MARINE MAMMAL COMMISSION

29 October 2009

Mr. David L. Hankla
Field Supervisor
Jacksonville Florida Ecological Services Office
U. S. Fish and Wildlife Service
7915 Baymeadows Way, Suite 200
Jacksonville, Florida 32256

Dear Mr. Hankla:

On 29 September 2009 the Fish and Wildlife Service published a *Federal Register* notice (74 Fed. Reg. 49842) seeking information regarding a petition to revise designated critical habitat for Florida manatees under the Endangered Species Act. The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the request and the petition and offers the following recommendations and comments.

RECOMMENDATIONS

The Marine Mammal Commission recommends that, in its review of this matter, the Fish and Wildlife Service—

- ensure that designated areas incorporate both winter and summer habitats (i.e., warm-water refuges, key foraging areas, and associated travel corridors) necessary for the conservation and recovery of each of the four regional manatee sub-populations[1] identified in the current Florida manatee recovery plan;
- include as critical habitat all warm-water refuges used by at least a few manatees in each of the four regions;
- include as critical habitat major natural warm-water springs, such as Silver Spring on the Oklawaha River, that are not used currently or are used infrequently but that could become important for recovery and conservation in the foreseeable future;
- identify as essential features of warm-water refuges the characteristics necessary to generate or maintain water temperatures sufficient to support manatees during periods of cold weather (e.g., discharge rates, water flow, and basin dimensions) and their shelter or seclusion from sources of disturbance (i.e., human activities) that could disrupt or interfere with thermoregulation;
- review available information on the location and geographic extent of winter foraging areas used by manatees near all major warm-water refuges and ensure that all such areas are included within designated critical habitat;

[1] The Fish and Wildlife Service uses the term "management unit," whereas the Commission believes "sub-population" is more appropriate in this case. These terms have different biological meanings and management implications, and the Commission will address this topic in a separate letter.

- include as critical habitat summer foraging areas used regularly by a significant percentage of each Florida manatee subpopulation and identify as essential physical and biological features the conditions necessary to maintain their forage base and seclusion from sources of disturbance (i.e., human activities) that could disrupt or interfere with feeding; and
- include as critical habitat all travel corridors used by manatees between major warm-water refuges and principal winter feeding areas and other frequently used travel corridors between major summer feeding areas.

RATIONALE

In its *Federal Register* notice, the Service requests information on the historical and current status of the Florida manatee, physical and biological features essential to its conservation, threats to the species and its habitat, and data on Florida's human population growth since critical habitat was designated in 1976. Endangered Species Act regulations stipulate that critical habitat designations be based on physical or biological features essential to conserve a species, including but not necessarily limited to (1) space for individual and population growth and normal behavior; (2) food, water, air, light, minerals and other nutritional or physiological requirements; (3) cover or shelter; (4) sites for breeding, reproduction, or rearing of offspring; and (5) habitats that are protected from disturbance or are representative of the historic geographical and ecological distribution of the species. Critical habitat need not include all habitat being used but should include all habitat that is essential for recovery, whether or not that habitat is currently being used. Since critical habitat was first designated in 1976, the Marine Mammal Commission has supported numerous projects relevant to this request (see enclosed list of related reports and published papers).

With regard to critical habitat, the Commission wishes to emphasize that any given sub-population or individual manatee must have access to a network of habitat resources. That is, it will not be sufficient for the Service to identify lists of critical areas without also considering whether those areas create integrated habitat networks that, when considered together, are sufficient to support individual manatees and their sub-populations.

<u>Regional and Seasonal Components of the Critical Habitat Review</u>

As noted in the *Federal Register* notice and petition, considerable information has been developed on manatee habitat needs since critical habitat boundaries for manatees were first designated. The information provides a strong basis for better identifying critical habitat and for characterizing the constituent elements and special management needs of those areas. The petition identifies additional habitats and their essential constituent elements in all four regions (i.e., for all four sub-populations) identified in the current manatee recovery plan.

Available information indicates that these four sub-populations are relatively discrete and are based, in large part, on their reliance on networks of warm-water refuges within each region. Although summer ranges of adjacent sub-populations overlap to varying degrees, critical habitat should be identified and designated based on consideration of the needs in each of the four regions.

In addition, critical habitat should be identified and designated based on seasonal considerations because seasonal movements, habitat-use patterns, and densities of manatees within particular geographic areas vary between winter and summer months. For example, areas that are critically important in summer may not be used in winter, while critical winter habitats may be little used in summer. For manatees, the functional habitat elements critical to each regional sub-population should include warm-water refuges essential for winter survival, winter feeding grounds within a convenient distance of those refuges, primary travel corridors between the winter refuges and foraging grounds, summer feeding areas used by significant numbers of manatees, and travel corridors between key summer feeding areas. Therefore, the Marine Mammal Commission recommends that the Fish and Wildlife Service ensure that designated areas incorporate both winter and summer habitats (i.e., warm-water refuges, key foraging areas, and associated travel corridors) necessary for the conservation and recovery of each of the four regional manatee sub-populations.

Warm-water Refuges and their Essential Features

All Florida manatees require warm water to survive during winter. Most, if not all, rely on small, geographically isolated warm-water refuges formed by warm-water springs, passive thermal basins, or power plant outfalls. The Habitat Working Group of the previous Florida manatee recovery team prepared a list of such sites, and we therefore assume the Service is aware of them. Such sites are probably the most limiting type of essential manatee habitat. Accordingly, the Marine Mammal Commission recommends that the Fish and Wildlife Service include as critical habitat all warm-water refuges used regularly by at least a few manatees in each of the four regions.

Most Florida manatees now rely on warm-water refuges formed by power plant outfalls. Those outfalls, however, will not provide warm-water habitat for manatees indefinitely. Each power plant of them will be decommissioned eventually, resulting in the loss of those winter refuges. The Service should be planning for such events by working to ensure that sufficient natural warm-water habitats, principally natural warm-water springs, will be available to sustain Florida manatees at population levels sufficiently robust to avoid the need for listing the population under the Endangered Species Act. In such circumstances, natural warm-water refuges will become even more important than they are now for sustaining Florida manatees. Some natural springs that likely were used by manatees in the past are not used now or are used infrequently because dams or other obstructions block manatee access. For example, a review by Laist and Reynolds (2005) reported fossil evidence indicating that at one time manatees used certain sites, such as Silver Spring on the Oklawaha River, that are now unavailable because access is blocked by dams. The Service should be working to restore manatee access to those springs to ensure an adequate supply of natural warm-water habitat when power plant outfalls no longer are available. With that in mind, the Marine Mammal Commission recommends that the Fish and Wildlife Service include as critical habitat major natural warm-water springs, such as Silver Spring on the Oklawaha River, that currently are not used or are used infrequently but that likely were used by manatees historically and that could become important for recovery and conservation in the foreseeable future.

Biologists have identified two types of warm-water refuges: warm-water discharges and passive thermal basins. Those refuges require discharge rates or retention of sufficient heat energy to maintain water temperatures high enough to sustain manatees. Thus, such discharge rates and heat retention characteristics are clearly essential physical features of refuges. For both types of refuges, manatees also must have access to an undisturbed environment—one that provides shelter from human disturbance that might interfere with normal use of the environment or even preclude its use entirely. Therefore, the Marine Mammal Commission recommends that the Fish and Wildlife Service identify as essential features of warm-water refuges the characteristics necessary to provide heat energy sufficient to support manatees during periods of cold weather (e.g., discharge rates, water flow, and basin dimensions), and their shelter or seclusion from sources of disturbance (i.e., human activities) that could disrupt or interfere with thermoregulation.

Feeding Areas

During the coldest winter periods, perhaps two-thirds of all Florida manatees now use just 12 to14 major warm-water refuges. At least five of those sites have supported more than 300 individuals on the coldest days. Manatees must travel regularly to and from warm-water refuges and foraging areas to meet their energetic and nutritional requirements, which likely are greater in cold winter months. The food supply within swimming distance from those refuges—generally 20 to 30 kilometers or less—must be adequate to meet their needs. Clearly, such foraging areas are essential for the recovery and conservation of the Florida manatee. For that reason, all major feeding areas regularly used by animals at major warm-water refuges should be included within critical habitat boundaries. Satellite-tracking studies by the U.S. Geological Survey and Florida Fish and Wildlife Research Institute provide a good basis for identifying those feeding areas. The Marine Mammal Commission recommends that the Fish and Wildlife Service review available information on the location and geographic extent of winter foraging areas used by manatees near all major warm-water refuges and ensure that all such areas are included within designated critical habitat.

In summer manatees are widely distributed and food availability does not appear to be limiting. Therefore, not all areas where manatees feed are necessarily critical. Nevertheless, some summer feeding areas are used more frequently or by larger numbers of animals than are other areas, and those warrant protection as critical habitat. Again, information from telemetry studies, as well as aerial surveys, should be useful in identifying such areas. The Marine Mammal Commission recommends that the Fish and Wildlife Service include as critical habitat the summer foraging areas used regularly by a significant percentage of each Florida manatee subpopulation and identify as essential physical and biological features of those areas the conditions necessary to maintain their forage and seclusion from sources of disturbance (i.e., human activities) that could disrupt or interfere with feeding.

Travel Corridors

Manatees move through almost all Florida waterways that are at least 1 meter deep and are not blocked by dams or other obstructions. Manatees also travel though the coastal waters of

southern coastal states other than Florida. Although all such waterways could be considered travel corridors, all waters through which manatees move are not critical to their recovery and conservation. In the Commission's view, critical travel corridors include waterways used by manatees traveling to and from major warm-water refuges and winter foraging grounds and perhaps some waterways connecting major summer feeding areas. For that reason, the Marine Mammal Commission recommends that the Fish and Wildlife Service include as critical habitat all travel corridors used by manatees between major warm-water refuges and principal winter feeding areas and other frequently used travel corridors between major summer feeding areas.

I hope these recommendations and comments are helpful. Please let me know if you need copies of any of the publications cited on the enclosed list.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director

Enclosure

SELECTED LITERATURE ON FLORIDA MANATEES
RESULTING FROM
MARINE MAMMAL COMMISSION-SPONSORED ACTIVITIES

Deutsch, C. J., R. K. Bonde, and J. P. Reid. 1998. Radio-tracking manatees from land and space: Tag design, implementation, and lessons learned from long-term study. Marine Technology Society Journal 32(1):18–29. (MMC contract T6810889-2)

Domning, D. P. 1996. Bibliography and index of the Sirenia and Desmostylia. Smithsonian Contributions to Paleobiology, Number 80. Smithsonian Institution Press, Washington, D.C. 611 pp. (MMC Contract T10155631)

Domning, D. P. 1999. Endangered species: the common denominator. Pages 332–341 *In* J. R. Twiss, Jr., and R. R. Reeves (eds), Conservation and Management of Marine Mammals. Smithsonian Institution Press, Washington, DC.

Laist, D. W., and J. E. Reynolds, III. 2005. Florida manatees, warm-water refuges, and an uncertain future. Coastal Management 33:279–295.

Laist, D. W., and J. E. Reynolds, III. 2005. Influence of power plants and other warm-water refuges on Florida manatees. Marine Mammal Science 21(4):739–764.

Laist, D. W., and C. Shaw. 2006. Preliminary evidence that boat speed restrictions reduce deaths of Florida manatees. Marine Mammal Science 22(2):472–479.

Lefebre, L. W., and J. A. Powell. 1990. Manatee grazing impacts on seagrasses in Hobe Sound and Jupiter Sound in southeast Florida during the winter of 1988–89. Final report for MMC contracts T62239152, T68108782. 36 pp.

Marine Mammal Commission. 1989. Preliminary assessment of habitat protection needs for West Indian manatees on the east coast of Florida and Georgia. Final report for MMC contracts T6223950-5, T6223954-7, T6223970-9, and T6224008-6. 120 pp.

Marine Mammal Commission. 1999. Marine Mammals and Persistent Ocean Contaminants: Proceedings of the Marine Mammal Commission Workshop, Keystone, Colorado, 12–15 October 1998. 150 pp + vii. Available from Marine Mammal Commission, Bethesda, MD.

Marmontel, M. 1993. Age determination and population biology of the Florida manatee, *Trichechus manatus latirostris*. Ph.D. dissertation. University of Florida. 408 pp. (MMC contract T6223918-1)

Marmontel, M., T. J. O'Shea, and S. R. Humphrey. 1990. An evaluation of bone growth-layer counts as an age-determination technique in Florida manatees. Final report for MMC contract T6223918-1. 94 pp.

Marmontel, M., T. J. O'Shea, H. I. Kochman, and S. R. Humphrey. 1996. Age determination in manatees using growth-layer-group counts in bone. Marine Mammal Science 12(1):54–88. (MMC contract T6223918-1)

O'Shea, T. J. 1999. Environmental contaminants and marine mammals. Pages 485–563 *In* J. E. Reynolds III and S. A Rommel (eds), Biology of Marine Mammals. Smithsonian Institution Press, Washington, DC.

Packard, J. M. 1981. Abundance, distribution, and feeding habits of manatees (*Trichechus manatus*) wintering between St. Lucie and Palm Beach Inlets, Florida. U.S. Fish and Wildlife Contract Report No. 14-16-004-80-105. 139 pp. (MMC contract MM1801025-7)

Packard, J. M. 1984. Impact of manatees, *Trichechus manatus*, on seagrass communities in eastern Florida. Acta Zoological Fennica 172:21–22. (MMC contract MM1801025-7)

Packard, J. M. 1984. Proposed research/management plan for Crystal River manatees. Vols. 1–3. Technical Report No. 7. Florida Cooperative Fish and Wildlife Research Unit, University of Florida, Gainesville, FL. Prepared for Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C. 31 pp., 235 pp., 346 pp. (MMC contract MM1801024-4)

Packard, J. M., R. K. Frohlich, J. E. Reynolds, III, and J. R. Wilcox. 1985. Manatee response to interrupted operation of the Fort Myers power plant, winter 1984/85. Manatee population research report No. 8. Technical Report No. 8-8. Florida Cooperative Fish and Wildlife Research Unit. University of Florida, Gainesville, FL. 20 pp. (MMC contract MM33095222-8)

Packard, J. M., R. K. Frolich, J. E. Reynolds, III, and J. R. Wilcox. 1989. Manatee response to interruption of a thermal effluent. Journal of Wildlife Management 53(3):692–700. (MMC contract MM2324650-8)

Packard, J. M., D. B. Siniff, and J. A. Cornell. 1986. Use of replicate counts to improve indices of trends in manatee abundance. Wildlife Society Bulletin 14:265–275. (MMC contract MM2324650-8)

Packard, J. M., and O. F. Wetterquist. 1986. Evaluation of manatee habitat on the northwestern Florida coast. Coastal Management Journal 14(4):279–310. (MMC contract MM1801025-7)

Perrin, W. F., and A. C. Myrick, Jr. (eds). 1980. Age determination of toothed whales and sirenians. Report of the International Whaling Commission (Special Issue 3). 229 pp. (MMC contract MM8AC004)

Reynolds, J. E., III. 1999. Efforts to conserve the manatees. Pages 267–295 *In* J. R. Twiss, Jr., and R. R. Reeves (eds). Conservation and Management of Marine Mammals. Smithsonian Institution Press, Washington, D.C.

Reynolds, J. E., III. 1986. Evaluation of the nature and magnitude of interactions between bottlenose dolphins, *Tursiops truncatus*, and fisheries and other human activities in coastal areas of the southeastern United States. Final report for MMC contract MM2910892-5. 38 pp.

Reynolds, J. E., III, and C. J. Gluckman. 1988. Protection of West Indian manatees (*Trichechus manatus*) in Florida. Final report for MMC contracts MM4465868-3 and MM3309741-7. 85 pp.

Reynolds, J. E., III, and K. D. Haddad (eds). 1990. Report of the workshop on geographic information system as an aid to managing habitat for West Indian manatees in Florida and Georgia. Rep. No. 49. Florida Marine Research, Florida Department of Natural Resources, St. Petersburg, FL. 57 pp. (MMC contract T6223916-5)

Sirenia Project. 1993. Atlantic coast manatee telemetry 1986–1993 progress report. Volumes I and II. National Biological Survey, Gainesville, FL. (MMC contract T6810889-2)

Wray, P. 1978. The West Indian manatee (*Trichechus manatus*) in Florida: a summary and analysis of biological, ecological, and administrative problems affecting preservation and restoration of the population. Final report for MMC contract MM8AD054. 89 pp.