Florida Manatee Recovery Plan
(Trichechus manatus latirostris)
Third Revision

U.S. Fish and Wildlife Service
Southeast Region
FLORIDA MANATEE RECOVERY PLAN

(Trichechus manatus latirostris)

THIRD REVISION

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Southeast Region
U.S. Fish and Wildlife Service
Atlanta, Georgia

Approved: [Signature]
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Florida Power and Light Company

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**Barb Zoodsma***
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U.S. Army Corps of Engineers

**Pat Riley***
Southwest Florida Marine Industry Association & Centennial Harbor Marina

**Pat Rose***
Save the Manatee Club

**Patti Thompson***
Save the Manatee Club

**Liz Manners***
U.S. Army Corps of Engineers

**Andy VanOs***
Florida Citizen

***Appointed Recovery Team members have an asterisk by their name.**

**David Laist***
Marine Mammal Commission

**Pat Riley***
Southwest Florida Marine Industry Association & Centennial Harbor Marina

**Leslie Ward**
Florida Fish and Wildlife Conservation Commission

**Tom Linley***
Florida Department of Environmental Protection

**Patti Thompson***
Save the Manatee Club

**Liz Manners***
U.S. Army Corps of Engineers

**Dave Murphy***
Lowry Park Zoological Park and Gardens

**Andy VanOs***
Florida Citizen

**Leslie Ward**
Florida Fish and Wildlife Conservation Commission

*i*Appointed Recovery Team members have an asterisk by their name.
EXECUTIVE SUMMARY

CURRENT SPECIES STATUS
Endangered. The near and long term threats from human-related activities are the reasons for which the Florida manatee currently necessitates protection under the Endangered Species Act. The focus of recovery is not on how many manatees exist, but instead the focus is on implementing, monitoring and addressing the effectiveness of conservation measures to reduce or remove threats which will lead to a healthy and self-sustaining population. The Florida manatee could be considered for reclassification from endangered to threatened provided that threats can be reduced or removed, and that the population trend is stable or increasing for a sufficient time period.

HABITAT REQUIREMENTS AND LIMITING FACTORS
The Florida manatee lives in freshwater, brackish and marine habitats. Submerged, emergent, and floating vegetation are their preferred food. During the winter, cold temperatures keep the population concentrated in peninsular Florida and many manatees rely on the warm water from natural springs and power plant outfalls. During the summer they expand their range and on rare occasions are seen as far north as Rhode Island on the Atlantic coast and as far west as Texas on the Gulf coast.

The most significant problem presently faced by manatees in Florida is death or injury from boat strikes. The long-term availability of warm-water refuges for manatees is uncertain if minimum flows and levels are not established for the natural springs on which many manatees depend, and as deregulation of the power industry in Florida occurs. Their survival will depend on maintaining the integrity of ecosystems and habitat sufficient to support a viable manatee population.

RECOVERY GOAL
The goal of this revised recovery plan is to assure the long-term viability of the Florida manatee in the wild, allowing initially for reclassification to threatened status and, ultimately, removal from the List of Endangered and Threatened Wildlife.

RECOVERY CRITERIA
This plan sets forth criteria, which when met, will ensure a healthy, self-sustaining population of manatees in Florida by reducing or removing threats to the species’ existence.
The following criteria must be met prior to **reclassification of the Florida manatee from endangered to threatened (downlisting):**

1. Reduce threats to manatee habitat or range, as well as threats from natural and manmade factors by:
   - identifying minimum spring flows;
   - protecting selected warm-water refuge sites;
   - identifying for protection foraging habitat associated with the warm-water refuge sites;
   - identifying for protection other important manatee areas; and
   - reducing unauthorized human caused “take.”

2. Achieve the following population benchmarks in each of the four regions over the most recent 10 year period of time:
   - statistical confidence that the average annual rate of adult survival is 90% or greater;
   - statistical confidence that the average annual percentage of adult female manatees accompanied by first or second year calves in winter is at least 40%; and
   - statistical confidence that the average annual rate of population growth is equal to or greater than zero.

The following criteria must be met prior to **removal of the Florida manatee from the List of Endangered and Threatened Wildlife (delisting):**

1. Reduce or remove threats to manatee habitat or range, as well as threats from natural and manmade factors by enacting and implementing federal, state or local regulations that:
   - adopt and maintain minimum spring flows;
   - protect warm-water refuge sites;
   - protect foraging habitat associated with select warm-water refuge sites;
   - protect other important manatee areas; and
   - reduce or remove unauthorized human caused “take.”

2. Achieve the following population benchmarks in each of the four regions for an additional 10 years after reclassification:
   - statistical confidence that the average annual rate of adult survival is 90% or greater;
   - statistical confidence that average annual percentage of adult female manatees accompanied by first or second year calves in winter is at least 40%; and
   - statistical confidence that average annual rate of population growth is equal to or greater than zero.
EXECUTIVE SUMMARY

**ACTIONS NEEDED**
1. Minimize causes of manatee disturbance, harassment, injury and mortality.
2. Determine and monitor the status of the manatee population.
3. Protect, identify, evaluate, and monitor manatee habitats.
4. Facilitate manatee recovery through public awareness and education.

**DATE OF RECOVERY**
Currently, in some regions of the state, there are only reliable population data for the past 6 years. Therefore, full recovery may not be possible for at least another 14 years in order to meet the standard of assessing the population over the most recent 10 years of data for reclassification from endangered to threatened status and for an additional 10 years after reclassification for removal from the List of Endangered and Threatened Wildlife. Time is also needed to establish and implement management initiatives to reduce or remove the threats.

**TOTAL ESTIMATED COST OF RECOVERY**
Based on information provided by our recovery partners, current annual estimated budget expenditures for recovery approach $10,000,000.
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LIST OF ACRONYMS AND ABBREVIATIONS

The following standard abbreviations for units of measurements and other scientific/technical acronyms and terms are found throughout this document:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>BPSM</td>
<td>Florida Fish and Wildlife Conservation Commission, Bureau of Protected Species Management</td>
</tr>
<tr>
<td>CERP</td>
<td>Comprehensive Everglades Restoration Plan</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>COE</td>
<td>U.S. Army Corps of Engineers</td>
</tr>
<tr>
<td>CZS</td>
<td>Chicago Zoological Society</td>
</tr>
<tr>
<td>DERM</td>
<td>Miami-Dade Department of Environmental Resources Management</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>ESA</td>
<td>Endangered Species Act of 1973, as amended</td>
</tr>
<tr>
<td>FDEP</td>
<td>Florida Department of Environmental Protection</td>
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<tr>
<td>FDNR</td>
<td>Florida Department of Natural Resources</td>
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<tr>
<td>FIND</td>
<td>Florida Inland Navigation District</td>
</tr>
<tr>
<td>FMRI</td>
<td>Florida Fish and Wildlife Conservation Commission, Florida Marine Research Institute</td>
</tr>
<tr>
<td>FPL</td>
<td>Florida Power and Light Company</td>
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<tr>
<td>FR</td>
<td>Federal Register</td>
</tr>
<tr>
<td>FWC</td>
<td>Florida Fish and Wildlife Conservation Commission</td>
</tr>
<tr>
<td>FWC-DLE</td>
<td>Florida Fish and Wildlife Conservation Commission, Division of Law Enforcement</td>
</tr>
<tr>
<td>FWS</td>
<td>U.S. Fish and Wildlife Service</td>
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<tr>
<td>GDNR</td>
<td>Georgia Department of Natural Resources</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
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<tr>
<td>HBOI</td>
<td>Harbor Branch Oceanographic Institute</td>
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<tr>
<td>HWG</td>
<td>Habitat Working Group</td>
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<tr>
<td>IOWG</td>
<td>Interagency Oceanaria Working Group</td>
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<tr>
<td>Acronym</td>
<td>Definition</td>
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<tr>
<td>LOA</td>
<td>Letter of Authorization</td>
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<td>LE</td>
<td>Law Enforcement</td>
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<tr>
<td>MIPS</td>
<td>Manatee Individual Photo-Identification System</td>
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<tr>
<td>MML</td>
<td>Mote Marine Laboratory</td>
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<tr>
<td>MMPA</td>
<td>Marine Mammal Protection Act of 1972, as amended</td>
</tr>
<tr>
<td>MMPL</td>
<td>Marine Mammal Pathology Lab</td>
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<tr>
<td>MNPL</td>
<td>Maximum net productivity level</td>
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<td>MPP</td>
<td>Manatee Protection Plan</td>
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<tr>
<td>MPS</td>
<td>Manatee protection system</td>
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<tr>
<td>MPSWG</td>
<td>Manatee Population Status Working Group</td>
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<tr>
<td>NMFS</td>
<td>National Marine Fisheries Service</td>
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<tr>
<td>NOAA</td>
<td>National Oceanic and Atmospheric Administration</td>
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<tr>
<td>NPDES</td>
<td>National Pollution Discharge Elimination System</td>
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<td>NPS</td>
<td>National Park Service</td>
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<tr>
<td>NSAV</td>
<td>Native submerged aquatic vegetation</td>
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<td>NWR</td>
<td>National Wildlife Refuge</td>
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<tr>
<td>OC</td>
<td>The Ocean Conservancy (formerly the Center for Marine Conservation)</td>
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<td>OSP</td>
<td>Optimum Sustainable Population</td>
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<tr>
<td>PIT</td>
<td>Passive Integrated Transponder</td>
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<td>SAV</td>
<td>Submerged aquatic vegetation</td>
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<td>SMC</td>
<td>Save the Manatee Club</td>
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<tr>
<td>USCG</td>
<td>U.S. Coast Guard</td>
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<tr>
<td>USGS-Sirenia</td>
<td>U.S. Geological Survey, Sirenia Project</td>
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<tr>
<td>USN</td>
<td>U.S. Navy</td>
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<tr>
<td>VHF</td>
<td>Very high frequency</td>
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<tr>
<td>WMD’s</td>
<td>Water Management Districts</td>
</tr>
</tbody>
</table>

C Fish Industry  Commercial Fishing Industry
Local Gov’ts   Local Governments
M Industry    Marine Industries
Oceanaria     Cincinnati Zoo, Columbus Zoo, Homosassa Springs State Wildlife Park, Living Seas, Lowry Park Zoo, Miami Seaquarium, Mote Marine Laboratory, Sea World Florida and California, South Florida Museum
Photo-ID      Photo-identification
P Industry    Power Industries
R Fish Industry Recreational Fishing Industry
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tr>
<td>C</td>
<td>Centigrade</td>
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<tr>
<td>cm</td>
<td>centimeters</td>
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<td>ft</td>
<td>feet</td>
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<tr>
<td>hrs</td>
<td>hours</td>
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<td>K</td>
<td>carrying capacity</td>
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<td>kg</td>
<td>kilograms</td>
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<td>km</td>
<td>kilometers</td>
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<td>miles</td>
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<td>min</td>
<td>minutes</td>
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<td>ppm</td>
<td>parts per million</td>
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<td>%</td>
<td>percent</td>
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<td>≤</td>
<td>less than or equal to</td>
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<td>degrees</td>
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Florida Coastal Counties and Other Sites Referenced in the Florida Manatee Recovery Plan
This Florida Manatee Recovery Plan revision adds new and refines existing recovery program activities for the next five years. The Recovery Plan is composed of four major sections:

1. Introduction: This section acquaints the reader with the Florida manatee, its status, the threats it faces, and past and ongoing conservation efforts. It also serves as a review of the biological literature for this subspecies.

2. Recovery: This section describes the goal of the plan; outlines an upcoming status review; presents reclassification and delisting criteria based upon the five listing/recovery factors and population benchmarks to assist in evaluating the status; objectives, strategy and actions or tasks needed to achieve recovery. These recovery tasks are presented in step-down outline format for quick reference and in a narrative outline, organized by four major objectives: (1) minimize causes of manatee disturbance, harassment, injury and mortality; (2) determine and monitor the status of the manatee population; (3) protect, identify, evaluate, and monitor manatee habitats; and (4) facilitate manatee recovery through public awareness and education.

3. Implementation Schedule: This section presents the recovery tasks from the step down outline in table format; assigns priorities to the tasks; estimates the time necessary to complete the tasks; identifies parties with authority, responsibility, or expressed interest in implementation of the tasks; and estimates the cost of the tasks and recovery program.

4. Appendices: This section presents additional information utilized by the FWS and Recovery Team to draft this revision.