

# Improving Preparedness for Marine Mammal Oil Spill Response and Assessment in the United States

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## 228 - Abstract

Several recent oil spills in the United States have had the potential to impact large numbers and multiple populations of cetaceans (whales and dolphins) and pinnipeds (seals and sea lions), namely the Macondo 252/Deepwater Horizon oil spill from April 2010, the Texas City Y event in March 2014, and the Refugio Beach oil spill in May 2015. In each of these spills, the National Oceanic and Atmospheric Administration (NOAA) and partners have engaged in significant activities to both minimize and understand the impact of spills on marine mammals for the spill response and assessment periods, during and following the spills. Experience gained during these spills has led to improved preparedness for future events with potential involvement of marine mammals. NOAA's National Marine Fisheries Service (NMFS) has developed the "National Pinniped and Cetacean Oil Spill Response Guidelines," which are available online. These guidelines provide a broad national overview of response activities, a proposed organizational structure, and considerations to identify, recover, treat, and sample oiled and potentially oiled marine mammals. Further development of a response framework includes regional preparedness plans for marine mammals, based on the national guidelines but with regionally appropriate modifications to reflect local considerations, including species likely to be impacted, geographic concerns, and understanding of local cultural practices. Efforts are underway to improve training opportunities through a national exercise plan and to track trained and qualified individuals for potential deployment. For assessment, NMFS and NOAA's National Ocean Service (NOS) have partnered to develop the "National Marine Mammal Oil Spill Assessment Guidelines" to facilitate early, efficient, and effective assessment of impacts from oil spills on marine mammals as part of the Natural Resource Damage Assessment process. This paper will outline the current status of these products, which are being developed to raise awareness of marine mammals within oil spills, their role in marine mammal assessment and response, and as potential templates for marine mammal response and assessment in other countries.

## Recent U.S. Oil Spills Impacting Marine Mammals

### Deepwater Horizon (MC-252)

#### RESPONSE PHASE (2010-2011):

- Stranded cetaceans: 13 visibly externally oiled/178 not visibly externally oiled; 7 species of cetacean
- Nearly 1400 marine mammals swimming in DWH surface oil or with oil on their bodies; 12 species of cetacean

#### DAMAGE ASSESSMENT PHASE (2011-2016):

- Documented elevated mortality, reproductive failure, adverse health effects
- Recovery estimated at 40-50 years without restoration
- Injury quantified for: Bottlenose dolphin, Atlantic spotted dolphin, Blainville's beaked whale, Bryde's whale, Clymene dolphin, Cuvier's beaked whale, Dwarf sperm whale, false killer whale, Gervais' beaked whale, melon-headed whale, pantropical spotted dolphin, pygmy killer whale, Risso's dolphin, rough-toothed dolphin, short-finned pilot whale, sperm whale, spinner dolphin, striped dolphin



### Texas City Y; coastal Texas, USA

#### RESPONSE PHASE (March 25 - April 5, 2014):

- Stranded cetaceans: 5 visibly externally oiled/43 not visibly externally oiled; all bottlenose dolphins
- Damage Assessment ongoing

### Refugio Beach; Santa Barbara, CA, USA

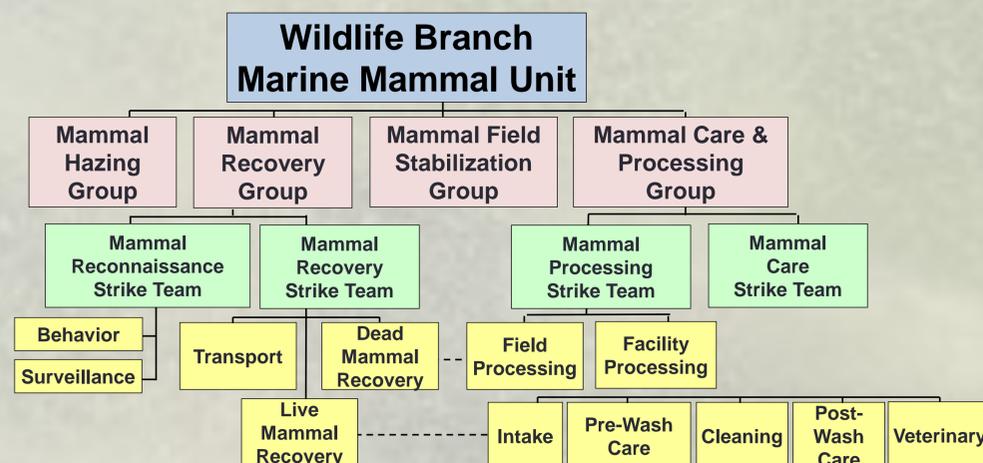
#### RESPONSE PHASE (May 20-June 24, 2015):

- Stranded pinnipeds: 62 live, 53 visibly externally oiled; 89 dead, 32 visibly externally oiled; CA sea lions, northern elephant seal, harbor seal
- Stranded cetaceans: 0 live; 16 dead, 3 visibly externally oiled; common dolphin, unidentified cetacean

Response and Damage Assessment are complementary processes

## Pinniped and Cetacean Oil Spill Response Guidelines

- Published Dec 2015; Available at: <http://www.nmfs.noaa.gov/pr/publications/techmemo/opr52.pdf>
- Sections on Hazing, Reconnaissance, Recovery and Transport, Field Stabilization, Care and Processing
- Introduction and Goals, Personnel, Safety, Documentation, Procedures



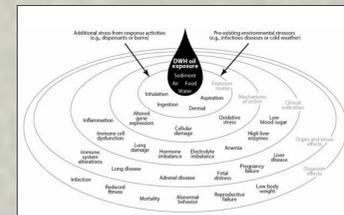
- Regional preparedness plans
  - Arctic (draft done), Gulf of Mexico, Cook Inlet/Southeast Alaska
- Regional asset management
  - California (draft done), Pacific Northwest, Gulf of Mexico, Northeast U.S. (in progress)
  - Personnel tracking: training, skills, expertise
- Training opportunities
  - Full deployment drill September 2016
  - National Exercise plan
  - Online training



Full deployment drill, September 2016, testing oil spill guidelines with inflatable dolphins. Photo by Forrest Gomez, NMMF

## NOAA Guidelines for Assessing Exposure and Impacts of Oil Spills on Marine Mammals

- In Development; Anticipated later 2017
- Reviews available methodologies for assessing exposure and adverse effects on marine mammals
- Conceptual models with examples
- Methods and available tools, including:
  - photo identification,
  - visual health assessments,
  - remote biopsy,
  - capture-release health assessment,
  - telemetry,
  - acoustic monitoring,
  - stranding response
- For each method:
  - discussion of context,
  - utility to NRDA,
  - ephemeral data collection,
  - baseline considerations,
  - other considerations (skills, permits, equipment),
  - references and example applications
- Review of other environmental samples useful for marine mammal assessment, including oil and prey
- Proposed "first days of a spill" playbook (subject to customization) and workplan template examples
- Overview of funding and data management



Example conceptual model (DWH PDARP 2016)



Bottlenose dolphin health assessment captures



Recovery of a stranded oiled pinniped during the Refugio Beach oil spill. Photo by Michelle Berman, CICRU

## Acknowledgements

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