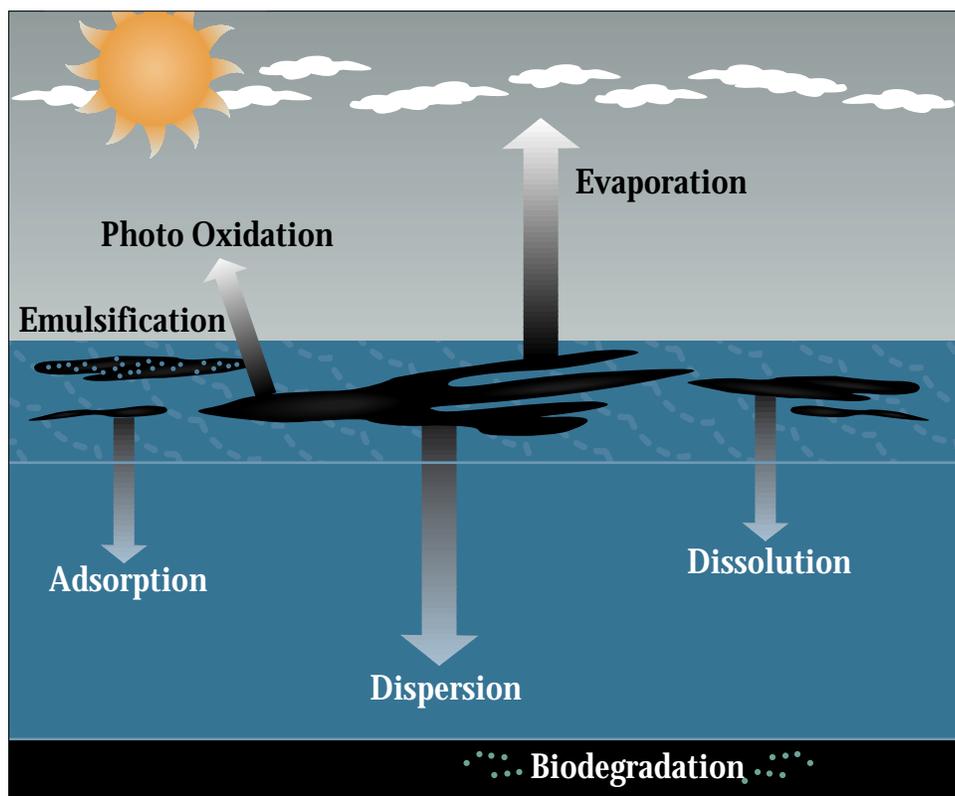


FACT SHEET: No. 6 Fuel Oil (Bunker C) Spills

- No. 6 fuel oil is a heavy oil produced by blending heavy residual oils with a light oil (often No. 2 fuel oil) to meet specifications for viscosity and pour point.
 - When spilled on water, No. 6 fuel spreads into thick slicks which can contain large amounts of oil. Oil recovery by skimmers and vacuum pumps can be very effective, particularly early in the spill.
 - Very little of this viscous oil is likely to mix into the water column. It can form thick streamers or, under strong wind conditions, break into patches and tarballs.
 - It is a persistent oil; only 5-10% is expected to evaporate within the first hours of a spill. Thus, spilled oil can be carried long distances by winds and currents. Previous bunker oil spills have contaminated shorelines over 200 miles from the spill site.
 - The specific gravity of a particular No. 6 fuel oil can vary widely, from 0.95 to greater than 1.03. Thus, spilled oil can float, suspend in the water column, sink, or do all of these simultaneously, if the oil is poorly mixed. Floating slicks may become non-floating when they spread into areas of freshwater influence.
 - Floating oil could potentially sink once it strands on the shoreline, picks up sediment, and then is eroded by wave action.
 - No. 6 fuel oil can be very viscous and sticky, meaning that stranded oil tends to remain on the surface rather than penetrate sediments. Light accumulations usually form a “bath-tub ring” at the high-tide line; heavy accumulations can pool on the surface.
 - Shoreline cleanup can be very effective, particularly soon after the spill before the oil weathers, becoming stickier and even more viscous. Removal is needed because degradation rates for heavy oils are very slow, taking months to years.
 - Adverse effects of floating No. 6 fuel oil are related primarily to coating of wildlife dwelling on the water surface, smothering of intertidal organisms, and long-term sediment contamination. No. 6 fuel oil is not expected to be as acutely toxic to water column organisms as lighter oils, such as No. 2 fuel oil.
 - Direct mortality rates can be high for seabirds, waterfowl, and fur-bearing marine mammals, especially where populations are concentrated in small areas, such as during bird migrations or marine mammal haulouts.
 - Direct mortality rates are generally less for shorebirds because they rarely enter the water. Shorebirds, which feed in intertidal habitats where oil strands and persists, are at higher risk of sublethal effects from either contaminated or reduced population of prey.
 - The most important factors determining the impacts of No. 6 fuel oil contamination on marshes are the extent of oiling on the vegetation and the degree of sediment contamination from the spill or disturbance from the cleanup. Many plants can survive partial oiling; fewer survive when all or most of the above-ground vegetation is coated with heavy oil. However, unless the substrate is heavily oiled, the roots often survive and the plants can re-grow.
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Weathering Processes Affecting No. 6 Fuel Oil (Bunker C) Spills



This figure shows the major weathering processes affecting fuel oil spills. Even at high wind speeds, usually over 70% of a Fuel Oil No. 6 will persist as floating or beached oil for a week or longer.

Adsorption

The process by which one substance is attracted to and adheres to the surface of another substance without actually penetrating its internal structure

Biodegradation

The degradation of substances resulting from their use as food energy sources by certain micro-organisms including bacteria, fungi, and yeasts

Dispersion

The distribution of spilled oil into the upper layers of the water column by natural wave action or application of chemical dispersants

Dissolution

The act or process of dissolving one substance in another

Emulsification

The process whereby one liquid is dispersed into another liquid in the form of small droplets

Evaporation

The process whereby any substance is converted from a liquid state to become part of the surrounding atmosphere in the form of a vapor

Photo Oxidation

Sunlight-promoted chemical reaction of oxygen in the air and oil