Coastal Response Research Center

SUBMERGED OIL WORKSHOP

December 12 – 13, 2006

Goal:

Identify research needs in information on submerged oil pertaining to:

- Containment and Recovery Tracking
- Detection and Monitoring
- Fate and Transport
- Effects and Restoration
- Protection of Water Intakes

Topics:

Containment and Recovery Tracking:

- What response options are presently available for containment, recovery, temporary storage and disposal of submerged oil?
- Oil moving within the water column? (DBL and the Ocean 255 are good case studies).
- Are there feasible methods to contain oil on the bottom to improve recovery?
- What research is needed to develop remotely operated vehicle pumping systems to improve recovery rates over diver-directed pumping systems?
- How can dredges be configured for submerged oil recovery?
- How can responders improve the design of decanting systems?

Detection and Monitoring:

- What technologies exist that can be used for detection and tracking of submerged oil?
- What are the conditions under which each may be effective for oil on the bottom and oil suspended in the water column?
- How can events where oil on the bottom becomes mobilized be detected?
- Conditions to include: water depth, water clarity, water surface roughness, substrate types, target size and thickness, oil types, etc. The objective is to update the tables in the NRC (1999) report on options for detecting and tracking nonfloating oils, and add a new field on R&D Needs.

Fate and Transport:

- Define State of the Art for predicting fate and transport of submerged oil, including independent processes that contribute (i.e., currents, sediment transport), identify gaps in providing better predictions.

Effects and Restoration
- What are likely effects of short and longer term exposure to submerged oil on natural resources and services?
- What databases are available for bottom and water column resource demography?
- How does exposure occur (dissolved phase, physical contact, ingestion?). Based on this, what environmental tradeoffs (duration of injury, resource recovery rates etc.) can be expected from decisions to leave oil in-place versus effects associated with removal activities?
- Are there biological monitoring techniques that can be coupled to the tracking/monitoring technologies that will be employed (i.e., can sediment/water/tissue samples be taken with AUVs, etc., in a cost-effective and timely manner?)
- What types of restoration activities could be conducted that would benefit resources impacted from submerged oil?
- What metrics could be used to scale restoration projects designed to compensate for resources impacted by the submerged oil?
- Is primary restoration feasible? If so, what new restoration technologies are needed/available?
- How is success of restoration measured?
- Are there any current restoration data from submerged oil/habitat injury cases

Protection of Water Intakes:
- What levels of contamination are critical?
- What protocols exist for protection of intakes from contamination?
- What technologies exist for early warning systems for intake protection?
- What technologies exist to prevent oil and other contaminants from entering intakes?
- What cleaning alternatives are possible if contamination occurs?
- How do protocols/technologies for cooling water intakes differ from those of drinking water?