Sinking and Submerging Oil Spill Risks

The 2005 tank barge DBL 152 incident (left) spilled 1.9 million gallons of heavy oil, most of which sank to the bottom of the Gulf of Mexico. Oil absorbent material attached to chains (right) was dragged on the seafloor, which is one method for detecting submerged oil. (Credit: NOAA)

WHY IT MATTERS

When oils submerge or sink, they are toxic to aquatic life, and people, just like any oil spill. Sunken oil may stay submerged for a time and then resurface farther away from the spill site. Submerged or sunken oils pose a greater risk because they are difficult to find and clean up.

The 2010 Deepwater Horizon and Kalamazoo River spills involved submerged and sinking oils. From these incidents, we have a greater understanding of the latest equipment and processes for detection, containment, and recovery of oil when it sinks in water.

This is an area of risk that our state needs to manage. With the right equipment and processes in place, we can better assess the potential for containing and recovering sinking oil, the costs of spills, and the restoration of damaged resources.

What are oils that may submerge or sink in water?

In Washington, current spill prevention and preparedness tactics and plans focus on oil spills that float on the surface of the water. However, some oils, such as diluted bitumen derived from Canadian tar sands and heavy bunker oils, may float at first, and then sink or submerge into the water column, depending on the type of oil spilled and environmental conditions.

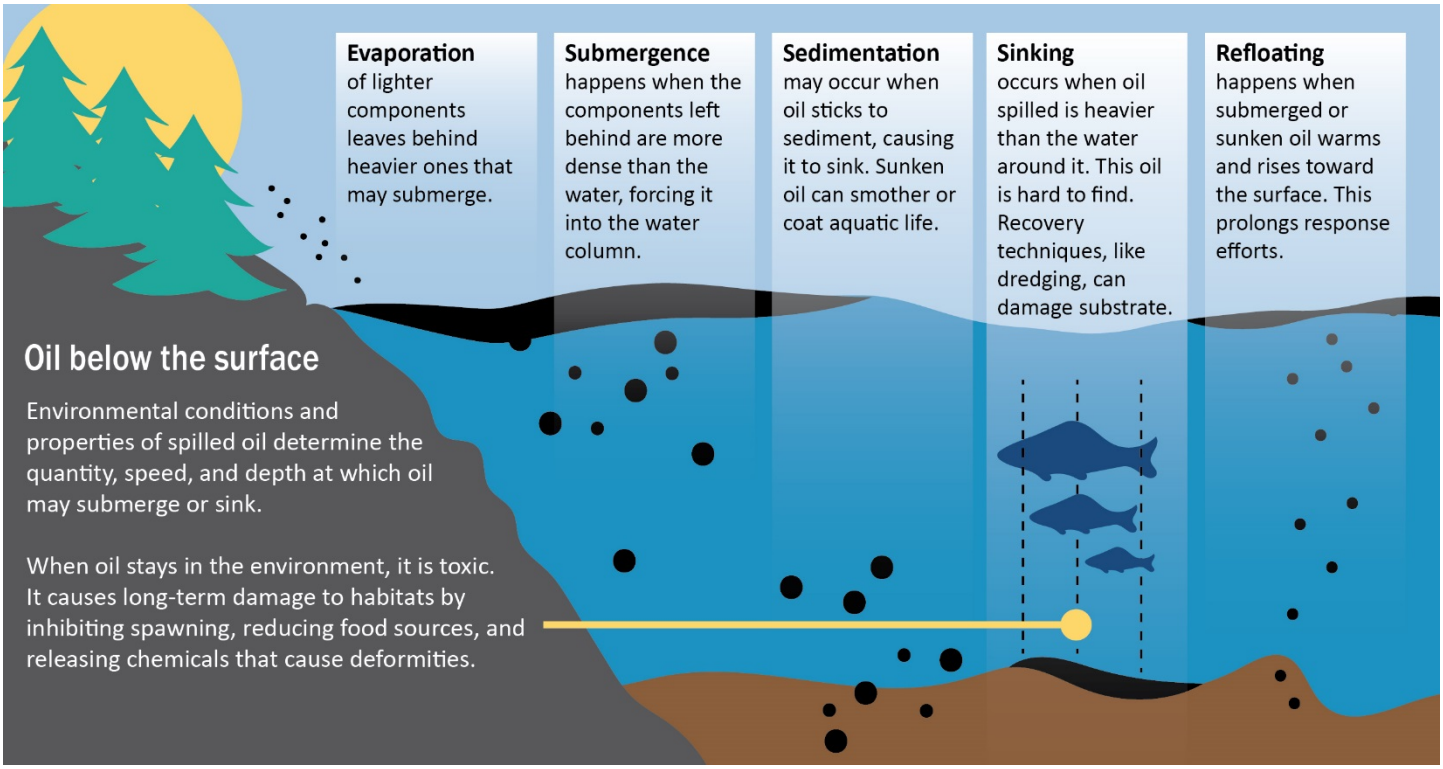
Spills of submerging or sinking oils are more complex

Traditional methods of detecting oil spills, like aerial observation, don't work when oil stops floating. Traditional spill response tactics—booming, skimming, in-situ burning—may have little or no effect on oil that sinks or submerges. After oil sinks, response tactics could involve dredging, pumping and vacuuming, trawling and netting, manual or mechanical removal, and agitation/refloating—all of which may also damage the environment. Preventing these spills is our first priority, but we must be better prepared, so we can quickly respond to spills and lessen the damages.

Improving Washington's spill response capability

We can be better prepared for spills where oil may submerge or sink by:

- Updating geographic response plans with details to identify water column species impacted by submerging or sinking oil.
- Updating industry contingency plans to develop response strategies for crude and other heavy oils that might not float, and to access specialized equipment to detect, contain, and recover these oils.
- Testing response strategies and decision making by including these challenging types of response scenarios in oil spill drills.

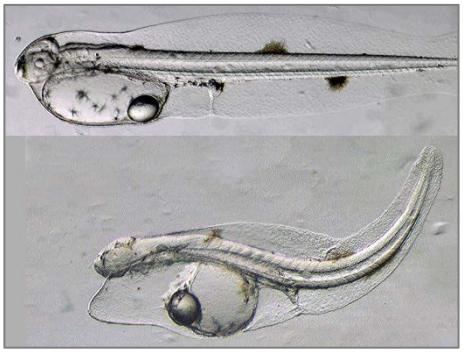


Detection and response for spills of submerged or sinking oil

Sunken and submerged oil spills are complex, and the response technology may require multiple techniques or tools. For detection of oil on the bottom of a water body, the use of sonar, underwater cameras, remotely operated vehicles (ROVs), bottom sampling, and diver observation can all be used to support understanding the scope of the spill.

This ROV photographed oil that sunk in the Gulf of Mexico during the 2005 DBL 152 *spill. (Credit: NOAA)*

A diver working on the Davy Crockett *vessel salvage (2010) shows heavily oiled gloves. This incident involved submerged oil response in the Columbia River.*



Polycyclic aromatic hydrocarbons (PAHs) may cause heart deformities (above, lower pane). Submerged/sunken oils release PAHs over longer periods of time. (Credit: NOAA)

Contact
Linda Pilkey-Jarvis
Preparedness Section Manager
Spills Program
360-407-7447
linda.pilkey-jarvis@ecy.wa.gov

Special accommodations
To request ADA accommodation for disabilities, or printed materials in a format for the visually impaired, call Ecology at 360-407-7211 or visit ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with speech disability may call TTY at 877-833-6341.