United States Department of the Interior

U. S. FISH AND WILDLIFE SERVICE

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IN REPLY REFER TO:

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March 21, 2011

Colonel Alfred A. Pantano, Jr., District Engineer
Department of the Army
Jacksonville District Corps of Engineers
Jacksonville Regulatory Office
P.O. Box 4970
Jacksonville, FL 32232
(Attn: Stu Santos)

Dear Colonel Pantano:

Reference is made to U.S. Army Corps of Engineers (Corps) permitted actions for watercraft access facilities (e.g., docks, boat ramps, and marinas) in habitat of the Florida manatee (*Trichechus manatus latirostris*) in the State of Florida. The Endangered Species Act of 1973 (ESA) requires Federal agencies to ensure that any action authorized, funded, or carried out is not likely to jeopardize the continued existence of any endangered species or likely to result in the destruction or modification of designated critical habitat. The ESA further requires compliance with the Marine Mammal Protection Act of 1972 (MMPA) when actions involve marine mammals.

In reference to the attached Biological Assessment, which evaluates the potential cumulative effects of such actions on the Florida manatee, we have prepared the following program-level biological opinion (Opinion) This Opinion establishes ESA consultation procedures for numerous such facilities that are determined via the 2011 Manatee Key as likely to adversely affect manatees. The consultation procedures avoid and minimize these adverse effects to ensure compliance with section 7(a)(2) of the ESA. They also constitute appropriate and responsible steps to promote compliance with the more restrictive, conflicting provisions of the MMPA. Finally, the procedures contribute to recovery of the species by addressing key threats identified in the Service's 5-year review of the species in 2007.

We greatly appreciate the cooperation of your staff in the development of this Opinion. Its implementation will create an efficient and predictable regulatory tool for the public as well as provide for conservation and protection of the Florida manatee.

Biological Opinion

Proposed Action/Overview

The purpose of this action is to establish consultation procedures and requirements for new and expanding watercraft access facilities (e.g., docks, boat ramps, and marinas) as well as dredging and other in-water activities that are determined by the 2011 Manatee Key as "likely to adversely affect" the Florida manatee (*Trichechus manatus latirostris*).

This Opinion considers the potential adverse effects of these types of projects. However, no permits likely to result in incidental take of manatees are approved under this Opinion.

Take of manatees, incidental or otherwise, is not presently authorized under the Marine Mammal Protection Act (MMPA). The Service believes the procedures contained herein constitute appropriate and responsible steps to promote compliance with MMPA prohibitions on take by requiring that permitted activities achieve a standard of "not likely to adversely affect" manatees.

Action Area

The action area is the habitat of the Florida manatee within the State of Florida.

Status of the Species/Critical Habitat and Environmental Baseline

Florida manatees are found in freshwater, brackish, and marine environments. Typical coastal and inland habitats include coastal tidal rivers and streams, mangrove swamps, salt marshes, freshwater springs, and vegetated bottoms (Florida Fish and Wildlife Conservation Commission [FWC] 2005, 2007). As herbivores, manatees feed on the wide range of aquatic vegetation that these habitats provide. Shallow seagrass beds, with ready access to deep channels, are generally preferred feeding areas in coastal and riverine habitats (Smith 1993). In coastal northeastern Florida, manatees feed in salt marshes on smooth cordgrass (*Spartina alterniflora*) by timing feeding periods with high tide (Baugh *et al.* 1989, Zoodsma 1991). Manatees use springs and freshwater runoff sites for drinking water; secluded canals, creeks, embayments, and lagoons for resting, cavorting, mating, calving and nurturing their young; and open waterways and channels as travel corridors (Gannon *et al.* 2007; Marine Mammal Commission 1986, 1988). Manatees occupy different habitats during various times of the year, with a focus on warmwater sites during winter.

Manatees have also adapted to changing ecosystems in Florida. Industrial warmwater discharges and deep-dredged areas are used as wintering sites, stormwater/freshwater discharges provide manatees with drinking water, and the imported exotic plant, *Hydrilla* sp. (which has replaced native aquatic species in some areas), has become an important food source at wintering sites (Smith 1993).

The most current published information of Florida manatee population dynamics indicate that, with the exception of southwest Florida, manatee populations are increasing or stable throughout the state (Runge *et al.* (2004, 2007a). However, Langtimm *et al.* (2004) reported that adult

survival rates for Southwest Florida used in those analyses could be biased low due to effects from temporary emigration. More recent analyses indicate that adult manatee survival rates in all four regions of Florida are more consistent, and higher than previously reported (Langtimm, pers. comm.). New analyses of manatee growth rates using updated demographic parameters in the Manatee Core Biological Model will be available later this year. The most recent synoptic survey, conducted in January 2011, recorded approximately 4,800 manatees (FWC FWRI Manatee Synoptic Aerial Surveys 2011). The highest count ever recorded was 5,067 manatees in 2010.

Most of the manatee-accessible waters in peninsular Florida from the St. Marys River on the Atlantic Coast to Crystal River on the Gulf Coast, as well as the St. Johns River watershed, are designated as critical habitat (50 CFR Part 17.95(a)). However, the most important element of that habitat is the availability of warm water during winter months. This warm water habitat influences the geographic extent of the species' range and is necessary for the species' survival during cold periods. Potential loss of this habitat is one of the most significant threats to the species. Other habitat components such as seagrasses and other aquatic food plants are not known to be limiting to manatee populations.

Watercraft Access Facilities and Manatees

A serious threat to this species is the indirect and cumulative injury and mortality caused by watercraft operating from watercraft access facilities. Watercraft collisions with manatees are the leading cause of human-related mortality for this species in Florida, based on analyses of mortality data from the Manatee Carcass Salvage Program (O'Shea *et al.* 1985, Ackerman *et al.* 1995, Wright *et al.* 1995, Deutsch *et al.* 2002, Lightsey *et al.* 2006, Rommel *et al.* 2007; Fonnesbeck and Runge 2007). From 1978 through 2010, a total of 1,820 manatees are known to have been killed in collisions with watercraft (FWC FWRI Manatee Carcass Salvage Program unpublished data).

Watercraft speed is a factor in many of these deaths. Moreover, there are many unknowns as well. For example, we are unable to determine the number of animals killed incidental to otherwise lawful activities, compared to those that are killed in collisions with vessels not in compliance with requirements such as speed zones. At this time, we are also unable to determine what number of deaths and injuries are caused by ships, tugs, deep draft vessels versus shallow draft vessels; large vessels that would typically be moored in one location; and smaller vessels that can be easily moved by trailer and launched at various locations. Finally, we do not know how many manatees are struck in areas where they regularly occur (e.g., seagrass beds, shorelines, etc.), and how many are struck in areas where they are less frequently found (deep channels).

As part of the Service's 5-year review of the status the Florida manatee (Service 2007), Runge *et al.* (2007a, b) developed a customized demographic model to evaluate how key threats to manatees affect their probability of quasi-extinction over time frames of 50, 100, and 150 years into the future. (Quasi-extinction is defined as a particular threshold below which the species is not expected to persist due to genetic, demographic, or behavioral reasons). Adult manatee quasi-extinction targets were represented in terms of 100, 250 and 500 individuals remaining on

either coast of Florida. The results of those analyses confirmed that the threat of watercraft collisions affects the survival of the manatee population more than any other threat; however, the results vary over time and target adult population size. Removal of this one threat alone would reduce the quasi-extinction probability significantly in comparison to the current level and to most other threats. For example, in the absence of the watercraft strikes, the probability is only 0.38 percent that the adult manatee population will fall below 250 animals on either the East or Gulf coasts within a 100-year timeframe, compared to a probability of 8.60 percent with all threats present at their current level. This shows how significantly the threat of watercraft collisions is affecting the ultimate survival of manatees in Florida; the magnitude of this threat on the adult population is affecting the ability of the population to rebound.

Permitted Activities and Marine Mammal Protection Act (MMPA) Compliance

The manatee is a marine mammal listed as an endangered species under the Endangered Species Act (ESA). It is also protected under the MMPA. Both the MMPA and the ESA prohibit the incidental take of Florida manatees in the course of conducting otherwise lawful activities, except as specifically authorized. For most species, as long as specific ESA requirements are met, the Service can authorize their incidental take when take is reasonably certain to occur as a result of Federal actions. However, the MMPA requires that a special rule must be in place to authorize the incidental take of these animals.

On November 14, 2002, the Service published a proposed rule to authorize the incidental, unintentional take of small numbers of Florida manatees resulting from government activities that permit watercraft access facilities in Florida. In the proposed rule, we examined the issue of take of Florida manatees to determine whether the incidental, unintentional take of manatees could be authorized. After carefully considering various analytical methods and relevant information generated during the public comment period, we concluded that questions regarding standards and assumptions, new information, and methods precluded us from a finding that would authorize incidental take. As such, the Service withdrew its proposed rule in May 2003.

Manatee Protection Measures

More than 1,000,000 vessels registered in the State of Florida and an unknown number of out-of-state vessels use Florida's waterways. Cumulatively, the addition of watercraft access facilities results in increased watercraft use and, in some cases, changes in watercraft travel patterns and regional, increased boat traffic congestion that increases the likelihood of a collision with a manatee.

There are 36 Florida coastal and inland counties in which manatees regularly occur: Brevard, Broward, Charlotte, Citrus, Clay, Collier, DeSoto, Dixie, Duval, Flagler, Glades, Hendry, Hernando, Hillsborough, Indian River, Lake, Lee, Levy, Manatee, Marion, Martin, Miami-Dade, Monroe, Nassau, Okeechobee, Palm Beach, Pasco, Pinellas, Putnam, Sarasota, Seminole, St. Johns, St. Lucie, Taylor, Volusia, and Wakulla. Of these, 14 counties have State-approved Manatee Protection Plans (MPPs) that are currently operational (Brevard, Broward, Citrus, Clay, Collier, Duval, Indian River, Lee, Martin, Miami-Dade, Palm Beach, Sarasota, St. Lucie, and Volusia). A county's State-approved MPP is a planning document developed to balance manatee

protection, resource protection, and waterway uses. An effective MPP provides a framework to protect manatees while accommodating measured increases in watercraft access. The plan identifies the specific circumstances and locations where the incidental take of manatees from new and expanding facilities is not likely to occur. In many cases, an MPP provides a comprehensive approach to manatee protection that allows a higher density of slips in some locations than would be acceptable without an MPP.

In addition to county-implemented MPPs, manatee speed zones were established in coastal counties because of the high number of watercraft-related manatee mortalities. The manatee's ability to elude an oncoming boat is largely determined by the speed of the approaching boat. Given ample time, manatees should be able to avoid lethal and injurious encounters with boats; thus, slow-moving boats are less of a threat to manatees.

To control boat speeds and manage boater access to known manatee aggregation areas, the State's *Florida Manatee Sanctuary Act* (Chapter 68C-22 Florida Administrative Code) was enacted in 1978. This act designated the State of Florida as a manatee sanctuary and allowed for the regulation of boating activity within State waters. Of the 36 Florida coastal and inland counties in which watercraft-related manatee mortality has been recorded, 27 have established manatee speed zones. Of these counties, 14 are considered to be comprehensive countywide zones (Brevard, Broward, Citrus, Collier, Duval, Indian River, Lee, Manatee, Martin, Miami-Dade, Palm Beach, Sarasota, St. Lucie, and Volusia). Thirteen counties have specific manatee speed zones focused to address the most important manatee habitat in that county (Charlotte, Clay, DeSoto, Flagler, Hernando, Hillsborough, Lake, Levy, Marion, Pinellas, Putnam, Seminole and St. Johns). The remaining nine counties currently have no State manatee protection measures in place (Dixie, Glades, Hendry, Monroe, Nassau, Okeechobee, Pasco, Taylor, and Wakulla).

In addition to the State's speed zones, the Service established numerous Federal manatee protection areas[1] in peninsular Florida. Since 2002, fourteen manatee refuges have been established in Brevard, Charlotte, Clay, DeSoto, Duval, Hillsborough, Lee, St. Johns, and Volusia counties and five manatee sanctuaries have been established in Citrus, Hillsborough, and Pinellas counties. To prevent the taking of manatees, manatee refuges restrict certain waterborne activities; whereas, manatee sanctuaries prohibit all waterborne activities. The manatee refuges in Florida restrict vessel speeds in important manatee areas, primarily travel corridors, and operate in the same manner as the State's manatee speed zones.

As stated above, watercraft speed is a factor in the deaths of many manatees. The weight of scientific and anecdotal evidence suggests that slowing boat speed reduces the risk boats pose to manatees (Calleson and Frohlich 2007). Although it is difficult to measure the direct "effectiveness" of speed zones in terms of manatee survivorship, the Service believes that a reduction in watercraft speed will result in a reduction of the risk of collision with manatees. The enforcement of manatee speed zones is the primary conservation measure through which proposed projects could reduce the likelihood of take from watercraft collisions to an

[1] In accordance with the January 2001 settlement agreement from the *Save the Manatee Club, et al. v. Ballard, et al.* lawsuit.

unlikely-to-occur level. Laist and Shaw (2006) and Fonnesbeck (2007) provide evidence to suggest that boater compliance with manatee speed zones can result in a reduction of manatee injury and mortality from watercraft strikes. Boater behavior studies have shown that speed zones are effective in reducing high speed boat traffic (Gorzelany 2008).

Those studies have shown better compliance among boaters in the presence of law enforcement (Gorzelany 2003, 2004; Gorzelany and Flamm 2004), and that a "halo effect" (boater compliance following the recent presence of law enforcement) remains in the area for up to four weeks following enforcement activities (Gorzelany 2007). Again, it is not possible to distinguish the number of watercraft-related manatee "takes" as a result of boater non-compliance from the number of watercraft incidental takes associated with otherwise compliant activities.

Process for Evaluating New Watercraft Access

In 2005, the Service and FWC implemented a collaborative process to review permits (known as Interim II) in counties that were not required to implement MPPs. The collaborative permit review process was initially based on the implementation of State-approved MPPs and other manatee protection measures (speed zones, signage, and enforcement) to reduce unnecessary delays and expense in the permitting of new or expanding watercraft access facilities. Implementing a collaborative permit review process would result in shorter time frames for completing the agencies' analyses and overall permit evaluations without any reduction in protection for manatees.

The process for evaluating new watercraft access in peninsular Florida (known as PENWA) was implemented in October 2008. PENWA was developed to provide applicants the initial guidance to design their proposed projects to a level where the take of manatees is not reasonably certain to occur. However, with the implementation of this programmatic consultation, the Service, Corps and FWC concluded PENWA was no longer necessary as a guidance document.

Effects of the Action

The effects of permitted activities depend on the scope of the projects, the baseline environment where permits are issued, and any additional steps that are taken to avoid and minimize these effects.

Effects of Permitted Activities and Jeopardy/Adverse Modification of Critical Habitat:

ESA regulations define "jeopardize the continued existence of" as "an action that would be expected, directly or indirectly, to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing reproduction, numbers, or distribution of that species (CFR 402.02)."

The degree to which the permitted actions may jeopardize the continued existence of the species or adversely modify critical habitat depends on the protection measures in place where permitted activities occur. Projects that are either very limited in scope or occur in areas where manatee protection programs minimize the prospect of incidental take will have indistinguishable adverse

effects. However, additional watercraft access in areas where manatee protection is absent or ineffective, especially at a broad scale, could have considerable impacts on the species.

The cumulative effect of watercraft operating in Florida waters is largely addressed through extensive, on-the-water, regulatory measures (including marked and enforced State and Federal manatee protection areas) and other management tools. The cumulative, synergistic effect of other threats, such as red tides and exposure to cold, also affect manatees and there are few, if any, measures in place to minimize those natural threats.

State and Federal regulations currently prohibit disturbance and boater entry at all important warm water habitats, some of which are designated critical habitat. Permitted actions should not impact manatee use at these sites; therefore, such actions will not adversely modify those sites designated as critical habitat.

Biological Assessment of the Likelihood of Incidental Take

The potential for incidental take is based in large part on the presence or absence of manatee protection measures in places where manatees are likely to occur within a project's action area. Projects in areas with comprehensive manatee protection measures in place are less likely to result in the incidental take of manatees. Conversely, projects in areas with few or no measures in place are more likely to result in the incidental take of manatees.

Therefore, a Biological Assessment (BA) must examine:

- locations where boats using the proposed watercraft access facility are likely to encounter manatees;
- the manatee protection measures in place to reduce the likelihood of incidental take within the action area; and
- any other information that indicates whether incidental take may or may not occur.

To accomplish this, the assessment must include an analysis of the likely travel patterns of watercraft using the access facility. This can be based on such information as the types and sizes of watercraft likely to utilize the facility, local waterway configurations, and logical destinations. In the absence of logical travel patterns, the assessment must consider all accessible waterways within a 5-mile radius of the project site. Areas of likely manatee occurrence must be based on telemetry data, aerial survey data, other observational information, habitat information, and other credible sources of information. FWC data on manatee mortalities must be used to identify where manatee carcasses have been recovered and their determined cause of death, if possible.

Consultation and Permitting Procedures

The 2011 Manatee Key[2] (Corps 2011) provides guidance to the Corps' Regulatory Division regarding the potential effects of proposed projects on the Florida manatee. The Florida Department of Environmental Protection and other authorized designees also use the 2011 Manatee Key to evaluate projects under the State Programmatic General Permit (SPGP) and other programmatic General Permits issued by the Corps for administration by State agencies.

The Manatee Key is a tool that has been used by the Corps' Regulatory Division since 1992 to assist in making its effect determinations on permit applications for numerous in-water activities such as, but not limited to: (1) dredging, placement of fill material for shoreline stabilization, and construction or placement of other in-water structures and (2) the construction of docks, marinas, boat ramps, boat slips, dry storage facilities or any other watercraft access structures or facilities. The 2011 Manatee Key, recently revised cooperatively by the Corps, the Service, and FWC, replaced the 2008 version of the key.

The final effect determination is based on the project location and description; the potential effects to manatees, manatee habitat, and/or manatee critical habitat; and any measures (such as project components, standard construction precautions, or special conditions included in the authorization) to avoid or minimize effects to manatees or manatee critical habitat.

For certain activities determined to be "may affect, but not likely to adversely affect" using the 2011 Manatee Key, the Service concurs with these determinations and no further consultation[3] with the Service is necessary. These activities include:

- with some exceptions, all applications to construct residential dock facilities with four slips or less;
- all applications to repair or replace existing multi-slip facilities that do not provide increased watercraft access in terms of numbers of slips or numbers of launched vessels;
- all new and existing culverts (that connect to waters accessible to manatees) 8 inches to 8 feet in diameter that are grated to prevent manatee entrapment; and
- all applications for multi-slip facilities proposed to be built in Bay, Dixie, Escambia, Franklin, Gilchrist, Gulf, Hernando, Jefferson, Lafayette, Monroe (south of Craig Key), Nassau, Okaloosa, Okeechobee, Santa Rosa, Suwannee, Taylor, Wakulla and Walton counties.

[2] For specific details on the 2011 Manatee Key and its associated maps, download copies at: http://www.saj.usace.army.mil/Divisions/Regulatory/sourcebook.htm

[3] Concurrence letter from the Service to the Corps dated March 17, 2011.

All other future applications for multi-slip facilities determined to be "may affect, but not likely to adversely affect" using the 2011 Manatee Key are forwarded to the Service for concurrence. This includes multi-slip projects that are confirmed as being consistent with a county's State-approved MPP (either by the Service or by FWC). If the Service determines that a MPP is deficient, the Service will notify the Corps of this determination.

For all applications determined to be a "may affect" using the 2011 Manatee Key, the Corps typically requests the Service to initiate formal consultation on the manatee. These applications[4] include:

- proposed dredging in an Important Manatee Area (IMA) in which the applicant chooses not to follow the dredging protocols described in the manatee key and associated map for that respective IMA;

- new or expanding watercraft access proposed in an Area of Inadequate Protection (AIP);

- new or expanding multi-slip facilities inconsistent with the requirements and conditions provided within a county's MPP;

- new or expanding multi-slip facilities in counties without a MPP that exceed the residential dock density threshold of 1 slip to 100 linear feet of shoreline (1:100) owned by the applicant;

- any proposed project that is likely to destroy or adversely modify critical habitat for manatees; and

- any proposed project in which the applicant chooses not to follow the standard manatee conditions for in-water work.

This programmatic consultation addresses the Corps' formal consultation request for the activities listed above and lays out the conditions in which all "may affect" determinations will be assessed. Such activities must be revised by the applicant and/or permits must be conditioned (within the Corp's authority) to reduce potential effects on manatees to the point where they are unlikely to occur.

To that end, the Service recommends that applicants be advised of this requirement and provided with the appropriate incidental take avoidance and minimization measures in the Appendices of this Biological Opinion at the time they are provided with the Corps' Manatee Biological Evaluation Form.

Incidental Take Avoidance and Minimization Measures

Activities which lead to the incidental take of manatees are not authorized under the MMPA and,

[4] Refer to the Glossary in the 2011 Manatee Key for definitions of the terms in the bulleted items.

therefore, cannot be authorized under the ESA. Such activities should be modified to the extent that take is no longer reasonably certain to occur.

Projects involving in-water construction activities must be designed to incorporate incidental take avoidance and minimization measures to minimize the potential for direct and/or indirect effects on manatees and their habitat by these activities. Construction conditions for all in-water activities are given in Appendix A.

For proposed watercraft access projects not consistent with State-approved MPPs, the first step is to attempt to revise the project to be consistent with the MPP. When this is not practicable, the second step will be to develop and implement alternative measures for the project to reduce the likelihood of take to a "not reasonably certain to occur" outcome. If measures can be developed to reduce the likelihood of take, then they should be implemented for the project. The applicant should consult with the Service for assistance. The Service will coordinate with the FWC and the counties, as appropriate.

For watercraft access projects proposed in areas without MPPs, applicants should follow the guidance detailed in Appendix C.1 or C.2., depending on location.

Other in-water construction-related activities that may result in direct effects on manatees include dredging projects not addressed by the 2011 Manatee Key, installation of structures which could restrict or act as a barrier to manatees, and any type of in-water activity in a Warm Water Aggregation Area or No Entry Area. Such in-water projects must be designed or the permits conditioned to include appropriate measures identified in the 2011 Manatee Key or in Appendix C, when applicable. Note that blasting is not considered in this Biological Opinion and must be consulted on separately.

Activities with indirect effects include installing ungrated pipes and culverts 8 inches to 8 feet in diameter which can entrap manatees, creating or expanding canals or basins and connecting them to navigable water of the U.S., and watercraft operations supporting in-water construction activities. Projects that include the installation or maintenance of pipes or culverts must be designed or the permits conditioned to include the appropriate measures identified in Appendix D, **in addition** to the measures in Appendix A.

In addition to those conditions described above, permits for all in-water projects located in areas with submerged aquatic vegetation, must avoid and minimize to the extent practicable for any impacts that may occur to foraging habitat. If adverse impacts are still expected after the design is modified to avoid and minimize, appropriate measures identified in Appendices E or F will be included. Note that these conditions are also **in addition** to the measures in Appendix A.

In some instances, the means to reduce the prospect of incidental take may be beyond the Corps' scope of authority or outside the control of the applicant. For example, if a project is planned for an area where manatee speed zones are present, but infrequently enforced and it is determined that the project can only be approved if such zones are appropriately enforced, action by another governmental entity may be necessary to resolve the issue. Given this example, the applicant can only provide the speed zone information when completing the Corps' Manatee Biological

Evaluation Form and is likely unable to determine if the zones are appropriately enforced. As such, the Service will review the proposed project to determine if the project location is appropriately enforced. In these circumstances, no acceptable incidental take avoidance and minimization measures are available and the permit should not be issued [see Conclusions - Incidental Take Statement below].

Areas important to long term manatee survival that have recent or continuing watercraft-related manatee mortalities may need to have one or more of the following conservation measures implemented to ensure incidental take would be unlikely to occur:

- A reduction in the number of proposed slips consistent with the residential dock density ratio threshold established for counties with MPPs in place (see Appendix C);
- The establishment of manatee speed zones;
- Posting the zones with the appropriate signage;
- Enforcement of the posted speed zones;
- A significant boater educational and awareness program;
- Marking channels, if needed.

If a county government chooses to proactively develop a countywide manatee protection plan that can be approved by the State with concurrence from the Service, this can facilitate permitting of projects in that county and ensure incidental take would be unlikely to occur.

Again, applicants may redesign their projects or develop alternatives to reduce potential effects to a level where they are not likely to occur. A thorough discussion of the rationale for these measures should be included in the BA and the Corps should request the Service's concurrence with a "may affect, not likely to adversely affect" determination.

Conservation Recommendations

Conservation recommendations are discretionary agency activities, as defined under section 7(a)(1), intended to supplement the measures above. The Service must be notified when any of these or any other conservation recommendations are implemented:

- All projects of more than 10 new slips/parking spaces should include manatee education for waterway users as well as on-site manatee information.

- Impacts to manatee foraging habitat should be avoided, minimized, and compensated to the extent practicable.

Conclusions - Incidental Take Statement

The indirect and cumulative effects of the action could result in the incidental take of manatees. Because take is not authorized, measures to avoid and minimize incidental take must be implemented. Implementation of the Take Avoidance and Minimization Measures described in the Appendices will ensure that the action is not likely to jeopardize the continued existence of the species and will promote compliance with the MMPA prohibitions. Applicants may redesign

their projects or propose alternative measures. No action-related, adverse modification of critical habitat is anticipated.

Projects will be evaluated using the 2011 Manatee Key. Except as noted, the Service does not require additional concurrence of projects that are determined to be "may affect, not likely to adversely affect."

Reinitiation – Closing Statement

This concludes section 7 consultation on the subject action. Should incidental take of manatees be authorized under the MMPA in the future, or if revised evaluation procedures are proposed, or new information becomes available that is not considered in this Opinion, either of our agencies may reinitiate consultation (50 CFR 402.16). This Opinion will be updated as necessary to reflect the best scientific and commercial information available.

The Service appreciates the cooperation of the Corps during this consultation. The Service would like to continue working with your agency regarding this project. If you have any questions regarding this biological opinion, please contact Heath Rauschenburger at (904) 731-3203 or Kalani Cairns in the South Florida Field Office at (772) 469-4240.

Sincerely,

David L. Hankla
Field Supervisor

cc: FWC, Kipp Frohlich, Carol Knox
Service, Vero Beach, Florida, Paul Souza
Service, Panama City, Don Imm

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APPENDIX A: Incidental take avoidance and minimization measures for new or expanding multi-slip facilities and for dredging projects, March 2011

Projects determined to be "may affect" as per the 2011 Manatee Key may or may not be reasonably certain to result in take of manatees. The following discussion is intended to provide more specific guidance on when take may occur, and what measures may offset the potential for adverse effects.

1. There are locations or circumstances in which take of manatees is **reasonably certain to occur** from new or expanding multi-slip facilities or from dredging. However, in some cases, it is possible the likelihood of take may be eliminated or reduced through a case-by-case review of the project including the implementation of alternative measures developed among the applicant, FWS, FWC and the county. These locations or circumstances include the following:

    a. Counties with State-approved MPPs in place: The project has not been reviewed by the FWC or FWS **or** has been reviewed by the FWC or FWS **and** determined that the project is not consistent with the county's State-approved MPP. These counties include Brevard, Broward, Citrus, Clay, Collier, Duval, Indian River, Lee, Martin, Miami-Dade, Palm Beach, St. Lucie, Sarasota, and Volusia. Projects proposed within the St. Johns River portion of Lake, Marion and Seminole counties shall be evaluated using the Volusia County MPP for those shorelines depicted as contiguous with Volusia County in the MPP.

    b. Counties not required to have a State-approved MPP, but where manatee protection is necessary for all or a portion of the county: The project's total number of slips **exceeds** the residential dock density threshold of 1 slip to 100 feet of shoreline **and** measures or project modifications proposed by the applicant have been determined to be insufficient. These counties include Charlotte, DeSoto (Peace River), Flagler, Glades, Hendry, Hillsborough, Levy, Manatee (excluding Braden River AIP), Monroe (north of Craig Key in the Florida Keys), Pasco (Anclote and Pithlachascotee Rivers), Pinellas, Putnam and St. Johns.

    c. Manatee County, Braden River AIP: The take of manatees is reasonably certain to occur for projects located within an AIP. The only acceptable incidental take avoidance and minimization measure available is to implement sufficient manatee protection measures (i.e., speed zones, signage, law enforcement) that warrant the removal of the AIP designation. Until such designation is removed, permits should not be issued.

    d. The applicant **does not elect** to follow the standard manatee conditions for in-water activities (Appendix B) as recommended by the 2011 Manatee Key.

    e. The applicant **does not elect** to follow all dredging protocols described on the maps for the specific IMAs and WWAAs as recommended by the 2011 Manatee Key or **does not elect** to comply with any additional protection measures required for dredging projects not addressed in the 2011 Manatee Key.

APPENDIX A: Incidental take avoidance and minimization measures for new or expanding multi-slip facilities and for dredging projects, March 2011

2. There are locations in which take of manatees is **not reasonably certain to occur** from new or expanding multi-slip facilities or from dredging. These locations include the following:

   a. Counties with State-approved MPPs in place: The project has been designed or modified to be consistent with a county's State-approved MPP **and** verified by a FWC review or FWS review, **and** the applicant elects to follow conditions 2.c., 2.d. and 2.e. below. These counties include Brevard, Broward, Citrus, Clay, Collier, Duval, Indian River, Lee, Martin, Miami-Dade, Palm Beach, St. Lucie, Sarasota, and Volusia. Projects proposed within the St. Johns River portion of Lake, Marion and Seminole counties shall be evaluated using the Volusia County MPP for those shorelines depicted as contiguous with Volusia County in the MPP.

   b. Counties not required to have a State-approved MPP, but where manatee protection may be necessary for all or some areas of the county: The project's total number of slips **does not exceed** the residential dock density threshold of 1 slip to 100 feet of shoreline **and** the applicant elects to follow conditions 2.c. and 2.d. (and 2.e. where appropriate) below **or** the project's total number of slips **exceeds** the residential dock density threshold of 1 slip to 100 feet of shoreline, **but** measures or project modifications proposed by the applicant have been determined to be sufficient. These counties include Charlotte, Desoto (Peace River), Flagler, Glades, Hendry, Hillsborough, Levy, Manatee (excluding Braden River AIP), Monroe (north of Craig Key in the Florida Keys), Pasco (Anclote and Pithlachascotee Rivers), Pinellas, Putnam and St. Johns.

   c. The applicant **elects** to follow the standard manatee conditions for in-water activities (Appendix B).

   d. The applicant **elects** to follow all dredging protocols described on the maps for the specific IMA in which the project is proposed or comply with any additional protection measures required for dredging projects not addressed in the 2011 Manatee Key.

   e. The applicant **elects** to install and maintain permanent manatee educational signs for projects that involve watercraft access. If a project involves a boating facility with greater than fifty slips, the applicant also **elects** to develop, and make available for distribution to patrons, additional manatee educational materials acceptable to FWC and FWS.

APPENDIX B: Standard Manatee Conditions for In-Water Activities, 2011

Note: These conditions may be subject to revision at any time. It is our intention that the most recent version of these conditions will be utilized during the evaluation of the permit application.

The permittee shall comply with the following conditions intended to protect manatees from direct project effects:

a. All personnel associated with the project shall be instructed about the presence of manatees and manatee speed zones, and the need to avoid collisions with and injury to manatees. The permittee shall advise all construction personnel that there are civil and criminal penalties for harming, harassing, or killing manatees which are protected under the Marine Mammal Protection Act, the Endangered Species Act, and the Florida Manatee Sanctuary Act.

b. All vessels associated with the construction project shall operate at "Idle Speed/No Wake" at all times while in the immediate area and while in water where the draft of the vessel provides less than a four-foot clearance from the bottom. All vessels will follow routes of deep water whenever possible.

c. Siltation or turbidity barriers shall be made of material in which manatees cannot become entangled, shall be properly secured, and shall be regularly monitored to avoid manatee entanglement or entrapment. Barriers must not impede manatee movement.

d. All on-site project personnel are responsible for observing water-related activities for the presence of manatee(s). All in-water operations, including vessels, must be shutdown if a manatee(s) comes within 50 feet of the operation. Activities will not resume until the manatee(s) has moved beyond the 50-foot radius of the project operation, or until 30 minutes elapses if the manatee(s) has not reappeared within 50 feet of the operation. Animals must not be herded away or harassed into leaving.

e. Any collision with or injury to a manatee shall be reported immediately to the Florida Fish and Wildlife Conservation Commission (FWC) Hotline at 1-888-404-3922. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-731-3336) for north Florida or in Vero Beach (1-772-562-3909) for south Florida, and emailed to FWC at ImperiledSpecies@myFWC.com.

f. Temporary signs concerning manatees shall be posted prior to and during all in-water project activities. All signs are to be removed by the permittee upon completion of the project. Temporary signs that have already been approved for this use by the FWC must be used. One sign which reads *Caution: Boaters* must be posted. A second sign measuring at least 8½ " by 11" explaining the requirements for "Idle Speed/No Wake" and the shut down of in-water operations must be posted in a location prominently visible to all personnel engaged in water-related activities. These signs can be viewed at http://www.myfwc.com/WILDLIFEHABITATS/manatee_sign_vendors.htm. Questions concerning these signs can be forwarded to the email address listed above.

APPENDIX B: Standard Manatee Conditions for In-Water Activities, 2011

CAUTION: MANATEE HABITAT

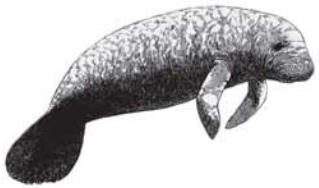
All project vessels

IDLE SPEED / NO WAKE

When a manatee is within 50 feet of work
all in-water activities must

SHUT DOWN

Report any collision with or injury to a manatee:



Wildlife Alert:

1-888-404-FWCC(3922)

cell *FWC or #FWC

APPENDIX C: Additional Conditions for In-water Activities in Manatee Habitat, March 2011

Note: These conditions may be subject to revision at any time. It is our intention that the most recent version of these conditions will be utilized during the evaluation of the permit application.

Depending on the work proposed and the location, further protective measures may be required in addition to the standard manatee conditions (Appendix B). Additional information regarding: (1) dredging techniques/methods; (2) planned start and end times; (3) the amount of material to be removed; (4) the specific project location; (5) spoil disposal location; and (6) a current submerged vegetation survey (documenting the presence/absence of vegetation and the extent of any project-related impacts, if any, to submerged aquatic vegetation occurring on-site) should be provided to expedite the review process.

The additional protective measures that may be required include (but are not limited to):

- Impacts to submerged aquatic vegetation (SAV) must be avoided. If impacts have been avoided to the greatest extent practicable, impacts must be minimized (see Appendix E and Appendix F for minimizing impacts after avoidance has taken place).

- For dredging projects that do not impact SAV and involve less than 50,000 cubic yards, additional measures outlined in the 2011 Manatee Key shall be followed. For dredging projects involving more than 50,000 cubic yards, additional measures may be necessary. Areas not identified in the Key may also require special conditions.

- In-water activities may need to be conducted at times of the year when manatees are not likely to be found in the project area. In particular, activities shall not occur in or near manatee aggregation areas or important manatee areas when manatees are present.

- Dedicated manatee observers, whose sole responsibility is to watch for manatees, may be needed and must be positioned on each vessel to watch for manatees. The observer must be experienced in manatee observation techniques and assist direct dredging activity-related personnel with complying with the standard manatee conditions (Appendix B). The manatee observer must be on site during all in-water activities.

- If observers are required, but conditions (weather, heavy currents, etc.) are such that manatees cannot be seen within 50 to 100 feet, in-water activity shall not be conducted.

- In areas of high manatee use, in-water activities may not be conducted at night, particularly clamshell dredging.

- Movement of work boats and barges should be minimized at night.

APPENDIX C: Additional Conditions for In-water Activities in Manatee Habitat, March 2011

- All watercraft-access facilities that accommodate large vessels, particularly those 100 feet or more in length, shall provide a fendering system to reduce the probability of crushing manatees between wharves and bulkheads or between vessels moored together. Fenders, mooring buoys, or cantilevered docks must provide a minimum standoff distance of 4 feet (for fenders and buoys, under maximum compression).

APPENDIX D: Standard Manatee Conditions for new and existing pipes and culverts, March 2011

Note: These conditions may be subject to revision at any time. It is our intention that the most recent version of these conditions will be utilized during the evaluation of the permit application.

The following guidance was developed to prevent manatee entrapment within culverts. This guidance applies only to culverts that are accessible to manatees. Structures with water control features (e.g., gates, flaps, etc.) and culverts that do not meet the specifications below will require FWC and Service review.

1. General Guidance:

    a. All culverts 8 inches to 8 feet in diameter must be grated with bars or rods strong enough to prevent manatee entrapment, unless the culvert or pipe is less than 200 feet long and connects two navigable waterways. Manatee entrapment can occur in culverts and pipes where the water level changes, either leaving the manatee stranded inside the culvert or flooding the culvert and drowning the manatee. Since they cannot swim backwards or turn around in culverts less than 8 feet wide, manatees become entrapped in culverts and pipes that have only one access point and the other end is a dead end or leads to a non-navigable stormwater pond or ditching. Culverts subject to variable and extreme water levels (little water to almost completely full) shall be grated as well as all dead end culverts.

    b. Box culverts are preferred by the Service and FWC over round culverts. Bridges are the most preferred by the Service and FWC.

    c. Manatees may become stranded in culverts greater than 8 feet in diameter during periods of low tide. Therefore, when planning for new culverts in tidal waters, a minimum 3-foot depth of water in the culvert at low tide stage is recommended, if necessary.

2. Size requirements: Grate bars or rods must be spaced a maximum of 8 inches apart (may be less for culverts smaller than 16 inches in diameter) to effectively prevent manatee access. Diagonal, horizontal or vertical grates may be installed. Grates must be a permanent fixture, maintained for the life of the structure, and not part of a water control structure. Grates may be hinged to swing outwards or may be removable for the purpose of cleaning debris. Culverts or pipes less than 8 inches in diameter are typically exempt from this requirement.

3. Length requirements: Based on documented manatee movement by FWC, the maximum recommended culvert length is no longer than 200 feet. Proposed culverts greater than 200 feet in length require a case-by-case review with the Service and FWC.

APPENDIX D: Standard Manatee Conditions for new and existing pipes and culverts, March 2011

4. Case-by-Case Review: Culverts that do not meet the specifications above or grates that preclude manatee access to essential habitat may be reviewed by the Service and FWC. The decision to block manatee access will be based on an assessment of several risk factors including, but not limited to culvert length and size, location, water level, and available habitat. The benefit of access to important habitat (forage resources, calving sites, freshwater, travel corridors, warmwater refugia, refuge from watercraft) will be weighed against the potential risk of injury or death to manatees, if the culvert were to remain accessible.

APPENDIX E: Dock Construction Guidelines in Florida for docks or other minor structures constructed in or over submerged aquatic vegetation (SAV), marsh, or mangrove habitat (U.S. Army Corps of Engineers/National Marine Fisheries Service, August 2001)

Note: These conditions may be subject to revision at any time. It is our intention that the most recent version of these conditions will be utilized during the evaluation of the permit application.

Submerged Aquatic Vegetation

1. Avoidance. The pier shall be aligned so as to minimize the size of the footprint over SAV.

2. The height of pier shall be a minimum of 5 feet above Mean High Water / Ordinary High Water (MHW/OHW) as measured from the top surface of the decking.

3. The width of the pier is limited to a maximum of 4 feet. A turnaround area is allowed for piers greater than 200 feet in length. The turnaround is limited to a section of the pier no more than 10 feet in length and no more than 6 feet in width. The turnaround shall be located at the midpoint of the pier.

4. Portions of the pier over SAV shall be oriented in a north-south orientation to the maximum extent that is practicable.

5. If possible, terminal platforms shall be placed in deep water, waterward of SAV or in an area devoid of SAV.

    a. If a terminal platform is placed over SAV areas and constructed of grated decking, the total size of the platform shall be limited to 160 square feet. The grated deck material shall conform to the specifications stipulated below. The configuration of the platform shall be a maximum of 8 feet by 20 feet. A minimum of 5 feet by 20 feet shall conform to the 5-foot height requirement; a 3-foot by 20-foot section may be placed 3 feet above MHW to facilitate boat access. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable.

    b. If the terminal platform is placed over SAV areas and constructed of planks, the total size of the platform shall be limited to 120 square feet. The configuration of the platform shall be a maximum of 6 feet by 20 feet of which a minimum 4-foot wide by 20-foot long section shall conform to the 5-foot height requirement. A section may be placed 3 feet above MHW to facilitate boat access. The 3 feet above MHW section shall be cantilevered. The long axis of the platform should be aligned in a north-south direction to the maximum extent that is practicable. If the 3feet above MHW section is constructed with grating material, it may be 3 feet wide.

6. One uncovered boat lift area is allowed. A narrow catwalk (2 feet wide if planks are used, 3 feet wide if grating is used) may be added to facilitate boat maintenance along the outboard side of the boat lift and a 4-foot wide walkway may be added along the stern

end of the boat lift, provided all such walkways are elevated 5 feet above MHW. The catwalk shall be cantilevered from the outboard mooring pilings (spaced no closer than 10 feet apart).

7. Pilings shall be installed in a manner which will not result in the formation of sedimentary deposits ("donuts" or "halos") around the newly installed pilings. Pile driving is the preferred method of installation, but jetting with a low pressure pump may be used.

8. The spacing of pilings through SAV beds shall be a minimum of 10 feet on center.

9. The gaps between deck boards shall be a minimum of ½ inch.

Marsh

1. The structure shall be aligned so as to have the smallest over-marsh footprint as practicable.

2. The over-marsh portion of the dock shall be elevated to at least 4 feet above the marsh floor.

3. The width of the dock is limited to a maximum of 4 feet. Any exceptions to the width must be accompanied by an equal increase in height requirement.

Mangroves

1. The width of the dock is limited to a maximum of 4 feet.

2. Mangrove clearing is restricted to the width of the pier.

3. The location and alignment of the pier should be through the narrowest area of the mangrove fringe.

APPENDIX F: Key for construction conditions for docks or other minor structures constructed in or over Johnson's seagrass (*Halophila johnsonii*), October 2002

Note: These conditions may be subject to revision at any time. It is our intention that the most recent version of these conditions will be utilized during the evaluation of the permit application.

1a. The construction site is within the known range of Johnson's seagrass (from Sebastian Inlet to central Biscayne Bay in the lagoon systems of Florida's east coast). Go to 2.

1b. The construction site is not within the known range of Johnson's seagrass, but submerged aquatic vegetation (SAV) is present at the site. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat."

1c. The construction site is not within the range of Johnson's seagrass and SAV is not present at the site: No construction conditions for SAV are necessary.

2a. Perform a survey for Johnson's seagrass on-site during the April 1 - August 31 growing season. Go to 3.

2b. If no survey is conducted or if a survey for Johnson's seagrass is conducted outside of the season, go to 4.

3a. Johnson's seagrass is present at the proposed construction site. Go to 5.

3b. Johnson's seagrass is not present at the proposed construction site. Go to 6.

4a. The project is in an area designated by the National Marine Fisheries Service - Protected Resources Division (NMFS-PRD) as critical habitat[2] for Johnson's seagrass. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat" **except that light-transmitting materials (LTMs) shall comprise 100% of all pedestrian surfaces waterward of the mean low water (MLW) line.**

4b. The construction is not in an area designated by NMFS-PRD as critical habitat for Johnson's seagrass. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat" **except that LTMs shall comprise at least 75% of all pedestrian surfaces waterward of the MLW line and a minimum 1-inch spacing shall be maintained between all wooden deckboards used waterward of the MLW line.**

5a. The construction is in an area designated by NMFS-PRD as critical habitat for Johnson's seagrass. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat" **except that LTMs shall comprise at least 75% of all pedestrian surfaces waterward of the MLW line and a minimum 1-inch spacing shall be maintained between all wooden deckboards used waterward of the MLW line.**

5b. The construction is not in an area designated by NMFS-PRD as critical habitat for Johnson's seagrass. Dock construction will conform to "Dock Construction Guidelines

APPENDIX F: Key for construction conditions for docks or other minor structures constructed in or over Johnson's seagrass (*Halophila johnsonii*), October 2002

in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat **except that all pedestrian surfaces directly over Johnson's seagrass areas shall be constructed of LTMs and a minimum 1-inch spacing shall be maintained between all wooden deckboards used waterward of the MLW line.**

6a. The construction is in an area designated by NMFS-PRD as critical habitat for Johnson's seagrass. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat", **except that a minimum 1-inch spacing shall be maintained between all wooden deckboards used waterward of the MLW line.**

6b. The construction is not in an area designated by NMFS-PRD as critical habitat for Johnson's seagrass. Go to 7.

7a. SAV other than Johnson's seagrass is present at the site. Dock construction will conform to "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat."

7b. No SAV present. No construction conditions for SAV are necessary.

Notes:

[1] This key is meant to compliment, but not supersede the "Dock Construction Guidelines in Florida for Docks or Other Minor Structures Constructed in or over Submerged Aquatic Vegetation, Marsh or Mangrove Habitat - U.S. Army Corps of Engineers/National Marine Fisheries Service, August 2001. **Docks incorporating light-transmitting materials shall not exceed the dimensions recommended in the Guidelines.**

[2] Federal Register 65 FR 17786, April 5, 2000, Designation of critical habitat for Johnson's seagrass.

[3] Light-transmitting materials are made of various materials shaped in the form of grids, grates, lattices, etc., to allow the passage of light through the open spaces. All light-transmitting materials used for dock construction in the known range of Johnson's seagrass must have a minimum forty-three (43) percent open space.