OIL SPILL EMERGENCY RESPONSE -
MONITORING THE USE OF DISPERSANTS

Overview of Monitoring Requirements

About

Dispersants are chemical agents used to break up oil into smaller droplets throughout the water column. Dispersants are applied to surface oil floating on water, or below the surface closer to an uncontrolled release of crude oil from a well blowout source. This series of fact sheets details the monitoring requirements and how to apply the collected data to inform the use of dispersants under **Subpart J of the National Contingency Plan (NCP)**.

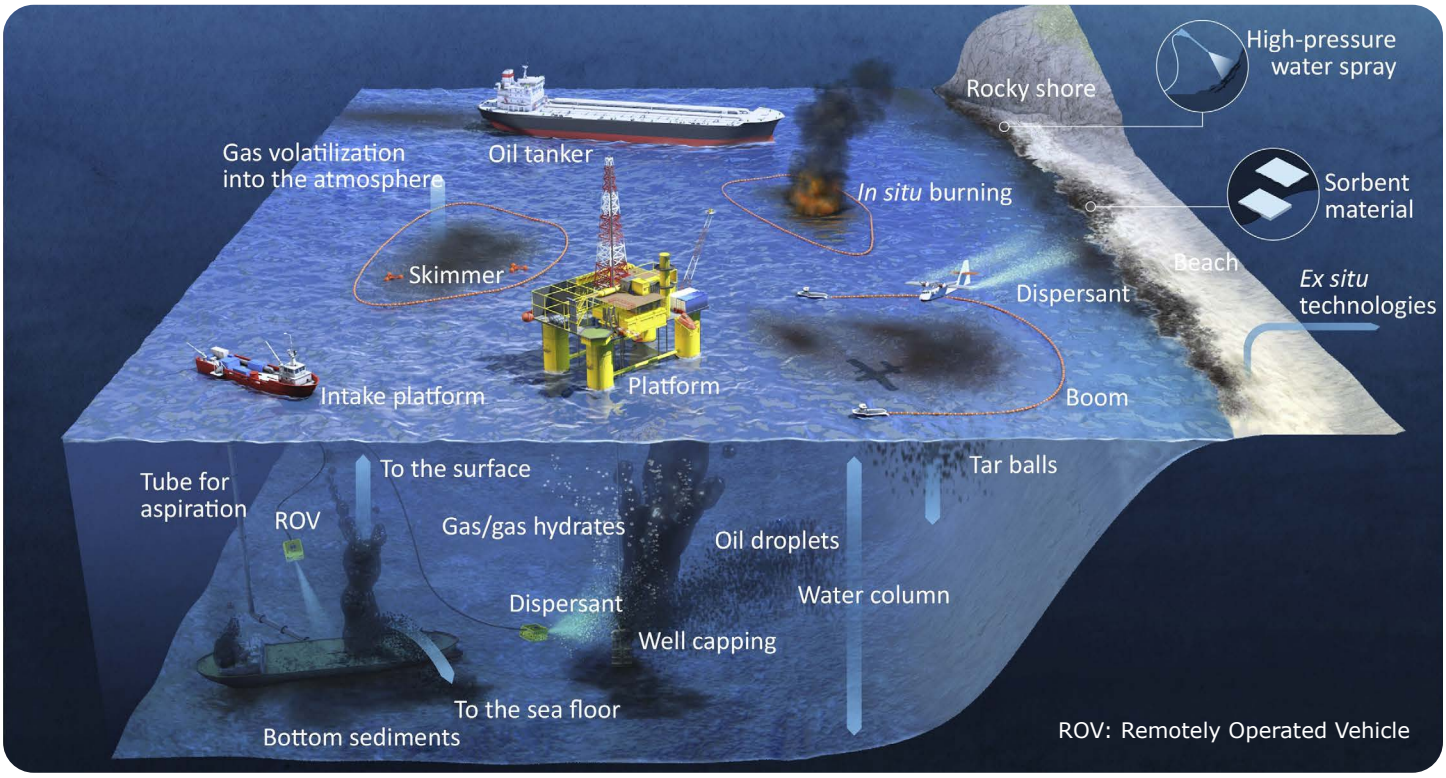
Dispersant Uses that Require Monitoring

- Any subsurface use (Figure 1).
- Surface use in oil discharges over 100,000 gallons per 24 hours.
- Surface use over 96 hours after the initial application to an oil discharge.

Atypical Dispersant Use Monitoring Provisions

The party responsible for an oil discharge must follow specific provisions to monitor dispersants under certain atypical use situations. The responsible party provides monitoring results to the On-Scene Coordinator (OSC) and other agency responders who authorize and oversee dispersant use in accordance with the Code of Federal Regulations (CFR): **40 CFR 300.913**.

Figure 1: Anatomy of an offshore oil spill response, including dispersant operations.



Credit: Mapelli et al. (2017)

Key Monitoring and Reporting Elements for Atypical Dispersant Use

Source characterization and application

- Identify flow rate or volume of the oil discharge, dispersant choice, dispersant-to-oil ratio, application rates, and total amount of dispersant.

Water column sampling

- Collect samples from the ambient background water column, baseline oil plume, and dispersed oil plume.

Oil distribution analysis

- Characterize dispersant effectiveness and oil distribution.

Ecological characterization

- Identify potential ecological receptors and habitats, and their associated exposure pathways.

Immediate and daily reporting

- Immediately report certain application deviations to the OSC and Regional Response Team; report water column sampling and data analyses daily.

Using Monitoring Data

Determines if dispersants are working

- Dispersant efficacy is affected by the oil type and weathering and by environmental conditions.
- Each oil spill is unique. Monitoring environmental conditions and the dispersed oil plume improves the response team's understanding of (1) how oil is being transported by ocean currents, and (2) how other natural processes may affect the fate of the oil (Figure 2).

Determines if dispersants are causing unintended consequences

- Dispersants are generally less acutely toxic to marine organisms than oil, and can prevent oil from reaching the shoreline and surrounding ecosystems.
- Dispersants decrease oil exposure to organisms at the water's surface (e.g., seabirds, sea turtles), but increase oil exposure to species that dwell in the water column (e.g., plankton, fish).
- Dispersants are generally comprised of multiple compounds, and not all aspects of their toxicity to marine organisms are known.
- Dispersant use can change environmental conditions (e.g., by creating hypoxic conditions), which can cause harm to organisms.
- Monitoring data and information will help determine the fate and transport of dispersant and dispersed oil, as well as the potential exposure risks for aquatic organisms.

Determines if dispersant use should begin/continue/cease

- Analyzing local environmental conditions, potentially affected organisms, and the on-site performance of the dispersant for each specific incident response helps inform dispersant use decisions.

Additional Resources

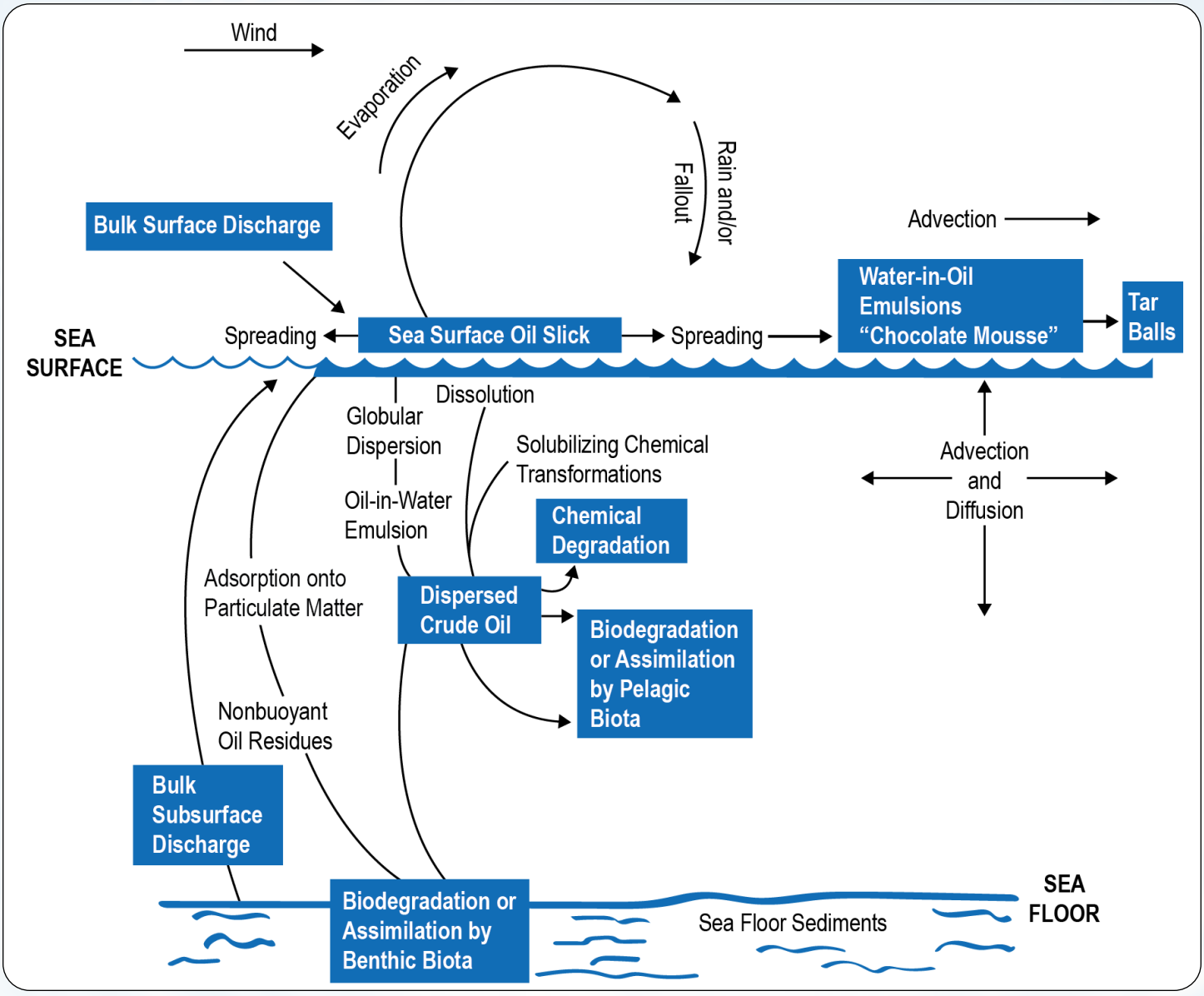
NCP Product Schedule

Lists dispersant products and data submitted to EPA as required by Subpart J of the NCP.

NCP Product Schedule Technical Notebook

A compilation of product bulletins summarizing data requirements and test results for dispersant products listed in EPA's NCP Product Schedule. The Technical Notebook includes information on dispersant application methods, toxicity and effectiveness data, and physical properties.

Figure 2: Fate and transport processes of oil floating on and submerged within water.



Credit: National Research Council (1985)

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Mapelli et al., 2017. "Biotechnologies for Marine Oil Spill Cleanup." Trends in Biotechnology 35: 860-870. Reprinted with copyright permission from Elsevier.

National Research Council, 1985. Oil in the Sea: Inputs, Fates, and Effects. The National Academies Press. Adapted.