DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
4400 PGA BOULEVARD, SUITE 500
PALM BEACH GARDENS, FL 33410

REPLY TO
ATTENTION OF

September 3, 2010

Palm Beach Gardens Regulatory Office
SAJ-1993-41787 (IP-GGL)

Mr. Miles Croom
Assistant Regional Administrator
Southeast Regional Office, Habitat Conservation
NOAA, National Marine Fisheries Service
263 13th Avenue South
St. Petersburg, Florida 33701

Dear Mr. Croom:

We have received your Essential Fish Habitat (EFH) Conservation Recommendations (CR) provided in two letters in response to public notices dated October 31, 2007 and February 19, 2009. Both letters were received regarding permit application SAJ-1993-41787, submitted by the City of Ft. Pierce. The project is within tidal waters of the Indian River Lagoon, and is located at, and adjacent to, the City of Ft. Pierce Municipal Marina, Ft Pierce, St. Lucie County, Florida.

In your letter dated November 30, 2007, you requested additional project information and provided one EFH CR, as follows: *"The permit shall be held in abeyance until the aforementioned information needs regarding a sediment and turbidity containment plan, an island maintenance plan, and post-construction island performance analysis are fully addressed".*

The U.S. Army Corps of Engineers (Corps) provided the requested information by letter dated November 16, 2009. By letter dated December 4, 2009 the NMFS stated the requested project information was received.

Additionally, the Corps circulated a supplemental public notice on February 19, 2009. The NMFS responded to the public notice by letter dated March 23, 2009. In the letter you provided one EFH CR: *"The Department of the Army shall not authorize the proposed work. We will reconsider this recommendation pending receipt of an independent assessment by the Jacksonville District of the expected performance and longevity of the islands and breakwaters".* The NMFS also requested the following project information if the assessment concludes that islands and breakwaters are the least environmentally damaging practicable manner to achieve the project goals.

1. "Clear success criteria for evaluating the mangroves and oysters that colonize the islands and breakwaters, and a requirement that corrective action, including compensatory mitigation for the temporal losses, be done if the success criteria are not being met 5 years after construction."

2. "The Sedimentation and Turbidity Containment Plan would need to be amended to demonstrate the methods proposed meet industry standards and to include monitoring and evaluation of sedimentation."

3. "The compensatory mitigation would need to be revised to address the issues with the UMAM analysis and to provide the additional details described above."

In response to the one EFH conservation recommendation requesting an independent review be done, the Corps' requested the U.S. Army Engineer Research Development Center (ERDC) Coastal & Hydraulics Laboratory review the proposed project. The review by ERDC concluded that the project will perform as designed in protecting the marina, and will not unduly influence the neighboring estuary. Copies of ERDC's analysis were forwarded to Ms. Jocelyn Karazsia. The Corps Regulatory Division concurs with ERDC's conclusion, and has determined that an independent review has been performed and is sufficient.

Furthermore, in your letter dated December 4, 2009 the NMFS stated concerns about the success criteria for evaluating the mangroves and oysters that will colonize the island and requested corrective actions if success criteria not met. NMFS also requested to work with the Corps to develop permit conditions that address island performance, turbidity, and sedimentation. At this time the compensatory mitigation issues were unresolved. During a subsequent meeting in January 2010 the Corps and the NMFS drafted permit special conditions (see attached) that provide adequate assurances for evaluating success of the mangrove and oyster compensatory mitigation, clearly identify corrective actions if the island system fails to perform as designed, that include turbidity and sedimentation prevention and control assurances, and compensatory mitigation monitoring and reporting. The Uniform Mitigation Assessment Methodology sheets Part I and Part II for identified impacts and for the mitigation area are enclosed.

Based on the above information and draft permit specific conditions, the Corps is satisfied that the consultation procedures outlined in 50 CFR Section 600.920 of the regulation to implement the EFH provisions of the Magnuson-Stevens Act have been met and intends to issue permit number SAJ-1993-41787 on or about 10 days after the date of this letter. Please contact Garett Lips at (561) 472-3519 if any additional information is needed.

Sincerely,

Tori K. White
Chief, Palm Beach Gardens Office

Enclosures

Copy Furnished:
NMFS, HCD - West Palm Beach

1. Manatee Conditions: The Permittee shall comply with the “Standard Manatee Conditions for In-Water Work – 2009” provided in Attachment 3 of this permit.

2. Sea Turtle and Smalltooth Sawfish Conditions: The Permittee shall comply with National Marine Fisheries Service's “Sea Turtle and Smalltooth Sawfish Construction Conditions” dated March 23, 2006 and provided in Attachment 4 of this permit.

3. Manatee Education Conditions: The Permittee shall comply with the “Standard Manatee Educational/Awareness Sign Conditions – 2009” provided in Attachment 5 of this permit.

4. Turbidity Barriers: The permittee will construct the project in accordance with the CITY OF FORT PIERCE TURBIDITY CONTROL AND MONITORING PLAN (Plan) dated April 2009. The permittee will specifically implement turbidity control measures in accordance with figures 1-16 of the Plan during construction, or in a configuration that exceeds the anticipated turbidity control and protection, or in a different configuration that may be required if adequate turbidity prevention and control is not obtained as anticipated in the Plan.

5. Prior to the initiation of any of the work authorized by this permit the Permittee shall install floating turbidity barriers with weighted skirts that extend to within one foot of the bottom around all work areas that are in, or adjacent to, surface waters. The turbidity barriers shall remain in place and be maintained until the authorized work has been completed and all erodible materials have been stabilized.

6. Erosion Control: Prior to the initiation of any work authorized by this permit, the Permittee shall install erosion control measures along the perimeter of all work areas to prevent the displacement of fill material outside the work area. Immediately after completion of the final grading of the land surface, all slopes, land surfaces, and filled areas shall be stabilized using sod, degradable mats, barriers, or a combination of similar stabilizing materials to prevent erosion. The erosion control measures shall

remain in place and be maintained until all authorized work has been completed and the site has been stabilized.

7. The dune portion of the Storm Protection Island will be constructed, stabilized with dune vegetation, and maintained so that no dredged or fill material will directly or indirectly enter the Indian River Lagoon through normal wind or storm generated erosion.

8. Assurance of Navigation and Maintenance: The Permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structures or work herein authorized, or if in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, or if unanticipated adverse environmental effects that are more than minimal are discovered, the Permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

9. Dredged Material Disposal: The Permittee shall place dredged material within geotubes to create the island system or as a veneer for the storm protection island as detailed on drawing 1 of 1 in Attachment 6. The Permittee shall maintain the storm protection island system to prevent the discharge either directly or indirectly, of dredged material or any other fill material into waters of the United States.

10. Endangered Species: This Corps permit does not authorize you to take an endangered species, in particular the threatened loggerhead sea turtle (*Caretta caretta*), endangered green sea turtle (*Chelonia mydas*), endangered leatherback sea turtle (*Dermochelys coriacea*), endangered Kemp's ridley sea turtle (*Lepidochelys kempii*), endangered hawksbill sea turtle (*Eretmochelys imbricata*). In order to legally take a listed species, you must have separate authorization under the ESA (e.g., an ESA section 10 permit, or a Biological Opinion under ESA section 7,

with “incidental take” provisions with which you must comply). The enclosed National Marine Fisheries Service (NMFS) Biological Opinion contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with “incidental take” that is also specified in the Biological Opinion. Your authorization under this Corps permit is conditional upon your compliance with all of the mandatory terms and conditions associated with incidental take of the attached Biological Opinions, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with incidental take of the Biological Opinions, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute non-compliance with your Corps permit. However, the NMFS is the appropriate authority to determine compliance with the terms and conditions of its Biological Opinion, and with the ESA. For further clarification on this point, you should contact the NMFS.

11. Commencement Notification: Within 10 days from the date of initiating the authorized work, the Permittee shall provide to the Corps a written notification of the date of commencement of work authorized by this permit

12. Wetland Avoidance/Minimization Areas: The Permittee shall avoid the remaining 5.13 acre(s) of adjacent seagrass beds, (Attachment 7). These natural seagrass areas were avoided as part of the permit application review process and therefore will not be disturbed by any dredging, filling, construction debris, construction vessels, or other construction work whatsoever. The Corps reserves the right to deny review of any requests for future impacts to these natural wetland areas.

13. As-Builts: Within 60 days of completion of the authorized work or at the expiration of the construction window of this permit, whichever occurs first, the Permittee shall submit as-built drawings of the authorized work and a completed As-Built Certification Form (Attachment 8) to the Corps. The drawings shall be signed and sealed by a registered professional engineer and include the following:

a. A plan view drawing of the location of the authorized work footprint (as shown on the permit drawings) with an overlay of the work as constructed in the same scale as the attached permit drawings (8½-inch by 11-inch). The drawing should show all "earth disturbance," including wetland impacts, water management structures, and any on-site mitigation areas.

b. List any deviations between the work authorized by this permit and the work as constructed. In the event that the completed work deviates, in any manner, from the authorized work, describe on the As-Built Certification Form the deviations between the work authorized by this permit and the work as constructed. Clearly indicate on the as-built drawings any deviations that have been listed. Please note that the depiction and/or description of any deviations on the drawings and/or As-Built Certification Form does not constitute approval of any deviations by the U.S. Army Corps of Engineers.

c. The Department of the Army Permit number.

d. Include pre- and post-construction aerial photographs of the project site, if available.

14. Fill Material: The Permittee shall use only clean fill material for this project. The fill material shall be free from items such as trash, debris, automotive parts, asphalt, construction materials, concrete block with exposed reinforcement bars, and soils contaminated with any toxic substance, in toxic amounts in accordance with Section 307 of the Clean Water Act.

15. Regulatory Agency Changes: Should any other regulatory agency require changes to the work authorized or obligated by this permit, the Permittee is advised that a modification to this permit instrument is required prior to initiation of those changes. It is the Permittee’s responsibility to request a modification of this permit from the Palm Beach Gardens Regulatory Office.

16. The mangrove habitat compensatory mitigation monitoring and report preparation will be performed and distributed to the Corps and NMFS in accordance with the time intervals as described in special condition #16. The mangrove

compensatory mitigation component's success will be determined by the following parameters:

(1) Nuisance and exotic species are limited to 5% of the plants;
(2) 80% of the planted mangroves survive;
(3) Desirable plants are reproducing naturally;
(4) The size and distribution of desirable plant species increases with time by natural recruitment. This condition should also outline the corrective actions that will be needed if the success criteria are not met.
(5) The mangrove habitat will be trending towards success by the end of the third year with no maintenance or supplemental plantings during years four and five. The mangroves will be established and functioning without the need for replanting or maintenance by the end of the fifth year.
(6) If the mangroves do not achieve success as defined here, or as outlined in the Ft Pierce Marina compensatory mitigation plan, measures will be undertaken by the Permittee to provide the ecological functions not achieved, including temporal lags. The Corps would prefer purchasing bank credits if available.

17. Oyster habitat monitoring and report preparation will be performed and distributed to the Corps and NMFS at the intervals described in special condition #16. The success criteria for 1.23 acres of created oyster habitat will be assessed using the following:

1. Oyster monitoring shall occur annually in the spring for a minimum of 5 years.
2. A minimum of 2 nearby natural oyster reefs will be identified and selected as reference sites.
3. At the end of year 1, the created reefs shall show evidence of oyster spat recruitment.
4. At the end of year 2, the created reefs shall show adult oyster assemblage colonization.
5. At the end of year 3, 4, and 5 the created reefs should show statistically similar adult oyster assemblage as compared to the reference reefs.
6. Corrective actions will be identified and implemented in order to achieve the success criteria.
7. If oyster spat recruitment or oyster habitat statistically similar to the reference sites

fails to be detected by year 3, then 1.3 credits will be purchased to offset the ecological functional loss that was anticipated but not achieved at an appropriate mitigation bank.

8. The monitoring and report will also provide additional information and details identifying appropriate reference sites, the size classes of oysters that will be enumerated, the best time of year for sampling, and the abundances that will indicate establishment of a self-sustaining aggregation of oysters that includes adults.
9. The monitoring reports will be distributed to the NMFS West Palm Beach Office.
10. The created oyster habitat will be trending towards success by the end of the third year. The oysters will be established and functioning without the need for supplemental measures or maintenance by the end of the fifth year.

18. Monitoring and Reporting Timeframes: To show compliance with the performance standards the Permittee shall monitor the following compensatory mitigation area(s): the mangrove habitat creation(1.54-acres), creation of oyster habitat (1.28-acres), Scrape Down of Spoil Island (O.12-acres), partial filling of dredge hole (1.94-acres), restoration of prop scars (0.04-acres), and installation of navigational safety signage (4.24-acres), and submit annual monitoring reports to the Corps until released in accordance with the Mitigation Release Special Condition #27 of this permit. The monitoring schedules and minimum reporting requirements will be performed and submitted in accordance with the following:

- Mitigation Commencement, all compensatory mitigation components [mangrove habitat creation(1.54-acres), creation of oyster habitat (1.28-acres), scrape down of spoil island (0.12-acres), partial filling of dredge hole (1.94-acres), restoration of prop scars (0.04-acres), and installation of navigational safety signage (4.24-acres)], within six (6) months of construction commencement, and to be completed within six (6) months of storm protection island system.
- Baseline monitoring events prior to mitigation commencement, all compensatory mitigation components, event notification

and baseline report provided to Corps Enforcement and Palm Beach Gardens Regulatory Office (Corps) and NMFS HCD, West Palm Beach Office (NMFS). The report will include at least one paragraph depicting baseline conditions of the mitigation site(s) prior to initiation of the compensatory mitigation objectives and a detailed plan view drawing of all created, enhanced and/or restored mitigation areas.

- Time Zero Monitoring Report, all compensatory mitigation components, within 60-days of completion. Event & report sent to Corps and NMFS. Perform a time-zero monitoring event of the wetland mitigation area(s) within 60 days of completion of the compensatory mitigation objectives identified in the Compensatory Mitigation Special Condition of this permit.
    - 1st Year - 1st Semi- Annual Monitoring 6-months after Time Zero, all compensatory mitigation components, Event & Report Sent to Corps and NMFS.
- 1st Year - 2nd Semi- Annual (1st Annual) 1-year after Time Zero, all compensatory mitigation components, Monitoring Event & Report Sent to Corps and NMFS.
- 2nd Year - 3rd Semi-Annual Monitoring 1.5-years after Time Zero, all compensatory mitigation components, event & report sent to Corps and NMFS.
- 2nd Year - 4th Semi- Annual (2nd Annual) 2-years after Time Zero monitoring, all compensatory mitigation components. Event & report sent to Corps and NMFS.
- 3rd Year - Third Annual Monitoring 3-years after Time Zero, all compensatory mitigation components. Event & report sent to Corps and NMFS.
- 4th Year - Fourth Annual Monitoring 4 years after Time Zero, all compensatory mitigation components. Event & report sent to Corps and NMFS.
- 5th Year - Fifth Annual Monitoring 5 years after Time Zero, all compensatory mitigation

components. Event & report sent to Corps and NMFS.

- Mitigation success, all compensatory mitigation components, release upon written approval by Corps.

19. The permittee will perform pre-construction and post-construction survey cross sections along four (4) east-to-west transects. The location of the transects will be retained so each survey event can be repeated at the same location in order to compare results. The survey will be done with sub-centimeter (<1.0 centimeter) accuracy for the vertical and horizontal axis. The transects will begin at the toe of the project and will be specifically selected to capture seagrass bed(s) within 50 feet of the project and the transect will extend away from the project 200 feet. The transects will include both the eastern and western sides of construction. If accretion or scour occurs by presenting a 1 centimeter, or greater, change in elevation in areas of vegetated bottom or areas directly abutting seagrass, whereas, equilibrations of the bottom overtime will cause adverse effects to vegetated bottoms then corrective measures to reduce the scour or accretion will be done by altering or changing the configuration of the storm protection island system so that the deleterious effects are curtailed. If implemented corrective measures are not achieved and scour or accretion continue as a result of the storm protection island system, then the structural element of the storm protection island system causing the scour or accretion will be removed.

1. One transect will be at northernmost end of the project.
2. One transect will be at the southernmost end of the project.
3. One transect will be selected that is equally spaced north of the center of the project, and one transect will be selected that is equally spaced south of the center of the project.

20. All seagrass beds within 200 feet of the north/south center line of the storm protection island system and the compensatory mitigation sites requiring filling or dredging will be mapped prior to construction and annually for five years after construction is complete. This information will be provided to the NMFS and the Corps Palm Beach Gardens Regulatory Office. Relevant data such as changes in spatial distribution, seagrass density, species type, and

observations of physical changes in the natural bottom must also be included. If unanticipated adverse effects are detected, such as, (scouring or accretion of sediments, etc) to seagrass attributable to the storm protection island's influence on the current dynamic of the area or flow regimes, water quality degradation, or from construction activities, then additional compensatory mitigation will be required. The impacts will be identified, quantified and assessed using appropriate assessment methodology.

21. A buffer distance of no less than 10 feet will be established with sediment and turbidity barriers at each compensatory mitigation site between existing seagrass and the proposed mitigate site. The construction activities, including work boats, construction vessels, etc., and the actual dredging or filling activities associated with the mitigation sites will utilize small hand-operated equipment in areas within 50 feet of seagrass when dredging or filling to the extent practical in order to avoid unanticipated adverse effects to seagrass.

22. Compensatory Mitigation: Within 6 months from the date of initiating the authorized work the Permittee shall begin the Offsite Permittee Responsible Compensatory Mitigation consisting of: The permittee shall restore seagrass prop scars (0.10 acres), out of the total available area of 5.2 acres the permittee will achieve 3.0 acres of seagrass recruitment with at least 20% coverage density adjacent to the storm protection island system, dredge hole fill for seagrass re-establishment(1.94 acres), and spoil island scrape down (0.20 acres) in accordance with the approved compensatory mitigation construction plans (Attachment 3) as detailed on Drawings 1 through 22 of 22. If a success criterion is not achieved in the allotted time, then an analysis will be done to determine corrective action. If corrective action is possible, then it will be performed as soon as is practical in order to achieve the anticipated ecological functions and services. If corrective actions are contraindicated or have already been undertaken by the permittee but were not successful, then the permittee will purchase out of kind estuarine forested credits from an appropriate mitigation bank. Success criteria for seagrass will be defined using the Fonseca et al(1998) definition *the unassisted persistence of the required acreage of seagrass coverage for at least (5) five years.*

23. Additional Performance Standards: To meet the objectives of the approved compensatory mitigation plan, the Permittee shall achieve the following performance standards:

a. Cover of Category I and II invasive exotic plant species, pursuant to the most current list established by the Florida Exotic Pest Plant Council at http://www.fleppc.org

b. Less than 20 percent mortality of planted wetland species.

c. Hydrologic enhancement will result in soils that are within the normal daily range of tidal fluctuations which will provide optimal mangrove, seagrass and oyster growing conditions. The Permittee shall achieve the above performance standards by the end of the 5-year monitoring period, with no maintenance during the fifth year of monitoring. For seagrass, the success criteria will be defined using the following definition by Fonseca et al(1998) as follows: *the unassisted persistence of the required acreage of seagrass coverage for at least (5) five years.* In the event that the above performance standards have not been achieved, the Permittee shall undertake a remediation program approved by the Corps in accordance with the Remediation Special Condition of this permit.

24. Reporting Format: Annual monitoring reports shall follow a 10-page maximum report format for assessing compensatory mitigation sites. The Permittee shall submit all documentation to the Corps on 8½-inch by 11-inch paper, and include the following:

a. Project Overview (1 Page):

(1) Department of the Army Permit Number

(2) Name and contact information of Permittee and Consultant.

(3) Name of party responsible for conducting the monitoring and the date(s) the inspection was conducted

(4) A brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources impacted, and mitigation acreage and type of aquatic resources authorized to compensate for the aquatic impacts.

(5) Written description of the location, any identifiable landmarks of the compensatory mitigation project including information to locate the site perimeter(s), and coordinates of the mitigation site (expressed as latitude, longitudes, UTMs, state plane coordinate system, etc.).

(6) Dates compensatory mitigation commenced and/or was completed

(7) Short statement on whether the performance standards are being met

(8) Dates of any recent corrective or maintenance activities conducted since the previous report submission

(9) Specific recommendations for any additional corrective or remedial actions.

b. Requirements (1 page): List the monitoring requirements and performance standards, as specified in the approved mitigation plan and special conditions of this permit, and evaluate whether the compensatory mitigation project site is successfully achieving the approved performance standards or trending towards success. A table is a recommended option for comparing the performance standards to the conditions and status of the developing mitigation site.

c. Summary Data (maximum of 4 pages): Summary data should be provided to substantiate the success and/or potential challenges associated with the compensatory mitigation project. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist the PM in assessing whether the compensatory mitigation project is meeting applicable performance standards for that monitoring period. Submitted photos should be formatted to print on a standard 8½-inch by 11-inch piece of paper, dated, and clearly labeled with the direction from which the photo was taken. The photo location points should also be identified on the appropriate maps.

d. Maps and Plans (maximum of 3 pages): Maps shall be provided to show the location of the compensatory mitigation site relative to other landscape features, habitat types, locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan. In addition, the submitted maps and plans should clearly delineate the mitigation site perimeter(s). Each map or diagram should be formatted to print on a standard 8½-inch x 11-inch piece of paper and include a legend and the location of any photos submitted for review. As-built plans may be included.

e. Conclusions (1 page): A general statement shall be included that describes the conditions of the compensatory mitigation project. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the Permittee or sponsor,

including a timetable, shall be provided. The District Commander will ultimately determine if the mitigation site is successful for a given monitoring period.

25. Remediation: If the compensatory mitigation fails to meet the performance standards 5 years after completion of the compensatory mitigation objectives, the compensatory mitigation will be deemed unsuccessful. Within 60 days of notification by the Corps that the compensatory mitigation is unsuccessful, the Permittee shall submit to the Corps an alternate compensatory mitigation proposal sufficient to create the functional lift required under the permit. The alternate compensatory mitigation proposal may be required to include additional mitigation to compensate for the temporal loss of wetland function associated with the unsuccessful compensatory mitigation activities. The Corps reserves the right to fully evaluate, amend, and approve or reject the alternate compensatory mitigation proposal. Within 120 days of Corps approval, the Permittee will complete the alternate compensatory mitigation proposal.

26. The National Marine Fisheries Service Habitat Conservation Division Office in West Palm Beach will be provided a copy of all monitoring reports, biological surveys, and ecological assessment reports. Reports should be sent electronically, if possible to: nmfs.ser.monitoringreportshc@noaa.gov or via mail at: 400 North Congress Ave, Suite 120, West Palm Beach, FL 33401.

27. Your responsibility to complete the required compensatory mitigation as set forth in Special Condition 21 will not be considered fulfilled until you have demonstrated compensatory mitigation project success and have received written verification of that success from the US Army Corps of Engineers.

28. The permittee will coordinate with the Florida Department of Transportation and their bathymetry monitoring along the South Causeway Bridge. If FDOT’s survey data indicates scour and or accretion occurred and is attributed to the authorized work then the City shall be responsible for the detrimental scour or accretion. Structures or channels, including, but not limited to the South Causeway Bridge, Intracoastal Waterway channel, or other navigable channels adversely affected by the authorized work will be the responsibility of the City of Fort Pierce to restore the stability or remedy through

effective counter measures, or removing accumulated sediments to the extent the owner(s) deems sufficient.

UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - IMPACT
Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
FT PIERCE MARINA STORM PROTECTION ISLAND	**SAJ 1993-41787**	**0.41 ACRES OF SEAGRASS**

FLUCCs code	Further classification (optional)	Impact or Mitigation Site?	Assessment Area Size
		Impact	**0.43** Acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
IRL	**CLASS III**	**OFW**

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

INDIAN RIVER LAGOON

Assessment area description

TIDAL FLAT WITH SEAGRASS BEDS, BEDS CONSIST OF JOHNSONS SEAGRASS, SHOAL GRASS, MANATEE GRASS, TURTLE GRASS

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
FT PIERCE INLET, INTRACOASTAL WATERWAY	**NOT UNIQUE**

Functions	Mitigation for previous permit/other historic use
TIDAL FLAT FORAGING FOR WADING AND DIVING BIRDS, FISH PREDATION OPPORTUNITES AND REFUGIA, TIDAL FLOW, MIXING ZONE	**NO**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
WADING BIRD FORAGING HABITAT, MARINE REPTILES AND MAMMALS THOROUGHFARE AND FORAGING HABITAT,	**SEA TURTLES MANATEE, SMALL TOOTH SAWFISH, MIGRATORY BIRDS, LEAST TERN, BOTTLENOSE DOLPHIN, JOHNSONS SEAGRASS**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

DIVING BIRDS, PELICANS, GAMEFISH

Additional relevant factors:

FILL PLACEMENT IN IRL

Assessment conducted by:	Assessment date(s):

Form 62-345.900(1), F.A.C. [effective date]

UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - IMPACT
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name:	Application Number:	Assessment Area Name or Number:
FT PIERCE MARINA STORM PROTECTION ISLAND	**SAJ 1993-41787**	**0.41 ACRES OF SEAGRASS**
Impact or Mitigation:	Assessment Conducted by:	Assessment Date:
Impact	**-**	**-**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

		Current	With Impact
.500(6)(a) Location and Landscape Support	a. Quality and quantity **of habitat support** outside of AA.	X	
	b. **Invasive plant species.**		
	c. **Wildlife access** to and from AA (proximity and barriers).		
	d. **Downstream benefits** provided to fish and wildlife.	X	
	e. Adverse impacts to wildlife in AA from **land uses** outside of AA.		
	f. **Hydrologic connectivity** (impediments and flow restrictions).		
	g. **Dependency** of downstream habitats on quantity or quality of discharges.		
	h. Protection of wetland functions provided by uplands (**upland** AAs only).		
Current 8 / **With Impact 0**	Notes: Enter notes here PROPSED PRJOECT WILL CHANGE THE EXISTING SEAGRASS HABITAT TO AN UPLAND HABITAT. SEAGRASS BEDS ARE PART OF THE IRL'S ELABORATE ECOLOGICAL COMPLEX AND PLAYS AN INTEGRAL ROLE IN THE INTERDEPENDANT BIOLOGICAL AND ECOLOGICAL PRODUCTIVITY AND AESTHETICS OF THE IRL.	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	

		Current	With Impact
.500(6)(b) Water Environment (n/a for uplands)	a. Appropriateness of **water levels and flows**.	X	
	b. Reliability of **water level indicators**.	X	
	c. Appropriateness of **soil moisture**.		
	d. **Flow rates**/points of discharge.		
	e. **Fire frequency**/severity.		
	f. **Type of vegetation**.		
	g. **Hydrologic stress** on vegetation.		
	h. **Use by animal**s with hydrologic requirements.		
	i. **Plant community composition** associated with water quality (i.e., plants tolerant of poor WQ).		
	j. **Water quality of standing water by observation** (I.e., discoloration, turbidity).		
	k. **Water quality data** for the type of community.		
	l. **Water depth, wave energy, and currents**.		
Current 8 / **With Impact 0**	Notes: Enter notes here WATER ENVIRONMENT RECEIVES HIGH VOLUME OF OCEAN WATER DURING FLUSHING TIDES, AND IS MIXED WITH ESTUARINE WATERS	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	

		Current	With Impact
.500(6)(c) Community Structure X Vegetation ____ Benthic ____ Both	I. Appropriate/desirable species	X	
	II. Invasive/exotic plant species		
	III. Regeneration/recruitment		
	IV. Age, size distribution.		
	V. Snags, dens, cavity, etc.		
	VI. Plants' condition.		
	VII. Land management practices.		
	VIII. Topographic features (refugia, channels, hummocks).		
	IX. Submerged vegetation (only score if present).	X	
	X. Upland assessment area		
Current 9 / **With Impact 0**	Notes: Enter notes here PRODUCTIVE MATURE SEAGRASS BEDS THAT HAVE PERSISTED IN HIGH CURRENT AREAS, AID IN SEDIMENT STABILIZATION, AND ORGANIC COMPOUND CYCLING	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	

Raw Score = Sum of above scores/30 (if uplands, divide by 20)

Current	With Impact
0.83	0.00

Impact Acres =	0.43

Functional Loss (FL) [For Impact Assessment Areas]:	
FL = ID x Impact Acres =	0.357

Impact Delta (ID)	
Current - w/Impact	0.83

NOTE: If impact is proposed to be mitigated at a mitigation bank that was assessed using UMAM, then the credits required for mitigation is equal to Functional Loss (FL). If impact mitigation is proposed at a mitigation bank that was not assessed using UMAM, then UMAM cannot be used to assess impacts; use the assessment method of the mitigaiton bank.

UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART I - MIT/PRES
Form 62-345.900(2), F.A.C. (See Sections 62-345.400 F.A.C.)

Site/Project Name	Application Number	Assessment Area Name or Number
STORM PROTECTION ISLAND SYSTEM	**SAJ 1993 41787**	**dredge hole filling**

FLUCCs code	Further classification (optional)	Mitigation or Preservation?	Assessment Area Size
		Mitigation	**1.94** Acres

Basin/Watershed Name/Number	Affected Waterbody (Class)	Special Classification (i.e.OFW, AP, other local/state/federal designation of importance)
IRL		

Geographic relationship to and hydrologic connection with wetlands, other surface water, uplands

PART OF IRL

Assessment area description

BARREN TIDAL FLAT WITH REDUCTION IN TIDAL FLOWS AND INCREASE IN QUIESCENT AREAS SUITABLE FOR SEAGRASS RECRUITMENT

Significant nearby features	Uniqueness (considering the relative rarity in relation to the regional landscape.)
FT PIERCE INLET, ICWW	**NOT UNIQUE**

Functions	Mitigation for previous permit/other historic use
FORAGING FOR WADING AND DIVING BIRDS, REFUGIA, AMBUSH, AND FEEDING AREAS FOR FISH,	**NO**

Anticipated Wildlife Utilization Based on Literature Review (List of species that are representative of the assessment area and reasonably expected to be found)	Anticipated Utilization by Listed Species (List species, their legal classification (E, T, SSC), type of use, and intensity of use of the assessment area)
GAME AND BAIT FISH, WADING AND DIVING BIRDS, SEA TURTLES MANATEES,	**MANATEES, SEA TURTLES, BOTTLE NOSE DOLPHIN, LEAST TERN,**

Observed Evidence of Wildlife Utilization (List species directly observed, or other signs such as tracks, droppings, casings, nests, etc.):

Additional relevant factors:

Assessment conducted by:	Assessment date(s):

Form 62-345.900(1), F.A.C. [effective date]

UNIFORM WETLAND MITIGATION ASSESSMENT WORKSHEET - PART II - MITIGATION/PRESERVATION
Form 62-345.900(2), F.A.C. (See Sections 62-345.500 and .600, F.A.C.)

Site/Project Name:	Application Number:	Assessment Area Name or Number:
STORM PROTECTION ISLAND SYSTEM	**SAJ 1993 41787**	**dredge hole filling**
Impact or Mitigation:	Assessment Conducted by:	Assessment Date:
Mitigation	**-**	**-**

Scoring Guidance	Optimal (10)	Moderate(7)	Minimal (4)	Not Present (0)
The scoring of each indicator is based on what would be suitable for the type of wetland or surface water assessed	Condition is optimal and fully supports wetland/surface water functions	Condition is less than optimal, but sufficient to maintain most wetland/surface waterfunctions	Minimal level of support of wetland/surface water functions	Condition is insufficient to provide wetland/surface water functions

		Current	With Mitigation
.500(6)(a) Location and Landscape Support	a. Quality and quantity **of habitat support** outside of AA.	X	x
	b. **Invasive plant species.**		
	c. **Wildlife access** to and from AA (proximity and barriers).		
	d. **Downstream benefits** provided to fish and wildlife.	X	X
	e. Adverse impacts to wildlife in AA from **land uses** outside of AA.		
	f. **Hydrologic connectivity** (impediments and flow restrictions).		
	g. **Dependency** of downstream habitats on quantity or quality of discharges.		
	h. Protection of wetland functions provided by uplands (**upland** AAs only).		
Current: **5** / With Mitigation: **8**	Notes: Enter notes here PROPOSED PRJOECT IS LOCATED BETWEEN AN ACTIVE INTRACOASTAL WATERWAY. THE AREA RECEIVES ROBUST TIDAL EXCHANGES DUE TO THE NEARBY FT PIERCE INLET. AREA EXPECTED TO BECOME OPTIMAL FOR SEAGRASS GROWTH AND COLONIZATION. ADJACENT ARE CLIMAX GROWTH SEAGRASSES AND GOOD WATER QUALITY AND TIDAL EXCHANGE	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	
.500(6)(b)Water Environment (n/a for uplands)	a. Appropriateness of **water levels and flows**.	X	X
	b. Reliability of **water level indicators**.		
	c. Appropriateness of **soil moisture**.		
	d. **Flow rates**/points of discharge.		
	e. **Fire frequency**/severity.		
	f. **Type of vegetation**.		
	g. **Hydrologic stress** on vegetation.		
	h. **Use by animal**s with hydrologic requirements.		
	i. **Plant community composition** associated with water quality (i.e., plants tolerant of poor WQ).		
	j. **Water quality of standing water by observation** (I.e., discoloration, turbidity).		
	k. **Water quality data** for the type of community.		
	l. **Water depth, wave energy, and currents**.	X	X
Current: **5** / With Mitigation: **8**	Notes: Enter notes here PROPOSED PROJECT WILL PROVIDE IMPROVEMENTS IN THE WATER REGIME RELOCATING CURRENT BOTTOM VERTICALLY WILL ALLOW SEAGRASS SINCE AREA ICURRENTLY EXCEEDS SEAGRASS DEPTH. EXPECTED ENHANCEMENTS TO KEY ELEMENTS SUCH AS DEPTH WILL PROVIDE SUITABLE COLONIZATION SUBSTRATE AND CONDITONS.	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	
.500(6)(c)Community structure	I. Appropriate/desirable species	X	X
	II. Invasive/exotic plant species		
	III. Regeneration/recruitment	X	X
X Vegetation	IV. Age, size distribution.		
	V. Snags, dens, cavity, etc.		
Benthic	VI. Plants' condition.		
	VII. Land management practices.		
Both	VIII. Topographic features (refugia, channels, hummocks).		
	IX. Submerged vegetation (only score if present).		
	X. Upland assessment area		
Current: **4** / With Mitigation: **8**	Notes: Enter notes here: SEAGRASS BEDS ARE ANTICPATED TO BECOME DOMINANT. ANTICIAPTED SPECIES INCLUDE SHOAL GRASS, MANATEE GRASS, TURTLE GRASS PADDLE GRASS AND JOHNSONS SEAGRASS. THE AREA WILL PROVIDE THE FUNCTIONS AND SERCVICES THAT ARE NORMALY EXHIBITED IN ADJACENT IRL SEAGRASS COMMUNITIES	Place an "X" in the box above next to the two (2) most important criteria used in scoring this section	

Raw Score = Sum of above scores/30 (if uplands, divide by 20)

Current	With Mitigation
0.47	0.80

TEMPORAL LAG TABLE

YEAR	T-factor	YEAR	T-factor	YEAR	T-factor
< or = 1	1	11-15	1.46	41-45	3.03
2	1.03	16-20	1.68	46-50	3.34
3	1.07	21-25	1.92	51-55	3.65
4	1.10	26-30	2.18	>55	3.91
5	1.14	31-35	2.45		
6-10	1.25	36-40	2.73		

Temporal Lag Factor (TLF) = (see Temporal Lag Table above)	1.14
Risk Factor (RF) = [1=no risk, 2=mod risk, 3=hi risk, on 0.25 increments)	1.50

Relative Functional Gain (RFG) = MD/(TLF x RF) =	0.193
Mitigation Area Required (acres) = FL/RFG =	1.85
Mitigation Area Size (acres)	1.94
Functional Gain (FG) (RFG x MIT AREA) (should balance with Functional Loss)	0.374

FOR PRESERVATION ONLY:

Excess Mitigation (acres)	0.09
Acres of Impact Offset by this Mitigation Area	0.45

Mitigation Delta (MD)	
w/Mitigation - Current	0.33