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850-487-3796
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Managing fish and wildlife resources for their long-term well-being and the benefit of people.

620 South Meridian Street
Tallahassee, Florida
32399-1600
Voice: 850-488-4676

Hearing/speech-impaired:
800-955-8771 (T)
800 955-8770 (V)

MyFWC.com

October 25, 2018

Jason Spinning, Chief, Coastal Section
Environmental Branch
Planning and Policy Division
U.S. Army Corps of Engineers
P.O. Box 4970
Jacksonville, FL 32232
Jason.J.Spinning@usace.army.mil

RE: Port Everglades Navigation Improvement Project, U.S. Army Corps of Engineers (USACE), Interagency Working Group (IWG) Coordination concerning "Environmentally Friendly Bulkhead (EFB)" Preliminary Design Plans, Broward County

Dear Mr. Spinning:

Florida Fish and Wildlife Conservation Commission (FWC) staff has reviewed the "Port Everglades EFB Preliminary Design" documents provided on June 20, 2018. FWC staff has been participating in the IWG of the Port Everglades Navigation Improvement Project (project) to provide fish and wildlife resource related input on modeling, natural resources surveys, monitoring plans, and avoidance, minimization, and mitigation plans under development.

On September 6, 2018, the USACE requested that an interagency technical team meet to discuss bulkhead plans and details such as design of openings along the structures, height of the rock revetment, and design of habitat creation opportunities landward of the structures. On September 19, 2018, FWC staff participated in an IWG webinar to review the proposed plans in more detail. The IWG has also been requested to review and comment on conceptual plans for shoreline protection structures to be placed along mangrove shorelines east and west of the port's south access channel. Draft meeting notes were circulated for further review by the IWG. FWC staff provides the following comments and questions regarding the proposed bulkhead design plans as requested.

Bulkhead Description

The USACE has proposed the installation of bulkheads to stabilize shorelines and minimize direct and indirect impacts to mangrove and seagrass habitats adjacent to the east and west sides of the Southport Access Channel (SAC) and Turning Notch (TN) resulting from channel widening and deepening and port operations. The preliminary design documents provide an illustration overlaid on aerial imagery of a "Proposed EFB Bulkhead Alignment" of approximately 1.3-miles on the eastern side of the Intracoastal Waterway Channel (IWC), and approximately 0.2-mile on the western side of the IWC, along the conservation easement boundary. The "EFB Bulkhead Typical 1" and "EFB Typical 2" preliminary designs show a "combi-wall bulkhead" (Concrete Retaining Wall) and "SSP Bulkhead" (Steel Sheet Pile Seawall) with tie-back anchoring, respectively, installed to a depth deeper than -50 feet mean lower low water (MLLW) and reaching to approximately MLLW. Sloped riprap made of limestone is proposed to be placed beginning at an elevation of approximately MLLW and constructed to reach an elevation that would be above recorded tide elevations (approximate king

tide levels), as indicated during the September 19, 2018 webinar. The emergent portions of riprap are proposed to be constructed primarily reusing limestone salvaged from rubble structures currently in the project area. The revetment is to be underlain with a permeable geotextile. Design drawings propose a "new mangrove/seagrass area" landward of the riprap, with bottom elevations dependent on the target natural communities.

The bulkhead is indicated to be at minimum 25 feet from the channel and its anticipated construction footprint may fall within 25 feet on either side. The alignments are intended to maintain openings where there will be no structures constructed at existing openings to mangrove channels and include design features for specific shoreline conditions. As indicated during the webinar, the intent is for the proposed bulkhead footprint to match as near as possible to what currently exists. Impacts to mangrove, seagrass and other habitats within the proposed construction footprint have not yet been determined.

Comments, Recommendations, and Questions

The USACE has labelled the proposed structures as "environmentally friendly bulkheads." This label implies that the structures will have minimal or neutral effect on fish and wildlife and their habitats. To accomplish this, FWC staff find that the construction and design of the shoreline stabilization must consider environmental conditions required to support important fish and wildlife resources in the area, including recreational and commercial fisheries, protected species such as manatees and sea turtles, marine and estuarine ecosystems such as mangrove forests, seagrass beds, hardbottom and open water habitats and other state listed species. The following specific recommendations and information requests are intended to assist in developing an EFB design with minimal impacts to fish and wildlife resources.

Manatees and Sea Turtles

In our preliminary review of the EFB designs, FWC staff identified potential entrapment issues for manatees and other large aquatic life and potential impacts to mangroves and seagrass habitats that may result from the EFB as proposed. It appears from the aerial photographic overlays that widths and depths of water vary landward of the proposed structures. There also appear to be larger distances between the western proposed bulkheads and the mangroves than the eastern proposed bulkheads and the mangroves. Too shallow or too narrow a space between the riprap and the mangroves is likely to create an entrapment concern for wildlife. Concepts for how the potential for the entrapment will be avoided have not been detailed in the plans presented to date. FWC staff recommend that the revised plans describe measures for avoiding entrapment. These parameters may also affect the health of mangrove and seagrass communities within and adjacent to the project area. We recommend working with species experts across the IWG to develop depth and width criteria for designing the EFBs.

Fisheries and Habitats

As part of the EFB design, riprap comprised of clean natural materials of varying sizes and shapes is preferred for providing interstitial spaces and substrate stability important to marine and estuarine species. Salvage and reuse of material from the existing rubble structures or similar natural materials can provide stable surfaces suitable for the attachment of benthic and epibenthic organisms. Generally, larger stones create bigger gaps and openings that provide shelter for larger fish such as gag grouper and snook species, as well as allow for greater water movement important for the flushing of adjacent natural communities. More irregular surfaces or smaller stone sizes can increase the roughness of and create smaller gaps in the materials, which offers important sheltering habitats for smaller sea life and attachment sites for benthic organisms. Finally, choosing appropriate design methods and materials of the structures can reduce their attractiveness as denning sites for invasive species such as green iguanas.

To assist in our review of the proposed design, and to offer guidance for avoidance and minimization of impacts to manatees, other aquatic life and habitats, FWC staff has the following questions:

1) What are the specific environmental objectives that the proposed bulkhead design aims to achieve?
2) Considering that there are already boulder rip-rap revetments installed in the Port adjacent to mangroves, what is known about the effect of these structures on boating, fisheries, manatees, ecosystems and other natural resources in the project area? How does the proposed design consider the lessons learned from these existing structures?
3) To consider the elevation of the areas landward of the proposed structure for suitability for seagrasses or mangroves, is information on anticipated water exchange rates, accessibility to open waters and substrate types available for review?
4) Information has been presented that "significant voids" would be left remaining in the bulkhead, and that the bulkhead is "not a very tight structure." What is the extent of the permeability of the structure, including the extent of openings and maximum and minimum stone sizes and sorting, and spaces between the riprap and geotextile?
5) Please clarify the proposed crest elevation of the rip rap structure. To consider the crest elevation of proposed revetments, is information on the frequency of storm tides that will overtop the structure available for review?
6) Is the area where the proposed bulkhead crosses dry land as indicated on the aerial overlays proposed to be dredged for the proposed bulkhead?
7) Will any of the areas landward of the bulkhead be filled?
8) The termini of the bulkheads appear to allow manatee or other large aquatic wildlife ingress/egress behind the bulkhead/riprap. Will this be the case in all proposed openings?
9) Several existing revetments in the area appear to include offsets or curves of the terminal ends, such as those seen in inlet jetty designs. Are these layouts contemplated to be repeated or replaced with a new design?

We appreciate the opportunity to participate on interagency teams that the USACE has assembled and to ask questions on the proposed bulkhead designs to provide detailed recommendations. We remain committed to partnering with the USACE throughout the duration of the Port Everglades Navigation Improvement project and to continue to provide technical assistance throughout the project planning phases. If you have any technical questions regarding the content of this letter, please contact Christine Raininger at (561) 882-5811 or Christine.Raininger@myfwc.com.

Sincerely,

for

Jennifer D. Goff, Director
Office of Conservation Planning Services

jdg/cr
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cc: Lacy Pfaff, U.S. Army Corps of Engineers, Lacy.S.Pfaff@usace.army.mil
Marie Burns, Ecologix Group, mburns@ecologixgroup.com
Lainie Edwards, Florida Department of Environmental Protection, Lainie.Edwards@dep.state.fl.us
Jennifer Peterson, Florida Department of Environmental Protection, Jennifer.Peterson@dep.state.fl.us
Pace Wilber, NOAA National Marine Fisheries Service, pace.wilber@noaa.gov
Jocelyn Karazsia, NOAA National Marine Fisheries Service, jocelyn.karazsia@noaa.gov
Jennifer Derby, U.S. Environmental Protection Agency, Derby.Jennifer@epa.gov
Wade Lehmann, U.S. Environmental Protection Agency, Lehmann.Wade@epa.gov
Curt Storlazzi, U.S. Geological Survey, cstorlazzi@usgs.gov