SEATTLE AUDUBON

Oil Descriptions

Oil slicks are not always easy to detect or describe. Most observations are done from aircraft, allowing nearly-vertical observations of the oil. However, the PSSS oil-observations program is designed to provide additional “eyes-on-the-water” as well as observations made early in the event (early on-scene reconnaissance).

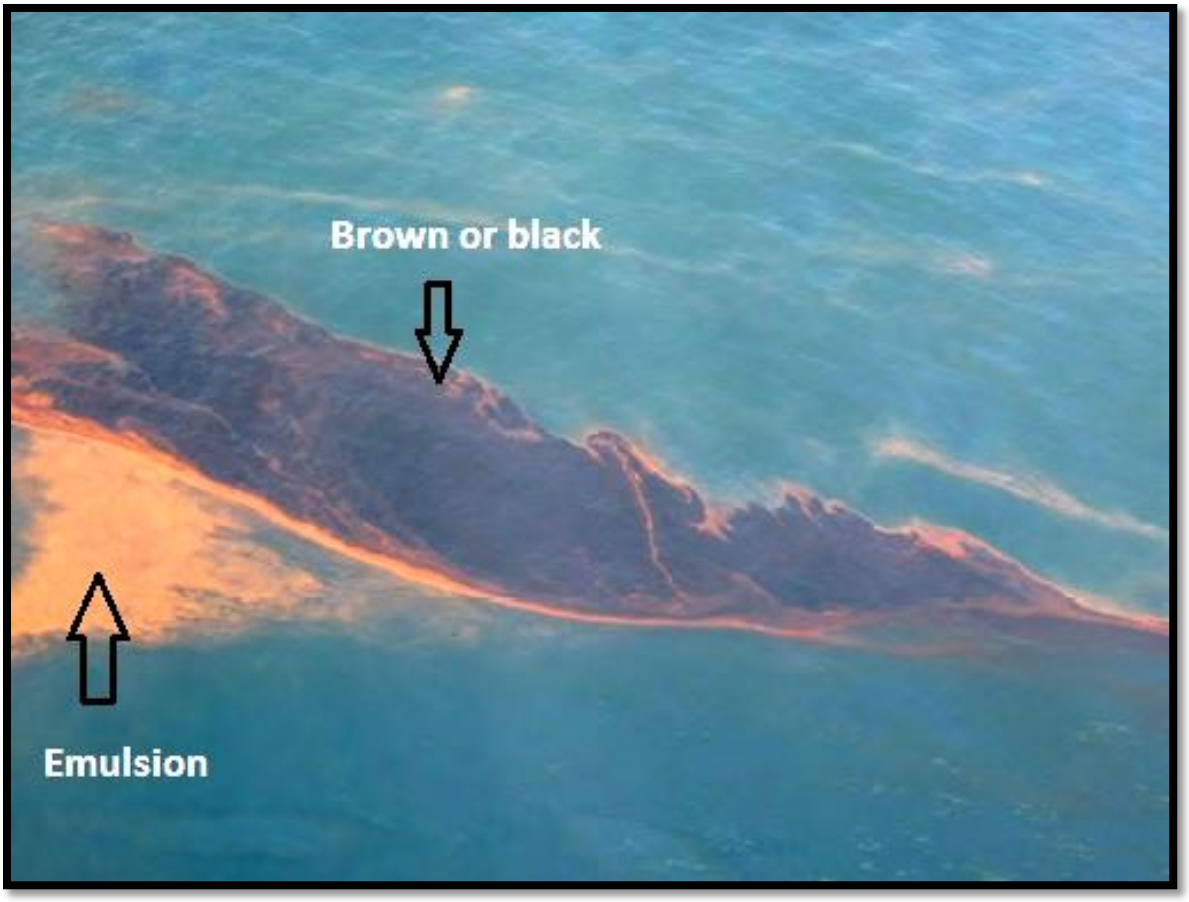
This section provides some images of oil on the water and how the observations can be classified. The way the oil appears suggests the thickness of the oil. For example, rainbow sheen is extremely thin while black oil is a relatively thick layer.

One major problem with early observations is to determine if a reported spill is really an oil spill. False positives, as it is called in the response community, is often caused by natural phenomena, such as an algae bloom, herring spawn, jellyfish concentration, kelp concentrations, rapid changes in depth, and lighting, such as cloud shadows. The most powerful tool in determining if a spill is real is through local knowledge. For example, Puget Sound often has algae blooms in the summer, or any time after a few days of sun and warmth. Algae blooms often tend to be reddish in color, an unusual color for a fresh oil spill. Emulsified oil may also have a red, yellow, or brown color but emulsification usually takes days to occur, so it is unlikely to be observed during an early response. One of the best ways to determine if a spill is really oil is to look at the edges of the oil patches in water. An oil spill will tend to be thin at the edges, producing a rainbow sheen. That sheen is often missing in natural phenomena.

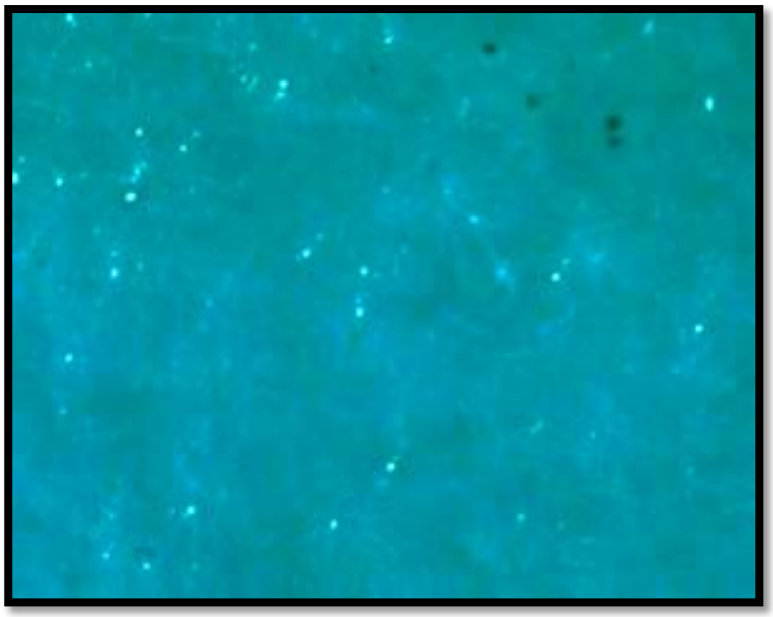
The base photos in this section are taken from the NOAA guide *OPEN WATER OIL IDENTIFICATION JOB AID for aerial observation; With Standardized Oil Slick Appearance and Structure Nomenclature and Codes, Version 2, updated July 2012*.

Oil Descriptions

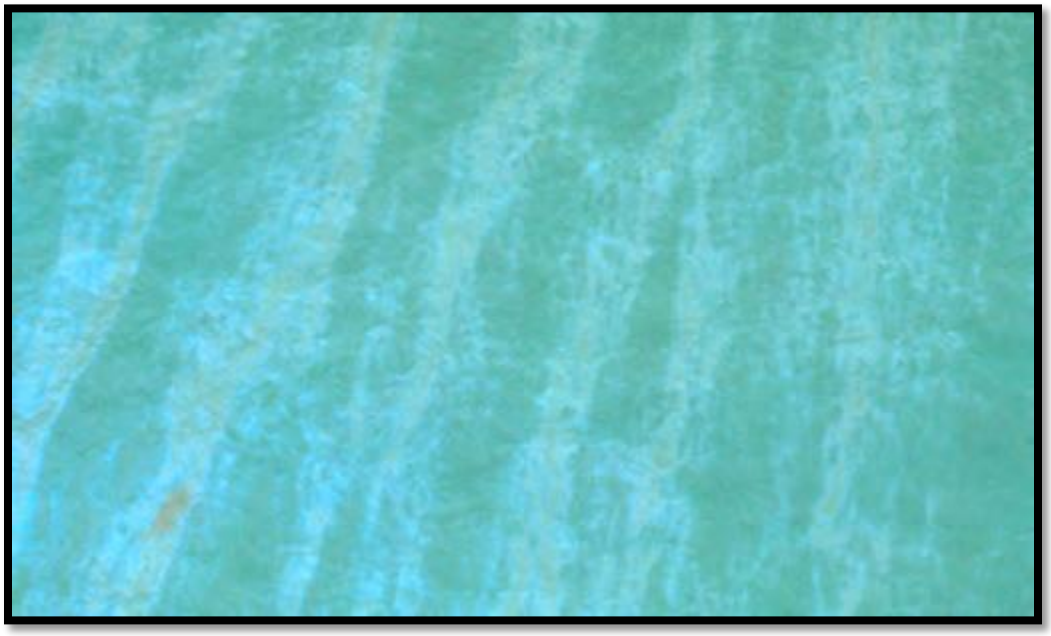
(All photos from NOAA, 2012. Some annotations have been added)



Tarballs



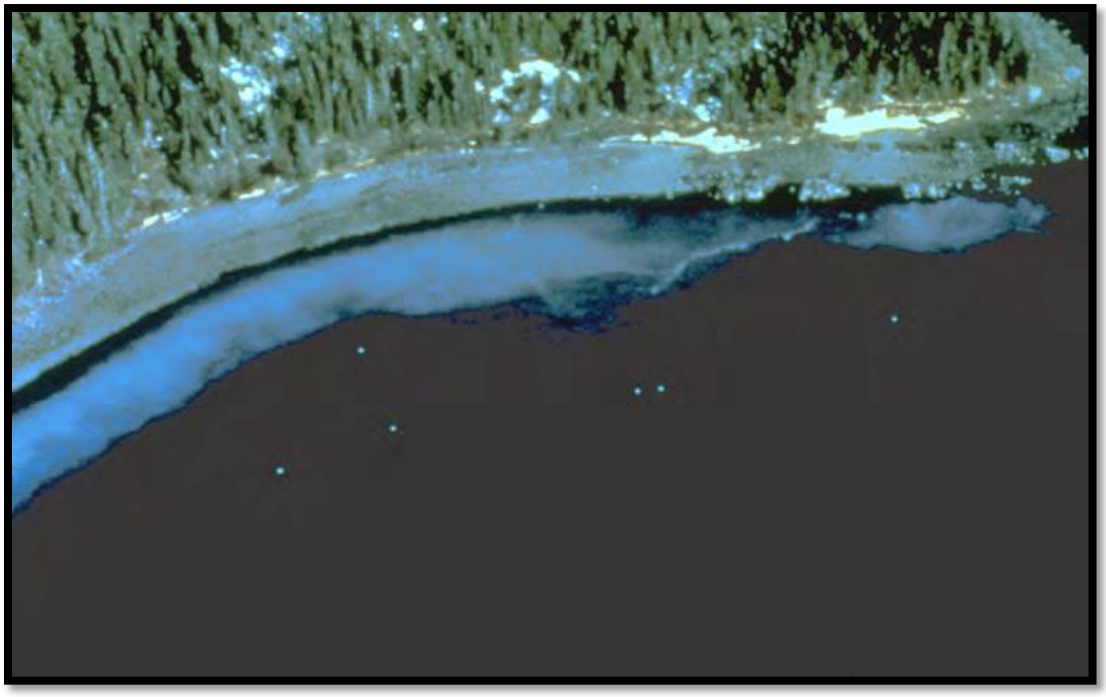
Windrows



False Positive: Kelp

False Positive: Clouds

False Positive: Herring Spawn

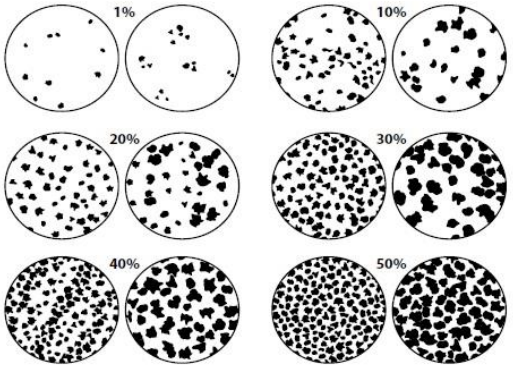


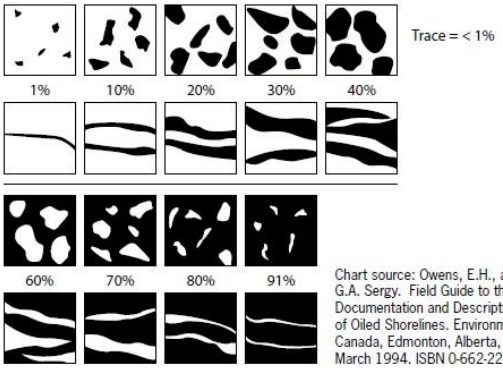
False Positive: Algae

Source of all images from Open Water Oil Identification Job Aid for Aerial Observation, Version 2, updated July 2012. U.S. DEPARTMENT OF COMMERCE, National Oceanic and Atmospheric Administration, Office of Response and Restoration, Emergency Response Division, Seattle, Washington.

PERCENT COVERAGE CHART

This chart is an aid to help you determine the percent of oil coverage in the area you are observing. When determining the coverage of an oil spill on the water, estimate the percentage of clean water and subtract from 100 to calculate the percentage of oil. Try to picture all the oil in one corner of the area you are observing and determine the clean water remaining.





Trace = < 1%

Chart source: Owens, E.H., and G.A. Sergy. Field Guide to the Documentation and Description of Oiled Shorelines. Environment Canada, Edmonton, Alberta, Canada. March 1994. ISBN 0-662-22048-X.