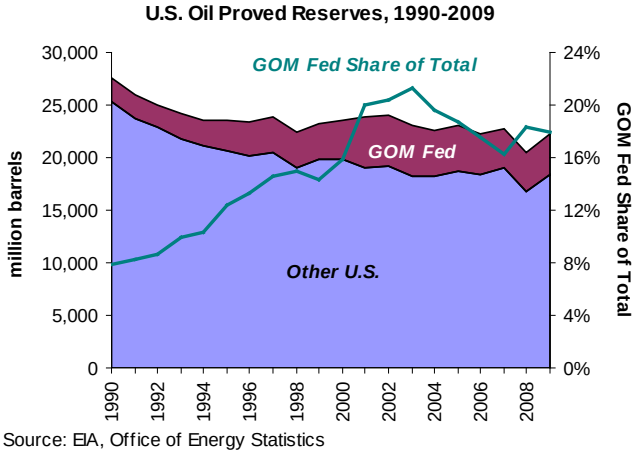
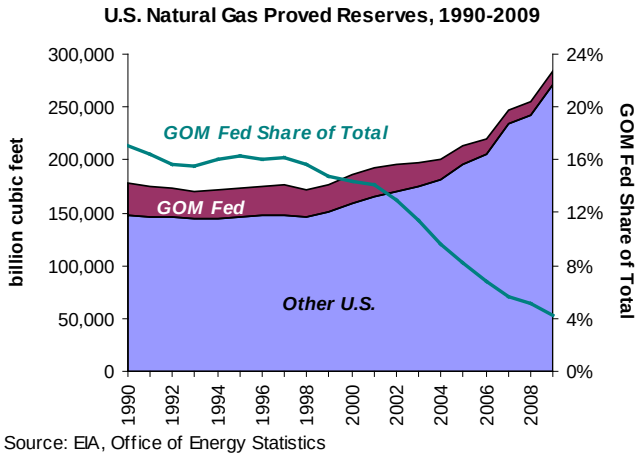
Gulf of Mexico Proved Reserves and Production by Water Depth

The Gulf of Mexico Federal Offshore region (GOM Fed) has long been one of the Nation's principal sources of proved reserves. At the end of 2009, the GOM Fed accounted for close to one-fifth of oil proved reserves (second only to Texas) and just over four percent of natural gas proved reserves (the country's seventh largest reporting region).[1]



Source: EIA, Office of Energy Statistics



Source: EIA, Office of Energy Statistics

Natural gas proved reserves from the GOM Fed have gradually diminished, both volumetrically and as a percentage of overall U.S. proved reserves. The latter is especially true in recent years as onshore additions (particularly those associated with shale gas activity) have increased considerably. Proved oil reserves from the GOM Fed, however, climbed steadily through the early 2000s before declining moderately through 2007, then increasing in 2008 and again in 2009.

Proved Reserves by Water Depth in the Gulf of Mexico Federal Offshore, 2009

Water Depth (Feet)	Designation	Oil (mmbbls)	% GOM Fed	% Total U.S.	Natural Gas (Bcf)	% GOM Fed	% Total U.S.
0 to 999	Shallow Water	642	16.0%	2.9%	6,106	50.4%	2.2%
1,000 to 4,999	Deepwater	1,667	41.6%	7.5%	3,772	31.1%	1.3%
5,000+	Ultra-Deepwater	1,698	42.4%	7.6%	2,239	18.5%	0.8%
All Depths	Total GOM Fed	4,007	100.0%	18.0%	12,117	100.0%	4.3%

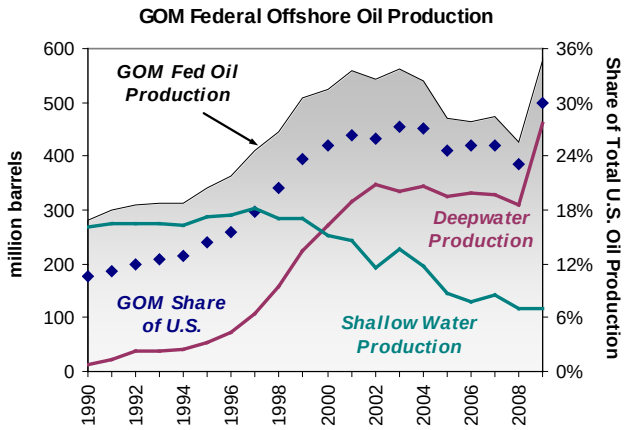
The recently increased oil prominence of the GOM Fed is largely the result of exploration and development in the deepwater Gulf of Mexico, which by the late 1990s had emerged as a key component of the country's proved oil reserves.[2] Technological advances (including 3-D seismic imaging) allowed explorers to expand drilling programs to water depths of several thousand feet and sub-salt targets. While cost and risk are considerable, the rewards have been significant. Between the late 1990s and mid-2000s, new field discoveries in the GOM Fed added more than three billion barrels to the Nation's proved oil reserves. Most of these additions came from deepwater discoveries, including major finds such as Atlantis and Mad Dog in 1998, Thunder Horse in 1999, and Tahiti in 2002.[3] Over the same period, the GOM Fed added another two billion barrels from extensions and discoveries of new reservoirs in existing fields. While oil exploration seems to be

[1] This report accompanies EIA's annual proved reserves summary for the corresponding reporting year, ***U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2009***. Both the annual summary and this report combine lease condensate with crude oil (as oil) and include plant liquids in wet natural gas. The *Deepwater Horizon*/Macondo incident had no effect on this report's proved reserves or production estimates, nor did the ensuing deepwater drilling moratoria.

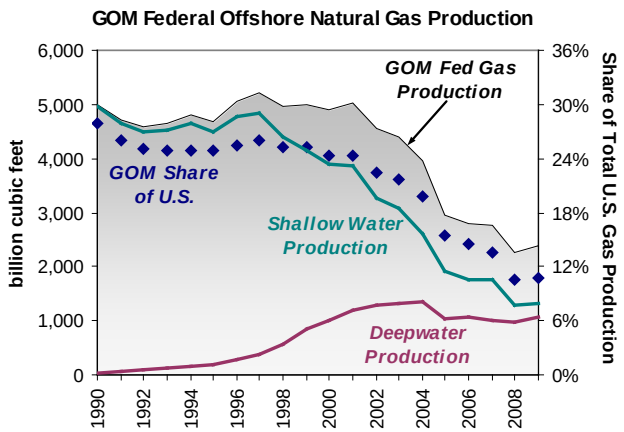
[2] The Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE; formerly the Minerals Management Service) defines deepwater as water depths of at least 1,000 feet, and ultra-deepwater as water depths of 5,000 feet and deeper. For the purposes of this report, shallow water is considered to be less than 1,000 feet.

[3] This was an especially productive period for deepwater exploration. According to BOEMRE data, of the ten deepwater fields discovered between 1990 and 2005 with proved reserves of at least 200 mmboe, eight were discovered between 1998 and 2002.

moving into deeper water, recent gas exploration may be focusing more on shallow water, but with very deep wells.



Source: BOEMRE; EIA, Office of Energy Statistics



Source: BOEMRE; EIA, Office of Energy Statistics

The GOM Fed is also a major contributor to U.S. production, leading all reporting regions in oil production and ranking third (behind Texas and Wyoming) in natural gas production in 2009. As with proved reserves, the deepwater Gulf of Mexico has driven overall GOM Fed production, with shallow water output falling steadily since the late 1990s. Until recently, deepwater oil and natural gas production had also declined, but the drop for each was comparatively modest (the especially sharp increase in deepwater oil production in 2009 was partially the result of shut-in volumes during 2008). According to data provided by the Bureau of Ocean Energy Management, Regulation and Enforcement (formerly the Minerals Management Service), the number of deepwater discoveries increased significantly in 2008 over 2007, and several additional deepwater discoveries were announced during 2009 and 2010 (including BP's Tiber find).[4] While most of these discoveries have yet to report proved reserves and may be several years away from first production, they underscore the region's long-term potential as one of the nation's principal sources of proved reserves and production.[5]

Production by Water Depth in the Gulf of Mexico Federal Offshore, 2009

Water Depth (Feet)	Designation	Oil (mmbbls)	% GOM Fed	% Total U.S.	Natural Gas (Bcf)	% GOM Fed	% Total U.S.
0 to 999	Shallow Water	117	20.3%	6.1%	1,334	55.5%	5.9%
1,000 to 4,999	Deepwater	260	45.1%	13.5%	503	20.9%	2.2%
5,000+	Ultra-Deepwater	200	34.7%	10.4%	565	23.5%	2.5%
All Depths	Total GOM Fed	577	100.0%	29.9%	2,402	100.0%	10.7%

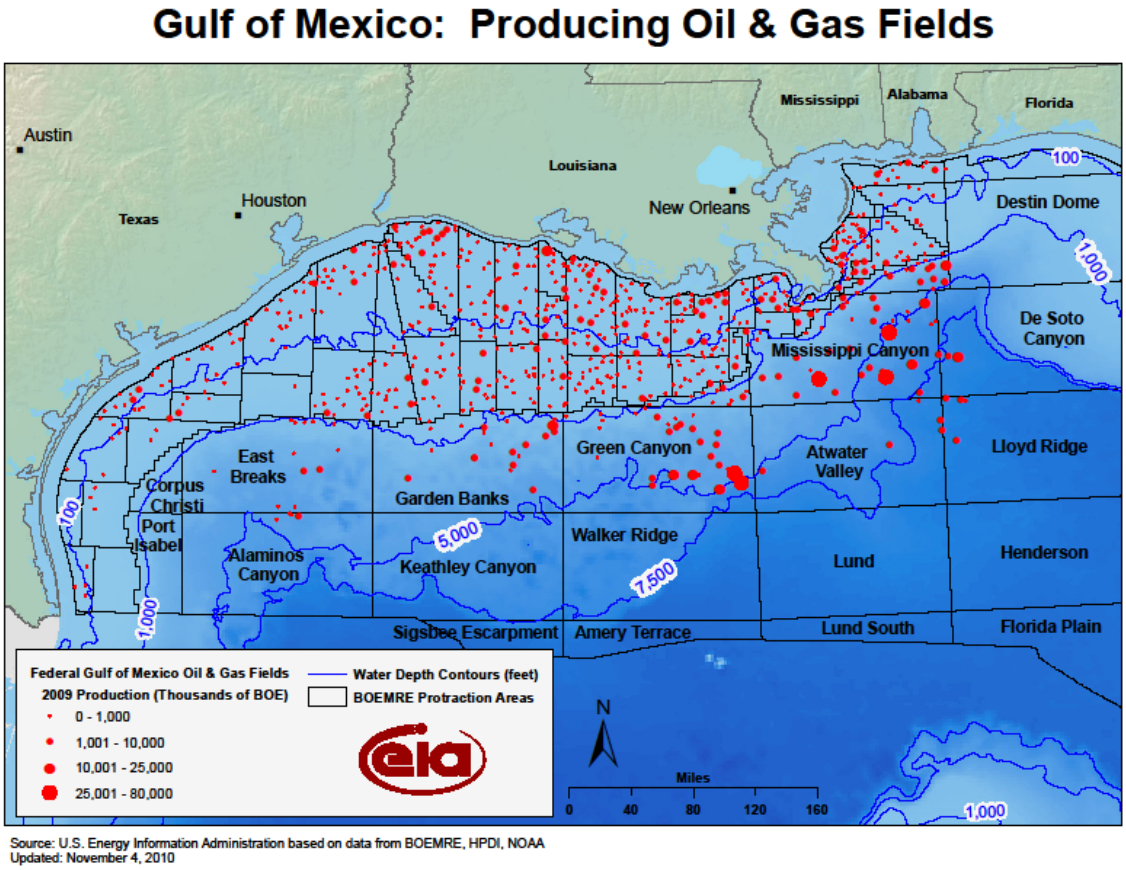
In recent years, onshore shale gas activity has boosted the country's natural gas proved reserves and provided operators an abundance of exploration prospects. The higher costs and greater risks associated with offshore drilling (particularly in the deepwater), combined with lingering low natural gas prices may result in a reduced emphasis on drilling for natural gas in the GOM Fed.

EIA defines proved reserves as those volumes of oil and natural gas that geological and engineering data demonstrate with reasonable certainty to be recoverable in future years from known reservoirs under existing economic and operating conditions.

[4] Minerals Management Service, ***Deepwater Gulf of Mexico 2009: Interim Report of 2008 Highlights*** (OCS Report MMS 2009-016), p. 48; ***Gulf of Mexico Region Update*** (presentation by Lars Herbst, Regional Director, MMS Gulf of Mexico OCS Region, at IPAA-2009, November 2009).

[5] Given the typically lengthy appraisal and development process for deepwater and ultra-deepwater fields, reserves from Tiber and other recent discoveries may not be "booked" (reported as proved) for a number of years. Production from these fields may be further delayed, as their location (if in relatively remote areas) could require construction of new production and transportation facilities. Shell's ultra-deepwater Great White discovery, for example, was announced in 2002 but had not been included in EIA's estimates of proved reserves by the end of 2008. The field was not brought onstream until late March of 2010 (as part of the Perdido Development project). Operators are expected to experience additional delays as a result of the deepwater drilling moratorium and revised or new regulations.

Oil and Gas Fields in the Gulf of Mexico Federal Offshore



Source: U.S. Energy Information Administration based on data from BOEMRE, HPDI, NOAA
Updated: November 4, 2010

Proved Reserves and Production by Water Depth for the Gulf of Mexico Federal Offshore, 2003-2009

Gulf of Mexico Federal Offshore Proved Oil Reserves and Production by Water Depth, 2003-2009

(million barrels of 42 U.S. gallons)

	Shallow Water		Deepwater		Ultra-Deepwater		Total GOM Fed	
	Less than 1,000 feet		*1,000 to 4,999 feet*		*5,000 feet and deeper*		*All depths*	
Year	Proved Reserves	Production	Proved Reserves	Production	Proved Reserves	Production	Proved Reserves	Production
2003	1,287	227	2,395	336	1,225	0	4,907	563
2004	1,135	197	2,015	339	1,285	4	4,435	540
2005	1,000	145	1,874	275	1,439	51	4,314	471
2006	881	130	1,737	276	1,286	57	3,904	464
2007	807	142	1,548	270	1,360	59	3,715	472
2008	719	116	1,538	201	1,516	110	3,773	422
2009	642	117	1,667	260	1,698	200	4,007	577

Includes lease condensate.

Gulf of Mexico Federal Offshore Proved Natural Gas Reserves and Production by Water Depth, 2003-2009

(billion cubic feet at 14.73 psia and 60˚ Fahrenheit)

	Shallow Water		Deepwater		Ultra-Deepwater		Total GOM Fed	
	Less than 1,000 feet		*1,000 to 4,999 feet*		*5,000 feet and deeper*		*All depths*	
Year	Proved Reserves	Production	Proved Reserves	Production	Proved Reserves	Production	Proved Reserves	Production
2003	13,353	3,072	7,131	1,085	2,039	239	22,523	4,396
2004	11,396	2,621	6,090	1,122	1,802	223	19,288	3,967
2005	9,628	1,924	4,707	891	3,092	154	17,427	2,969
2006	8,456	1,747	3,760	821	2,772	236	14,938	2,804
2007	7,624	1,757	3,804	730	2,580	275	14,008	2,762
2008	7,112	1,300	3,881	501	2,194	471	13,187	2,271
2009	6,106	1,334	3,772	503	2,239	565	12,117	2,402

Includes plant liquids.