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

11 May 2005

Matthew J. Hogan, Acting Director
U.S. Fish and Wildlife Service
1849 C Street, NW, Room 3259
Washington, DC 20240

Dear Mr. Hogan:

One of the greatest threats facing the recovery and long-term survival of the Florida manatee is the potential impact of pending retirement of several power plants. Approximately two-thirds of all Florida manatees now rely on thermal discharges from power plants to survive cold winter periods. The plants now used by manatees are all more than 30 years old. Many plants are likely to be decommissioned within 3 to 5 years. Experience with the closing of small industrial outfalls used by manatees and the temporary shutdown of power plants during winter suggests that many manatees are now conditioned to use plant outfalls. Animals will stay near the discharge areas even after the discharges cease, thereby becoming exposed to cold water and leading to stress-related deaths. With so many manatees now dependent on power plant outfalls, we need to take steps to avoid such deaths.

The Fish and Wildlife Service, in cooperation with the Florida Fish and Wildlife Conservation Commission, created a Warm Water Task Force within the Manatee Recovery Team. The task force includes representatives of the power companies, state and federal agencies (including the Marine Mammal Commission), and environmental groups, and manatee scientists. The task force has produced a draft plan that recommends developing temporary, non-industry-dependent warm-water refuges heated by means of solar panels. This approach was initially identified and examined by Florida Power & Light Company. Such refuges could replace outfalls from retired power plants on a temporary basis (e.g., for a decade or two) pending (1) increases in the size of Florida manatee subpopulations dependent on natural warm-water springs, and (2) the development of a strategy to minimize long-term manatee dependence on artificial warm-water sources without risking a catastrophic decline in manatee abundance as a result of power plant closures.

The Marine Mammal Commission, with the concurrence of Service and state manatee program managers, recently funded a study by the Florida Solar Energy Center to assess the technological feasibility of solar-heated manatee refuges along the east coast of Florida. The study used a heat flux model to predict heating requirements and solar panel costs based on winter water and air temperatures in the northern, central, and southern parts of the subpopulation's current winter range. The report (copy enclosed) concludes that available solar water-heating technology is adequate to heat a small (250 sf) and a large (1,500 sf) enclosure to temperatures that would support 50 and 200 manatees, respectively, throughout the winter. At more northern sites, a small gas-fired

water heater is recommended to supplement the solar heating system on exceptionally cold days. The approach envisions a closed heat circulation system with no direct warm-water discharges. Openings in the enclosure walls would allow manatee access. Depending on the size of the enclosure and its location, the costs for the solar panels, water pumps, and piping are estimated to range from a few thousand dollars to about $700,000. The highest costs are for a large refuge at the northern end of the subpopulation's range near Cape Canaveral.

The next step in determining the viability of this approach is to build and test such a facility to see if the necessary temperatures can be maintained and whether manatees will use the structures. Here, the immediate needs are to select a test site and develop detailed construction plans for the solar heating system and enclosed refuge. The Commission believes that it would be best to test a facility at the northern end of the species' winter range along the Atlantic coast. This seems likely to be the area where the first major power plant will be decommissioned, where the risks of impacts from plant closures would be greatest, and where test results are most likely to evaluate the effectiveness throughout the winter manatee range. Although the Commission is unsure of the cost for preparing construction plans for a northern site, we estimate that $50,000 or less would be adequate. The Commission would be willing to contribute funds toward that cost, and others, including perhaps the State of Florida and a power company, also may be willing to contribute.

The Warm Water Task Force is also taking preliminary steps to identify possible testing sites. The Marine Mammal Commission recommends that the Fish and Wildlife Service (1) include funds for developing construction plans for a solar-powered refuge in its upcoming budget projections, and (2) consult with the Florida Fish and Wildlife Conservation Commission to arrange a cooperative project for developing and testing such a facility. The Commission would be pleased to participate in any way it can to help organize and plan such a project.

To date, most management efforts related to manatees have focused on the high number of watercraft-related deaths that occur annually. However, unless action is taken in advance of the anticipated power plant closures, the loss of warm-water discharges could lead to more manatee deaths in a single very cold winter than occur over several years from collisions with watercraft. There is an urgent need to address this issue. We believe efforts to test the solar-heated refuge approach is a useful and constructive step in this direction and one that has industry and agency support.

I hope that these comments and recommendations are helpful. If you or your staff has any questions, please call.

Sincerely,

David Cottingham
Executive Director

Enclosure

cc. with enclosure: Mr. William Baker
Mr. Kipp Frohlich
Mr. Kenneth Haddad
Mr. David Hankla
Mr. Sam D. Hamilton
Mr. Ronald Mezich
Ms. Winifred Perkins