



**SAFE AND ENVIRONMENTALLY  
RESPONSIBLE OFFSHORE**

# OPERATIONS IN THE GULF OF MEXICO

**SAFETY  
STARTS WITH  
UNDERSTANDING  
YOUR  
ENVIRONMENT.**

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Through advancements in technologies, best practices and industry safety programs, the industry has enhanced its overall capabilities to **ensure that a significant spill never occurs.**

In the unlikely event of a spill, the industry has extensive capping and containment systems in place for fast deployment to quickly stop and minimize the flow of oil. The industry and the government also have a great understanding of ocean conditions, including in-depth knowledge of the Gulf of Mexico's Loop Current.



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# SAFETY STARTS WITH UNDERSTANDING YOUR ENVIRONMENT.

## What is the Gulf of Mexico's Loop Current?

The Loop Current is the dominant ocean circulation feature in the Gulf of Mexico. It comes into the Gulf of Mexico from the south through the Yucatan Peninsula, continues flowing north before making a U-turn to the east and south, and exits out of the Gulf parallel to the Florida coast, many miles from the coastline. It is a strong, wide, and deep current with speeds ranging from 2 – 4 knots at any given time at depths of 500 – 1,000 feet below the surface. This constant circulation helps keep Gulf area beaches, especially in Florida, clean.

## Why is information on the Loop Current important for oil and natural gas operations in the Gulf of Mexico?

The oil and natural gas industry devotes enormous amounts of time, money and energy studying the ocean environment in order to keep their workers and the environment safe. The daily variability in the Loop Current's speed, direction, and size presents operational challenges that are continually researched, understood and managed appropriately. The benefits of industry's Loop Current knowledge and experience extends to the design and operation of offshore oil and natural gas facilities, as well as to emergency response activities. Ocean currents are the main factor in determining where any spilled oil might go, so the industry's Loop Current knowledge is vital in deploying resources to help provide environmental protection.

## What happens to oil in the Gulf?

Oil can be discharged from natural sources below the sea floor, known as seeps, and from human activities, such as spills.<sup>1</sup> Natural oil seeps are found all over the Gulf of Mexico. Remote satellite sensing researchers have estimated that as much as 690,000 barrels of oil are naturally discharged into the Gulf of Mexico every year.<sup>2</sup> Oil in the ocean undergoes biodegradation and natural weathering as it moves through the earth's subsurface into the ocean and then up to the ocean's surface.

Microorganisms in the oceans use these hydrocarbons as a food source and breakdown the oil in the process. With the further assistance of the Loop Current (because of the strength, width and depth of the loop current) as the oil reaches the surface, the oil is moved away from the coast and can continue its natural degradation.

## What Effect Might the Loop Current Have On Oil In a Well Containment Incident?

In the unlikely case of a well control incident, most oil released would be contained at the well and unable to reach the surface. Any oil that does move upwards from the sea floor would likely be dispersed and degraded before reaching the surface. Since ocean currents, not wind, are the prevailing factor for moving oil on the ocean's surface, the movement of any oil reaching the surface would be heavily influenced by the Loop Current. Because of the characteristics of the Loop Current (speed, direction, width and thickness). It is most likely that oil would not be diverted by the current to Florida's coastline. Instead, because of the speed and direction of the current, the oil would move parallel to Florida's shores and out of the Gulf of Mexico.



1. <http://www.whoi.edu/oil/natural-oil-seeps>

2. <https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2015JC011062>