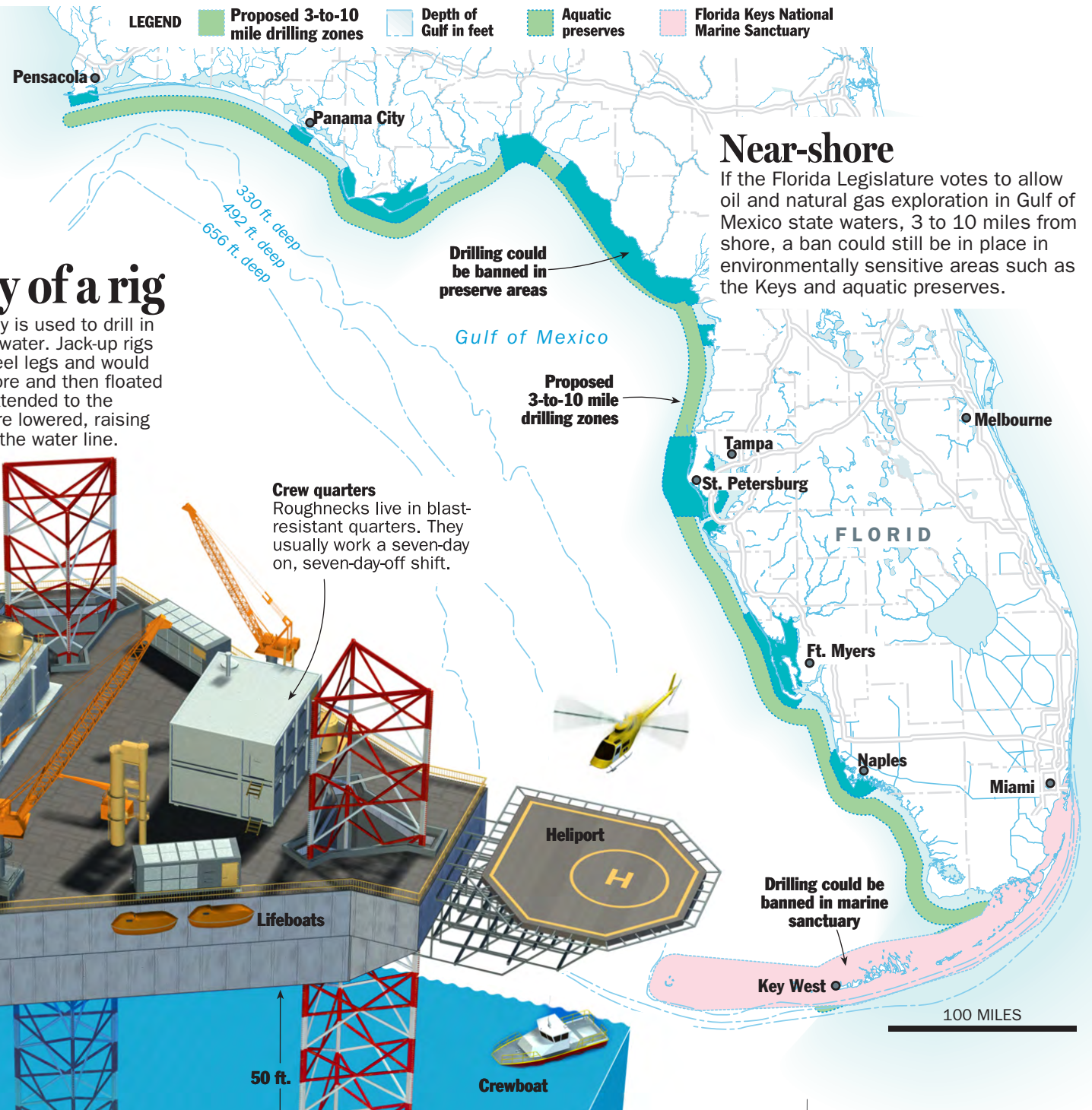
DRILLING OFF FLORIDA'S GULF COAST

Soon, Florida may decide whether to allow drilling for oil and natural gas as close as 3 miles to its Gulf Coast shores. To extract these fuels, companies would spend millions of dollars and position drilling rigs off the coast in the Gulf of Mexico. Here's more about these cities on the sea.





Near-shore

If the Florida Legislature votes to allow oil and natural gas exploration in Gulf of Mexico state waters, 3 to 10 miles from shore, a ban could still be in place in environmentally sensitive areas such as the Keys and aquatic preserves.

Anatomy of a rig

A jack-up rig typically is used to drill in 100 to 400 feet of water. Jack-up rigs have retractable steel legs and would likely be built onshore and then floated into the Gulf and extended to the seabed. The legs are lowered, raising the platform above the water line.

Derrick
It lifts and positions drill pipe, containing the machinery for turning the drilling bit.

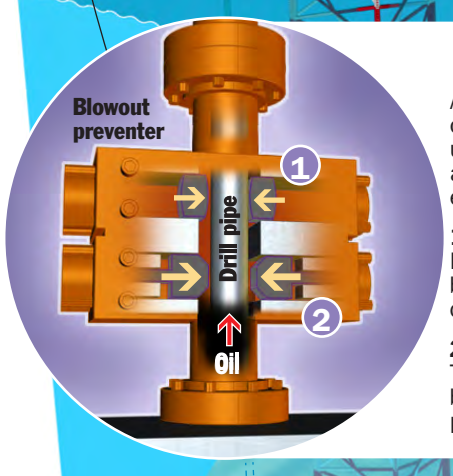
Crew quarters
Roughnecks live in blast-resistant quarters. They usually work a seven-day on, seven-day-off shift.

Drill pipe
Lifeboats
50 ft.
Crewboat

Retractable steel legs
Columns are extended and retracted by hydraulic or electrical systems to raise the platform.

Preventing 'blowouts'

A blowout occurs when natural gas or oil under extreme pressure escapes unexpectedly. Blowout preventers are a chief technology in protecting the environment. Here's how they work:



1. Ram blowout preventer
If sensors within the well detect a blowout, hydraulics release two cylinder halves to seal the wellhead.

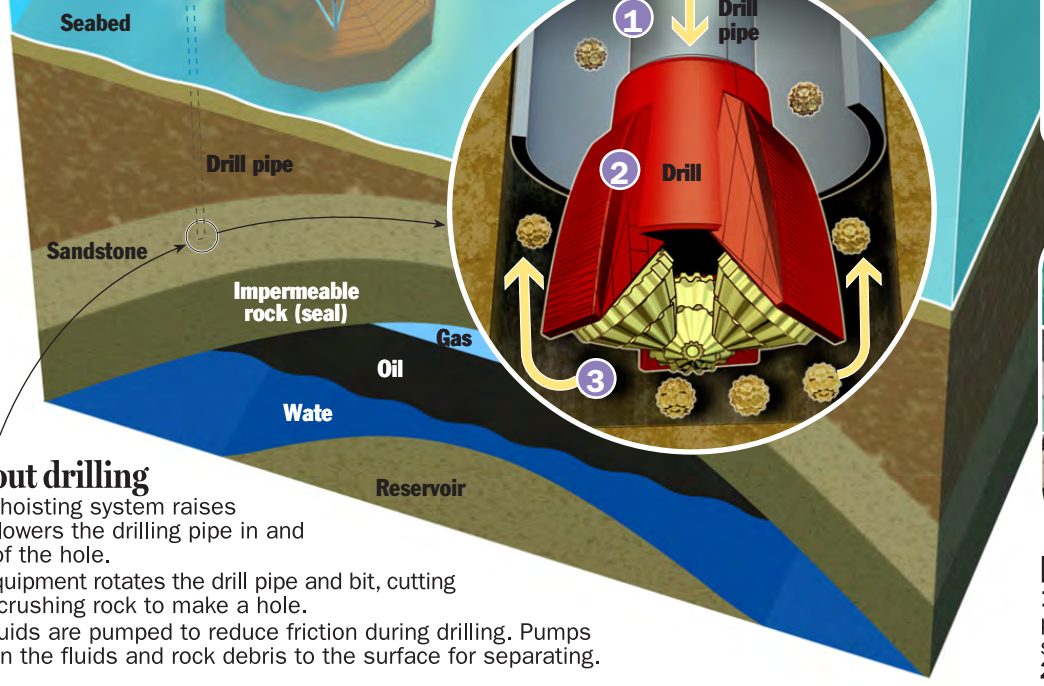
2. Annular blowout preventer
These seal blowouts in the space between the well wall and the well pipe.

Environmental concerns

Discharges of:
- Drilling mud
- Ancient seawater released after being trapped undersea
- Gray water (water containing some contaminants)
- Contaminants from nearby on-shore support facilities
- Aesthetics: Platforms can be seen from the coast, potentially affecting tourism

To mitigate pollution

Contaminants can be re-injected into the seabed after wells are drilled.

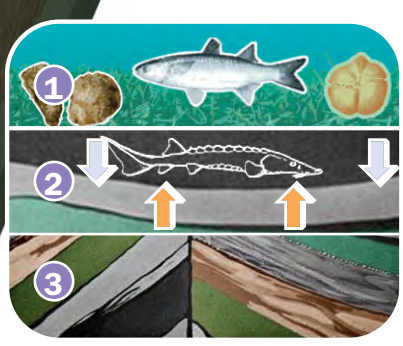


About drilling

1. A hoisting system raises and lowers the drilling pipe in and out of the hole.
2. Equipment rotates the drill pipe and bit, cutting and crushing rock to make a hole.
3. Fluids are pumped to reduce friction during drilling. Pumps return the fluids and rock debris to the surface for separating.

Completion and pumping oil

The hole: As the hole gets deeper, pipe is added to the drill bit to allow it to dig farther.
- Pipes can extend 30,000+ feet underground.
- Pumps transfer the oil to the surface from the undersea fields.



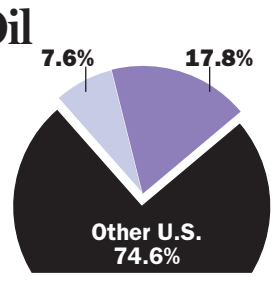
How oil and gas form

1. 300-400 million years ago, sea plants and animals were buried in the seabed.
2. Heat and pressure transformed them into oil and natural gas, stored in porous rock,
3. Traps, such as sandstone beds, help keep oil and gas from leaking.

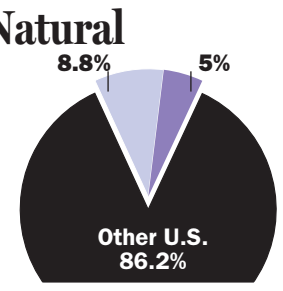
Estimated U.S. production (2007)

Shallow-water Gulf of Mexico
Deep-water Gulf of Mexico*

Oil



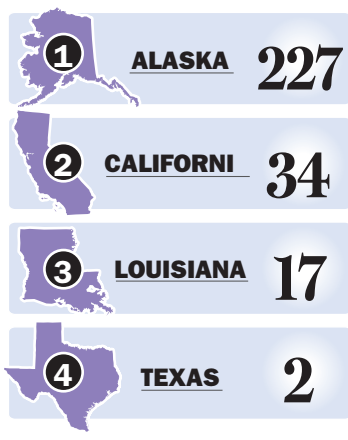
Natural



*Produced in waters deeper than 1,000 feet.
Source: Mineral Management Service "Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights"

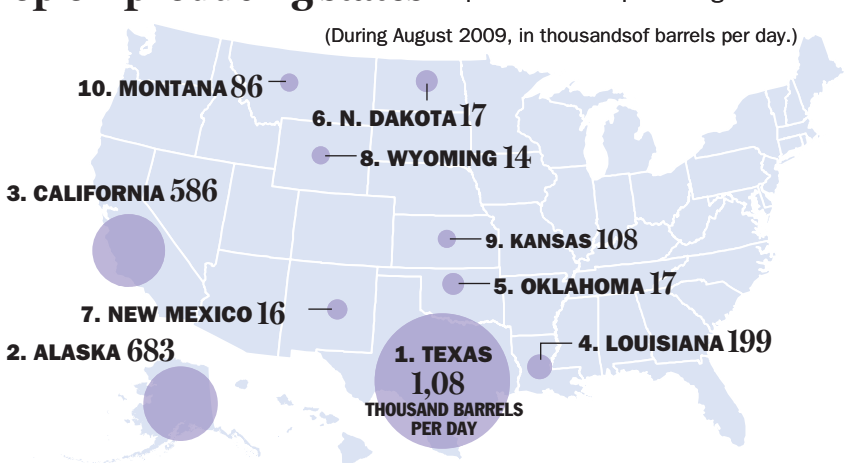
Top U.S. offshore producers of oil

Top U.S. offshore producing states of crude oil. (For 2008, in thousands of barrels per day.)



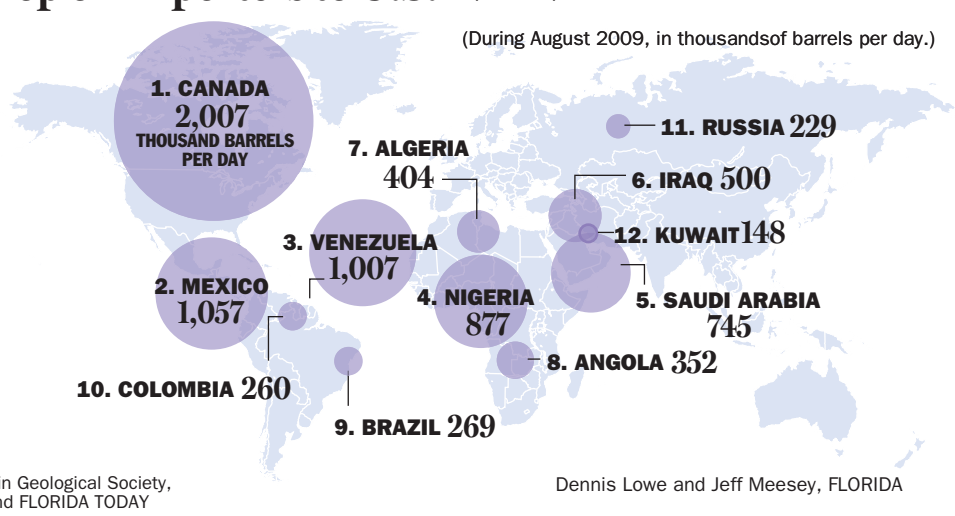
Top oil-producing states

Top ten crude oil-producing states.
(During August 2009, in thousandsof barrels per day.)



Top oil importers to U.S.

Top 12 importers of crude oil to the United States.
(During August 2009, in thousandsof barrels per day.)



Sources: American Petroleum Institute, Society of Petroleum Engineers, Energy Information Administration, San Joaquin Geological Society, John H. Trefry, professor, Marine and Environmental Systems College of Engineering, Florida Institute of Technology and FLORIDA TODAY

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