MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814

27 June 2005

Ms. Dawn Jennings
U.S. Fish and Wildlife Service
Jacksonville Ecological Services Office
6620 Southpoint Dr., South, Suite 310
Jacksonville, FL 32216

Dear Ms. Jennings:

The following responds the U.S. Fish and Wildlife Service's 14 April 2005 *Federal Register* notice requesting information for a 5-year status review of the Florida manatee pursuant to the Endangered Species Act. The notice requests any information on the status of Florida manatees that has become available since the species was listed as endangered under the Endangered Species Preservation Act of 1967.

Since it was established in 1973, the Marine Mammal Commission has supported or carried out numerous studies on Florida manatees. These have resulted in approximately 100 reports and publications that are available through the National Technical Information Service or in various peer-reviewed journals. The Commission-sponsored reports published through 2002 are identified on the enclosed publication lists. Most of the manatee-related reports on Commission-sponsored studies have been provided to the Service as they were completed, and we assume that you already have them. However, if you need additional copies, they are available through the National Technical Information Service. A list of manatee-related reports prepared since 2002 is also enclosed. The most recent report, entitled "Assessment of Thermal Heating Requirements for Non-Industry Dependent Warm-Water Refuges for Florida Manatees" by Lixing Gu of the Florida Solar Energy Center, was completed earlier this year and was provided to the Service with our 11 May 2005 letter recommending follow-up work to develop construction plans for such a facility. This report also is available on the Marine Mammal Commission's web site (www.mmc.gov).

In addition to these publications, the Commission has prepared or taken the lead in developing three papers for journal publication that include new information and analyses on the status of Florida manatees and related management needs. Two of those papers were prepared in anticipation of the 5-year review to help assess potentially significant impacts on Florida manatees due to the likely retirement of several existing power plants in the foreseeable future. Both are now in press (see enclosed copies of the galleys). One of these papers ("The influence of power plants and other warm water refuges on Florida manatees, by David Laist and John Reynolds) will appear in the October 2005 issue of *Marine Mammal Science.* Among other things, it concludes that:

- virtually all Florida manatees rely on two functional types of warm-water refuges to survive winter cold periods: (1) warm-water discharges from industrial outfalls and natural springs,

and (2) passive thermal basins that retain heat from solar radiation or biogenic sources and that lack sources of warm-water input;

- more than 75 percent of all Florida manatees rely on warm-water discharges to survive winter, approximately 60percent use 10 major power plants outfalls and nearly 15percent use 4 natural springs; fewer than a quarter appear to rely on passive thermal basins;
- manatee use of natural springs may have been restricted historically by human hunting. Thus the restriction of manatees to southernmost Florida in the early 1900s may have reflected human hunting pressure, rather than optimal winter habitat;
- winter temperatures even in southernmost Florida drop to potentially lethal levels for manatees;
- the lowest levels of cold stress-related deaths appear to be near natural warm-water springs in central and northern Florida;
- the best natural habitat for supporting large numbers of manatees in winter, therefore, appears to be warm-water springs in central and northern Florida; and
- passive thermal basins in southern Florida may not be able to support a large influx of displaced manatees now using power plants.

The second paper, also by Laist and Reynolds, builds on findings of the above paper. It assesses potential effects of power plant closures on Florida manatee subpopulations and identifies possible research and management actions. This paper, entitled "Florida Manatees, Warm-Water Refuges, and an Uncertain Future," will appear in the next issue of Coastal Management Journal. Based on available evidence of manatee fidelity to industrial outfalls during past discharge interruptions and shutdowns, the authors conclude that it is questionable, if not doubtful, that all or even most manatees accustomed to major facility outfalls would successfully find alternative warm-water sites after a plant's closure. Given the likelihood of power plant closures in the foreseeable future, the paper recommends urgent action to identify and test management actions to avoid potential mortalities associated with such closures. A number of recommendations are made in this regard, including steps to enhance opportunities for manatee use of natural springs, exploring the development of new thermal basins in southernmost Florida, and testing the potential for creating non-industry-dependent warm-water sources that could temporarily replace plant outfalls so as to allow for a more controlled elimination of manatee dependence on outfall sites.

The Marine Mammal Commission shares the concerns raised in the above papers and believes that any decision to alter the level of protection now afforded manatees by virtue of their inclusion on the list of endangered and threatened species must account for threats and uncertainties associated with the continued existence of major warm-water refuges now used by manatees. In this regard, the two papers will provide a helpful basis for assessing those threats and the adequacy of management and regulatory programs to address them.

The third paper, entitled "Preliminary Evidence that Boat Speed Restrictions Reduce Deaths of Florida Manatees," examines the effectiveness of Fish and Wildlife Service boat speed rules established in 2002 to protect manatees in Sykes Creek and the Barge Canal. This paper, involving a collaborative effort by David Laist of the Commission, Cameron Shaw of the Fish and Wildlife

Service, and Thomas Pitchford and Kenneth Arrison of the Florida Fish and Wildlife Research Institute, reviews mortality trends before and after those rules went into effect. It notes that mortality rates appear to have been have been significantly reduced in this area and that, with additional time and study to more fully evaluate the effectiveness of the new rules, the area may provide the first strong evidence of the effectiveness of boat speed rules for reducing water-craft-related manatee mortality. This paper has been accepted for publication as a note in *Marine Mammal Science* subject to incorporation of changes to address reviewer comments. As soon as galleys for the paper are available, we will forward a copy.

I hope this information is helpful. If you or your staff have questions, please call.

Sincerely,

David Cottingham
Executive Director

Enclosures