

OIL SPILL PREPAREDNESS FOR POLAR BEARS IN ALASKA

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Oil spill response in the Alaska Arctic can be difficult because of its remote and harsh environment. Protecting marine mammals which inhabit the area during an oil spill is even more challenging. One of these marine mammals is the polar bear which was listed as a threatened species in 2008. The U.S. Fish and Wildlife Service, Alaska Zoo, Pet Stop, and Alaska Clean Seas have been working together to improve the oil spill response capabilities for polar bears on the North Slope of Alaska. This poster outlines some of the activities to improve the capabilities.



PLANNING

Alaska Clean Seas provides oil spill response for oil companies on the North Slope of Alaska, including wildlife response. Alaska Clean Seas has initiated contracts with the Alaska Zoo, Pet Stop, Alaska Sealife Center, and International Bird Rescue to provide expertise and support during a spill event. Pet Stop provides the veterinary services for the Alaska Zoo. All of these organizations have hands on experience with wildlife in Alaska. In 2010 Alaska Clean Seas began meeting with resource agencies to improve marine mammal response. Subsequently, the Alaska Clean Seas Marine Mammal Response Working Group was formed. This informal working group meets biannually. The mission of this group is to develop and test procedures and best practices to effectively respond to threatened and impacted marine mammals during a spill event in the northern portion of Alaska and in the Chukchi and Beaufort Sea regions. Participants include:

- NOAA National Marine Fisheries Service
- U.S. Fish and Wildlife Service
- Alaska Department of Fish and Game
- North Slope Borough
- Northwest Arctic Borough
- Alaska Clean Seas
- Alaska Clean Seas Member Companies
- Alaska Chadux
- Alaska Sealife Center
- Alaska Zoo
- Pet Stop
- International Bird Rescue



The primary guidance for response in Alaska is the Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges/Releases (Unified Plan). Annex G to this plan contains the Wildlife Protection Guidelines for Alaska, which includes guidelines for marine mammal response. The primary response strategy for protecting wildlife is controlling the release and spread of spilled oil at the source to prevent or reduce contamination of potentially-affected species and/or their habitat. The secondary response strategy emphasizes keeping potentially affected wildlife away from oiled areas through the use of deterrent techniques. This could also include the pre-emptive capture and subsequent handling, transportation, short-term holding, and release of uncaptured wildlife. The tertiary response strategy includes capturing, handling, transporting, rehabilitating, holding, and releasing oiled wildlife. Annex G is located at <http://www.akrrt.org/unifiedplan/G-Annex.pdf>

The U.S. Fish and Wildlife Service has oversight responsibility for polar bears in event of a spill. An Oil Spill Response Plan for Polar Bears in Alaska guides response efforts and is currently being updated. The plan provides the following information:

- Population, distribution, and life history information
- Response plan training needs
- Strategies
- Available equipment
- Possible locations for temporary treatment facilities
- Contacts
- Forms



PREPAREDNESS

Alaska Clean Seas maintains a Bear Capture and Stabilization kit, which is annually inventoried. It includes medical stabilization materials, a bear holding cage, transport cages, tranquilizing equipment, and bear backboards. Additional response equipment is housed at the Alaska Zoo and Pet Stop in Anchorage in order to maintain both personnel and equipment readiness.

The U.S. Fish and Wildlife Service obtained funding in 2013 to obtain additional equipment including two bear cleaning tables and an additional bear holding cage system. The equipment is stored with Alaska Clean Seas in Deadhorse, Alaska.



Bear Holding Cage



Bear Backboard



Equipment Tables



Bear Anesthesia Machine

Little is known about removing oil from polar bear fur. In 2012 the Alaska Zoo led an experiment to test methods for removing oil from polar bear hide pieces. During this oiled fur experiment the following variables were tested:

- Water type (salt and fresh)
- Water temperature (60-70 F and 85-95 F)
- Oil type (light and heavy crude)
- Oil stage (fresh and weathered)
- Soap concentration (10% and 100%)
- Presence/absence of sawdust as an absorbent

Swatches of polar bear fur were oiled with different types and stages of oil. Swatches were then cleaned manually using a variety of methods and cleaning agents. After cleaning the swatches were visually inspected and tested for oil remains. Preliminary results suggest that oil can readily be removed from polar bear fur. Additionally, a 10% Dawn liquid detergent worked best, use of sawdust reduced the effectiveness of washing, both salt and fresh water worked, and using warmer water increased effectiveness.

Additionally a washing test was conducted using vegetable oil on a live polar bear at the Alaska Zoo during a routine medical exam. The vegetable oil was easily removed with a 10% soap and luke-warm water combination.



TESTING & EXERCISES

Alaska Clean Seas member companies sponsor a mutual aid drill annually. In 2013 Eni Petroleum sponsored the drill. The scenario involved a pipeline incident near their offshore Spy Island facility on the North Slope. In addition to the typical on-water response with containment, recovery, sensitive area protection, incident management, etc, the drill involved a mock scenario where a polar bear seal and cub were oiled and immobilized. Response activities included:

- Permits obtained
- Personnel mobilized
- Holding/ Cleaning locations identified
- Bear cage, cleaning table, and medical equipment set up
- Personnel deployed by boat to spill site to immobilize, stabilize and transport the bear family group.
- Bear family group was washed and treated and placed in holding cage.

This drill provided an excellent opportunity to learn more about polar bear response capabilities and limitations.

- Live animal response equipment need to be separated from necropsy equipment
- Vessels assigned to marine mammal response should be dedicated to that purpose only
- Separate intake areas are necessary for live and dead animals
- Corridors for transporting oiled marine mammals and personnel through hot/warm zones must be established.
- More drills and exercises should include a marine mammal response portion.



Bear Fur Samples



Testing Cleaning Techniques



Working with live polar bear at Alaska Zoo



Mutual Aid Drill 2013



Mock Oiled Bear Family Group



Mock Oiled Bear Family Group

Alaska Clean Seas Marine Mammal Response Working Group continues to meet annually and identify areas for improvement including polar bear response in Alaska.

Transporting Mock Bear Family to Cleaning Facility