
Antillean Manatee Response Plan

Current Population, Distribution and Life History

The Antillean manatee, *Trichechus manatus manatus*, is a large aquatic mammal with flat short forelimbs, no visible hind limbs, and a flat rounded tail. Adults range in color from gray to brown, can reach a length of 13 feet, and can weigh up to 3,500 pounds. The average manatee is about 10 feet long and weighs some 700-1000 pounds. Manatees are long lived but the existing method of determining age is time consuming. There are, however, records of one captive manatee living for almost 50 years (Marmontel, 1992).

The skin of manatees is finely wrinkled and the surface layer is continually sloughing off. A layer of blubber occurs under the skin. Hair is distributed sparsely over the body with stiff whiskers around the face. The wide set eyes have inner membranes that can be drawn across the eyeball for protection. Nostrils are located at the upper end of the snout, while the ear openings are located just behind the eyes.

Manatees are tropical animals highly susceptible to cold. Their low metabolic rate and poor insulation limit the manatee's ability to tolerate cool water temperatures. Field and laboratory observations indicate that they are not energetically well adapted to water temperatures less than 70°F (20°C) (Irving 1983, Shane 1983). Their slow healing rate also appears to be due to their low metabolic rate.

Manatees spend approximately 5-8 hours a day feeding and in that time consume 4-11% of their body weight in seagrass (Van Meter, 1989). They are known to be opportunistic feeders, eating many different kinds of aquatic plants by grazing or digging into the sediment with their fore flippers to eat seagrass roots and rhizomes. Submerged, emergent, and floating vegetation appear to be their preferred foods. Manatees often choose protection from wind and currents in their feeding grounds. Manatees also incidentally eat invertebrates and in captivity will accept fish. Manatees rest from 2-12 hours a day either suspended near the surface or lying at the bottom.

Manatees are not territorial or aggressive nor does one individual dominate a group. Groups seem to form casually without regard to age or sex, except for the bond of mother and calf (Hartman, 1979, 1979) and some bachelor groups during breeding. Social interaction includes nuzzling, bumping, chasing, and frequent vocalizations (Bengtson, 1985).

Female manatees usually reproduce successfully by 7-9 years of age, producing a single calf per pregnancy. Most calves are born after a gestation of about 13 months. The interval between births is about 3-5 years. Newborn calves range in length from 4-4.5 feet and weigh about 65 pounds. Calves remain dependent on their mothers for up to two years, usually nursing for 1-1.5 years. Calves are born with premolars and molars and begin nibbling on plants within a few weeks of births.

Manatees are protected in US waters by the Marine Mammal Protection Act (1972) and the Endangered Species Act (1973). Under Section 6 of the Endangered Species Act, the PR Department of Natural and Environmental Resources (DNER) and the US Virgin Islands Department of Planning and Natural Resources (DPNR) have jurisdiction as well.

Manatees in the Caribbean are mostly oceanic in nature due to the lack of large deep rivers in Puerto Rico or the Virgin Islands. Manatees usually stay near the shore to feed and have been known to travel extensively around the island of Puerto Rico and to the coasts of Vieques. Rarely are manatees seen in the area of Culebra, or the Virgin Islands. This is probably due to the lack of adequate freshwater sources in these islands.

The impacts of discharged oil on adult manatees' thermoregulatory abilities are probably not affected by direct contact because of the blubber insulation. Also, they exhibit no grooming behavior that would contribute to ingestion. However, ingestion could occur from tar balls or pellets contaminating seagrass feeding areas. This is especially true for Type V and LAPIO oils that tend to settle to the bottom. Concern has been expressed with regard to manatees inhaling volatile vapors from a spill (Hansen, 1992) when surfacing and becoming intoxicated. At least one instance of this type of impact has been reported in Puerto Rico (Mignucci personal communication). It is very likely that when surfacing, exposure to petroleum hydrocarbons would irritate eyes and sensitive mucous membranes around the nose and mouth (St. Aubin and Lounsbury, 1990). Nursing calves may be at risk due to ingestion of oil around contaminated teats. There may be long term chronic effects as a result of swimming through oil contaminated waters and there is a substantial possibility of consuming contaminated plant material and other organisms. Manatees may not be severely affected by an oil spill through direct contact but they are sensitive to habitat disturbance and injury from boats as well as the presence of response materials such as booms, etc. (Beck and Barros, 1991).

Distribution

Although manatees are found along the entire coast of Puerto Rico, the largest concentrations are found in Mayaguez Bay, Guayanilla, Jobos Bay, in Ceiba/Roosevelt Roads Naval Station in Ensenada Honda Bay and Algodones Bay, and Fajardo Bay. There seems to be a transient population along the north coast of Puerto Rico from Mayaguez to Aguadilla to Fajardo. There is an exchange of manatees between southeastern Puerto Rico and neighboring Vieques Island. Manatee sightings are rarely reported for the island of Culebra and the US Virgin Islands.

The Antillean manatee is largely oceanic, usually following the coast from bay to bay in search of seagrass, which is their main food item, and freshwater.

Primary Response

Primary response strategies that should be emphasized for the Antillean Manatee are:

Mechanical Cleanup

Oil should be prevented from entering areas where manatees are known to inhabit.

Protective Booming

If mechanical cleanup is not feasible, boom may be placed. Protective and sorbent boom may be effective in controlling or reducing contamination along the coast and bays. However, manatees can become entangled in boom and frequent monitoring of boom is required.

In-Situ Burning (ISB)

Depending on the type of oil discharged into the tropical environment, weathering may occur rapidly. Provided that the current ISB Policy is followed, there should not be any adverse effects on manatees in the area. Depending on the location, aerial surveys for manatees should be carried out by a qualified observer prior to and during a burn.

Dispersants

There is no data available for the impacts of dispersant or dispersed oil on manatees. Provided that the current Dispersant Policy is followed there should not be any adverse effects on manatees by the use of dispersants. Depending on the location, aerial surveys for manatees should be carried out by a qualified observer prior to and during a dispersant application.

Secondary Response

It is important when employing a deterrent designed to move an animal away from or towards a specific site that the personnel are properly trained and do not place the animal in any additional jeopardy. All secondary response activities must have the approval of the Fish and Wildlife Service (FWS) and local trustees prior to use.

Currently there is no data available indicating that either visual or auditory methods are successful in keeping manatees away from an area.

Herding

Herding manatees away from a spill site may be feasible but only in extreme cases. This method requires prior approval from FWS and local trustees and should be carried out by qualified personnel.

Tertiary Response

The FWS will direct the capture, treatment and/or relocation of all distressed manatees in its jurisdiction. These activities are conducted by FWS or other federal, Commonwealth, Territorial personnel acting on behalf of FWS. There are two authorized contractors, judged by the FWS to be sufficiently qualified to carry out these operations: the Caribbean Stranding Network and the Puerto Rico Zoo. Any tertiary response activity must have the approval of FWS Endangered Species Biologists and the local trustees.

Annex**AREA CONTINGENCY PLAN**

Capture

The Service does not encourage the removal of any manatee from the wild unless absolutely necessary. Guidance and protocols for capturing and handling manatees is available through the FWS Field Office in Boqueron or Puerto Rico Department Natural and Environmental Resources. Manatees can be captured and restrained with nets provided that care is taken to avoid entanglement and drowning. Boats, enclosures, slings and ropes will also be needed. One method of capture is to surround the manatee in a large gill net and gradually draw it to shore until it is shallow enough for handlers to physically restrain the animal.

Handling

No information is currently available on the cleaning of oiled manatees. Any handling should be accomplished by trained wildlife response personnel and a qualified veterinarian.

Transportation

Because of their weight, transportation of manatees is not easy. Once the animal is in shallow water it must be maneuvered into a sling or stretcher. Once out of the water manatees generally become calm; however, they should always be restrained. Covering the eyes and wrapping the snout with netting tend to calm the animal. During transportation, the manatee's skin should be kept wet and initial removal of oil should begin.

Care

There are two facilities equipped to handle manatees, the Puerto Rico Manatee Conservation Center, located in Interamerican University in Bayamon and the Puerto Rico Zoo Marine Mammal Rehabilitation Center in Mayaguez. These facilities must be contacted prior to any attempted capture. Proper diet, supplements and medication should be monitored by a qualified veterinarian.

Release

Manatees are released only if they are cleared for return to the wild through standard health screening by a qualified veterinarian. If possible, the animals should be returned to, or close to, the area of capture.

Diseases

Manatees are known to be particularly susceptible to secondary fungal infections and bacterial infections following injury during capture and transportation. Cases of general respiratory infection such as bronchitis, pleurisy, and pneumonia have been reported in captive manatees. All captured animals should undergo a thorough physical examination including blood workup and samples upon capture and before release.

Note, most of the above criteria and recommendations can also be used for other marine mammals such as dolphin or porpoise which can also be impacted by oil spills. For all other marine mammals other than manatees, NOAA is the primary trustee.

Annex

AREA CONTINGENCY PLAN

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