

## **CERP INTERAGENCY MANATEE TASK FORCE**

Under the auspices of the Florida Manatee Recovery Team, the Comprehensive Everglades Restoration Plan (CERP) Interagency Manatee Task Force (Task Force) is preparing a CERP Manatee Conservation Plan (Manatee Plan). This Task Force includes members from U.S. Fish and Wildlife Service (Service), Florida Fish and Wildlife Conservation Commission (FWC), U.S. Army Corps of Engineers (Corps), South Florida Water Management District (District), Miami-Dade Department of Environmental Resource Management (DERM), U.S. Geological Survey (USGS), and private researchers. The recommendations contained in this Manatee Plan are intended to be integrated into future CERP planning and decision-making with the goal of avoiding or minimizing manatee conflicts during the CERP construction and operation and maintenance phases. The Manatee Plan is designed to change over time as a result of the uncertainties of CERP implementation and the addition of new scientific information. The Task Force has agreed to maintain a standing team during and after CERP implementation in order to manage manatee issues in a cooperative interagency manner.

This interagency Task Force will address all aspects of the CERP as they relate to the conservation and recovery of the Florida manatee. Specifically, the Task Force will: (1) identify and recommend protocols to avoid and minimize adverse effects to manatees during CERP construction activities; (2) manage manatee and human access to CERP projects in a manner which avoids or minimizes CERP and manatee conflicts; (3) establish protocols to monitor and manage the effects of freshwater flow redistribution on manatee distribution and behavior, and on changes in the location, quantity and species of seagrass resources. The Task Force will also identify and promote funding for future manatee research needs associated with the CERP.

**DRAFT MANATEE PROTOCOLS TO MINIMIZE/AVOID ENTRAPMENT****ADVANCED NOTIFICATION**

Water Control Structures, trash rakes, manatee barriers and other structures that may entrap manatees (even temporarily) within a closed waterway could result in harm or death to the entrapped manatee. At least 90 days prior to installing a structure considered to be a barrier or impediment to manatee movement, advanced consultation with the Service and the FWC should occur. The contact for this notification is: Service, 772-562-3909 and FWC, 850-922-4330.

**ENTRAPMENT PROTOCOLS**

Pre-Construction: When a manatee-accessible waterway is proposed to be closed to manatees, aerial and ground surveys are required to insure that manatees are not entrapped in a closed system. The standard protocols are provided below.

1. Aerial Survey: Prior to installing the last section of any barriers (temporary or permanent) to manatee movement in manatee-accessible waterways, the Corps or District shall conduct an aerial survey of the waterway upstream of the barrier for a distance identified by the Service and FWC to determine the presence or absence of manatees. Staff of the Service and FWC should be contacted to participate in the aerial survey at the contact numbers listed above. The Corps or District shall provide a helicopter for the aerial survey.
2. Waterway Closure Protocol: If no manatees are observed upstream of the barrier, the waterway will be closed off immediately following the survey. If manatees are sighted upstream they should be observed to see if they move downstream beyond the proposed barrier. If they do not move out of the waterway within 10 days, the Corps or District shall consult with the Service and FWC to determine if the barrier should be put in place. Manatees shall not be herded, poked, prodded or harassed in any way to move them along the waterway.

Post-Construction Survey: Once the barrier has been installed, the barrier and waterway should be monitored once daily, for a period of one week to check for the presence of manatees. If live manatees are sighted upstream of the barrier, the FWC should be contacted at 850-922-4330. Any injured or dead manatees are to be reported to the FWC at 888-404-3922.

**DRAFT MANATEE PROTOCOLS FOR EXISTING AND NEW CULVERTS  
LOCATED IN MANATEE-ACCESSIBLE CERP PROJECTS****EXISTING CULVERTS**

1. Minimum Size: All existing culverts located within CERP project boundaries that are less than 36 inches in diameter should be grated to prevent manatee entrapment. To effectively prevent manatee access, grating with bars spaced eight inches apart is required.
2. Case-by-Case Review: All existing culverts located in CERP project boundaries which are greater than 36 inches and less than 6 feet in diameter need to be reviewed on a case-by-case basis, in consultation with the Service and FWC, to determine whether or not to exclude manatees. A decision to exclude manatees should be based on the length of culvert, water levels, available habitat and risks to manatees. The benefit of access to important habitat (forage resources, calving sites, freshwater, migratory corridors, warm-water refugia, refugia from watercraft or other forms of harassment) should be weighed against the potential risk of injury or death to manatees if the culvert were to remain accessible. If a decision is made to exclude manatees from access to culverts in this size range, the culvert should be grated, as described above.
3. Culverts six feet or Greater: Existing culverts which are greater than six feet can safely pass manatees. Unless there are other reasons/risks (CERP construction activities, long underwater passage or outlet to high risk areas), culverts of this size do not need to be grated to exclude manatees.

**NEW CULVERTS**

1. Recommended Minimum Size: New culverts associated with CERP projects in manatee-accessible waters should be a minimum of six feet in diameter if manatee access is deemed desirable, in consultation with the Service and FWC. Culverts of this size can safely pass manatees and do not need to be grated. Box culverts are preferred by the Service and FWC over round culverts. Bridges are the most preferred by the Service and FWC.
2. Culverts in Tidal Waters: Manatees can become stranded in culverts during periods of low tide. Therefore, when siting new culverts in tidal waters, a minimum of 36 inch water depth clearance at MLLW is required.
3. Case-by-Case Review: All new culverts proposed to be less than six feet in diameter, but greater than 36 inches in diameter, need to be reviewed on a case-by-case basis, as described above. Consultation with the Service and FWC is necessary.
4. Culverts Less than 36 inches: All new culverts proposed to be less than 36 inches in diameter should exclude manatee access through the use of grating, as described above.

**CULVERT LENGTH**

Maximum Length: Based on documented manatee movement by FWC, the maximum recommended culvert length is 200 feet. Proposed culverts greater than 200 feet in length require consultation with the Service and the FWC.

**DRAFT MANATEE THERMAL PROTOCOLS****AQUIFER STORAGE AND RECOVERY (ASR)**Year Round

1. ASR discharge water temperatures shall be monitored at both the discharge point and at selected sites in the receiving waters on a daily basis;

Between November 14 and March 31 of each year in manatee-accessible waters:

2. ASR wells discharging water colder than 20°C (68°F) into manatee-accessible waters, need to either:
  - a. stabilize (impound and store) water temperatures at a temperature equal to or below ambient water prior to release, (or is diffused and mixed in the ambient waterbody so no temperature increase occurs), or
  - b. otherwise insure that ASR water released into ambient waters is a minimum of 20°C (68°F) prior to discharge, and that the volume of flow is continuous and sufficient to provide a warm-water refugia that will be biologically meaningful to manatees.

**REDISTRIBUTION OF FRESHWATER FLOWS (WARM-WATER REFUGIA)**

1. Documented manatee warm-water refugia affected by the redistribution of freshwater flows shall be monitored for fluctuations in water temperature. If water temperatures in documented refugia is lowered below 20°C (68°F) due to the introduction of CERP redistributed flows, alternative technologies (e.g., solar arrays) shall be employed to sufficiently warm the water above 20°C (68°F) in order to protect any affected refugia.

## **DRAFT MANATEE BLASTING PROTOCOL**

### SCOPE OF ACTIVITIES

This document provides the protocol intended to avoid or minimize the potentially harmful effects to manatees from the use of explosives. This protocol is intended for the following types of blasting projects within or in proximity to manatee-accessible waters: (a) dredging in submerged lands and rock, (b) demolition of bridge pilings and other structures, (c) line blasting to pre-fracture rock for structure placement, and (d) other use of explosives which is expected to affect manatee-accessible waters.

### MANATEE WATCH

An effective watch program is a key element in protecting manatees from blasting activities. In general, the watch program is designed to delay detonation until the designated impact area is clear of all manatees. The designated minimum impact area is determined by calculating a safety radius based on the size of the explosive charge. Detonations shall not occur if manatees are present in, or adjacent to, this safety zone.

Previous experience of the Service and FWC indicates that an aircraft is often the most effective platform for viewing the safety zone. An aircraft-based watch shall consist of an aerial observer acting as the primary observer and a sufficient number of observers on boats, bridges, or land to survey the entire safety zone, as determined by the primary observer. If circumstances cannot allow for the use of aircraft, efforts will be made to strategically position land-based observers to ensure the entire safety zone is adequately observed.

All observers must have experience and training in observing manatees or other marine mammals, and the aerial observer must have significant previous aerial survey experience observing manatees. The aircraft pilot shall also be experienced in low-level, slow speed flying, including frequent banking.

The following measures represent typical conditions that shall be incorporated into CERP project plans and specifications, and construction contracts for blasting activities:

### SUBMISSION OF BLASTING PROPOSAL

1. The FWC and the Service must review and comment on Blasting Proposals prior to any blasting activities. The blasting proposal must include detailed information concerning the watch program described above, and details of the blasting events. The proposal shall include, but not be limited to the following information:
  - a. A list of the observers and pilot, their qualifications, equipment, and observer positions for the watch, including a map depicting the proposed locations for boat or land-based observers.
  - b. The amount of explosive charge proposed, the explosive charge's equivalency in dynamite, how it will be executed (depth of drilling, in-water, confined, not confined)

### DRAFT MANATEE BLASTING PROTOCOL (cont.)

etc.), a drawing depicting the placement of the charges, size of the manatee safety zone and how it will be marked (also depicted on a map), tide tables for the blasting event(s), and time tables (days and times) for blasting event(s).

The manatee safety zone shall be calculated using the following formula:  $r = \sqrt[3]{w}$  (cube root of  $w$ ), where  $r$  = radius,  $w$  = weight of the explosives (dynamite equivalent in pounds). This zone shall be marked in a highly visible manner, preferably with colored buoys

This information must be submitted at least 90 days prior to the proposed date of the blast(s) to:

Florida Fish and Wildlife Conservation Commission  
Office of Endangered Species  
– Bureau of Protected Species  
620 South Meridian Street  
Tallahassee, Florida 32399-1600

U.S. Fish and Wildlife Service  
1339 20<sup>th</sup> Street  
Vero Beach, Florida 32960-3559

#### BLASTING PROTOCOL

1. Activities involving blasting is subject to the Service consultation in accordance with section 7(a)(1) of the Endangered Species Act.
2. A formal watch coordination meeting shall be held at least two days prior to the first blast event. Attendants shall include the observers, construction contractors, demolition contractors, and other interested parties. All attendees shall be informed about the possible presence of manatees, and that civil or criminal penalties can result from harassment, injury, and/or death of an endangered species.
3. The manatee watch program shall begin at least one hour prior to the scheduled start of blasting to identify the possible presence of manatees. The watch program shall continue until at least one-half hour after detonations are complete.
4. The manatee watch program shall consist of a minimum of four observers. Each observer shall be equipped with a two-way radio that shall be dedicated exclusively to the watch. Extra radios should be available in case of failures. All of the observers shall be in close communication with the blasting contractor in order to halt the blast event if the need arises. If all observers do not have working radios and cannot contact the primary observer and the blasting contractor during the pre-blast watch, the blast shall be postponed until all observers are in radio contact. Observers will also be equipped with polarized sunglasses, binoculars, a red flag for backup visual communication, and a sighting log with a map to record sightings. All blasting events will be weather dependent. Each observer shall wear identifying dress, such as red vests. The aerial observer shall be the final authority in determining if prevailing weather conditions are acceptable for conducting the watch. Optimal weather conditions include little or no wind, sun glare, or rain.

**DRAFT MANATEE BLASTING PROTOCOL (cont.)**

5. The manatee watch program shall include a continuous aerial survey to be conducted by aircraft, beginning one hour prior to one-half hour after the blasting event. The blasting event shall be halted if manatees are spotted within 300 feet of the perimeter of the safety zone. An “all-clear” signal must be obtained from the aerial observer before detonation can occur. The blasting event shall be halted immediately upon request of any of the observers. If manatees are sighted, the blast event shall not take place until the animal(s) move 300 feet outside of the safety zone on their own. Manatees shall not be herded away or harassed into leaving. Specifically, manatees must not be intentionally approached by project watercraft. If the animal(s) is not sighted a second time, the event may resume 30 minutes after the last sighting.
6. The manatee observers and blasting contractors shall evaluate any problems encountered during blasting events, and logistical solutions shall be presented to the Service and FWC. Corrections to the watch shall be made prior to the next blasting event. If any one of the aforementioned conditions is not met prior to the next blasting event, the blasting event shall not resume until resolution can be reached with FWC and the Service.
7. If an injured or dead manatee is sighted after the blast event, the watch observers shall contact FWC through the Manatee Hotline, 1-888-404-FWCC and (850) 922-4330. The observers shall maintain contact with the injured or dead manatee until authorities arrive. Blasting shall be postponed until FWC and the Service can determine the cause of injury or mortality. If blasting injuries are documented, all demolition activities shall cease. A revised plan shall then be submitted to FWC and the Service for approval.
8. Within 30 days after completion of all blasting events, the Manatee Watch Coordinator shall submit a report to the FWC and the Service providing a description of the event, number and location of animals seen and what actions were taken when animals were seen. Any problems associated with the blasting event and suggestions for improvements shall also be documented in the report.

**DRAFT AERIAL OBSERVER PROTOCOLS**

1. The Manatee Watch Coordinator will first coordinate with the Aerial Observer and all Ground Observers to ensure the entire watch team is prepared for the blasting event. The Manatee Watch Coordinator may perform the duties of the Aerial Observer, if a separate qualified aerial observer has not been identified .
2. The Aerial Observer and air crew will begin its watch a minimum of 30 minutes prior to the blasting event.
3. The Aerial Observer will sit in the front of the aircraft (helicopter) with the doors affixed.
4. The Aerial Observer will first visually confirm the locations of all Ground Observers and check to make sure they are all in their designated positions. A radio check to all observers will be made and the time recorded as the official start time of the watch.
5. The aerial survey will be conducted in progressively smaller circles beginning 500 feet outside the edge of the danger zone up to the point of the blast event. All waters will be surveyed to establish the presence/absence of manatees in the area.
6. A radio and visual check will be made to the Ground Observers each 15 minutes.
7. A final radio check will be conducted one minute prior to the blast event and an “all clear” will be given to the Manatee Watch Coordinator. If manatees are discovered in the danger zone, the blast event will be delayed until all manatees have left the area on their own volition.
8. Locations of all manatees will be recorded on maps and on data the Manatee Watch Log.
9. The aerial survey will continue one-half hour after the blast event to ensure that there are no injured or dead manatees in the area.
10. Upon landing, the Aerial Observer will provide all data sheets to the Manatee Watch Coordinator, who will compile and review all observer data and release all observers or make arrangements for the next blast event depending on the circumstances.

**DRAFT GROUND OBSERVER PROTOCOLS**

1. Ground Observers will be at their observation site at least one hour prior to the blast event and be equipped with all materials outlined in item 4 of the Blasting Protocols.
2. Ground Observers will keep continual watch for manatees over their entire safety area using polarized sunglasses and will periodically scan the area with binoculars.
3. Ground Observers will be located in areas that optimize both visual accuracy and coverage of ingress/egress points. A map showing observer locations will be included in the Blasting Proposal.
4. Ground Observer will spot any manatees in the area and alert the Manatee Watch Coordinator. This includes any manatees in their visual range even if they are outside the blast safety zone.
5. Ground Observers will remain on watch at all times, unless there is a long delay in blasting activities. If a long delay occurs, then the manatee watch will be reestablished one hour prior to the next blast event.
6. Ground Observers will conduct 15-minute interval radio checks with the Manatee Watch Coordinator and Aerial Observer. In the case of radio failure, green and yellow signal flags will be used to indicate clear/not clear status of the observer's position.
7. Ground Observers will keep their green flag in a position that can be easily seen by the Aerial Observer, thus establishing a visual reference for the aerial crew during aerial observations.
8. If a manatee is spotted in the area, the Ground Observer will alert the Manatee Watch Coordinator and Aerial Observer via radio and give directions to the air crew until the sighting is confirmed. If the radio is not working, the Ground Observer will have a red signal flag to wave indicating to the Aerial Observer that a manatee is in the area. The Ground Observer will visually direct the aerial crew to the location of the animal, while radio communication is being reestablished.
9. Immediately prior to the blast (one minute), the Manatee Watch Coordinator will conduct a radio check for with all observers to establish an "all clear" status.
10. Ground Observers will remain on watch for one-half hour after the last blast event to make sure there are no manatees in need of help.

**DRAFT GROUND OBSERVER PROTOCOLS (cont.)**

11. At the end of each watch, all maps, aerials, comment forms, etc. will be attached to the data sheet and turned into the Manatee Watch Coordinator. The Manatee Watch Coordinator will review all data packets and clarify any questions before retiring the observers.
12. If a manatee is spotted inside the safety zone after a blast, blasting activities will be halted and a Ground Observer will board a boat and track the manatee with the help of the aerial crew, until it has been determined that the manatee is uninjured, injured and in need of rescue, or dead. The Ground Observer will fill out an incident report for any of these three scenarios.
13. Data Sheets and Maps:
  - a. All Ground Observers will have maps and aerial photos with the danger zone depicted to give a visual reference on where the danger zone is for manatees. Any manatee spotted will be recorded on the map (M = manatee), including the number of animals in the group, the direction of travel, and all subsequent sightings of that group.
  - b. Additionally, written data sheets will be used to record all spotting information and weather and blasting data. One set of data sheets will be used for each blast event. Observations will be recorded every 15 minutes, even if no manatees are seen. Weather conditions at the beginning of the watch and every hour thereafter.

**DRAFT MANATEE OBSERVER QUALIFICATIONS**

1. Ground Observer Trainee: No specific training is required, other than familiarity with the project, reading a manatee brochure, and watching a manatee video. No additional job duties are permitted onsite while performing observations.
2. Qualified Ground Observer: Approximately 40 hours of on-the-job experience with another qualified observer. A Trainee can become a Qualified Ground Observer after 40 hours of experience.
3. Aerial Manatee Observer: Minimum of 60 hours of experience performing aerial marine mammal surveys (preferable manatee surveys). Aerial Manatee Observers must have demonstrated knowledge of manatee behavior. Experience in the application of permit conditions, either through compliance work or job experience as a Qualified Observer.
4. Manatee Watch Coordinator: Minimum of 60 hours of experience performing manatee surveys. A Manatee Watch Coordinator must have demonstrated knowledge of manatee behavior. Experience in the application of permit conditions, either through compliance work or job experience as an Aerial Manatee Observer or Qualified Observer.
5. All Manatee Watch positions are filled with the approval of individuals by either the Service or FWC.