



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY  
JACKSONVILLE DISTRICT CORPS OF ENGINEERS  
P.O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019**

**FINDING OF NO SIGNIFICANT IMPACT  
OPERATIONS AND MAINTENANCE DREDGING  
TAMPA HARBOR FEDERAL NAVIGATION PROJECT  
HILLSBOROUGH AND PINELLAS COUNTIES, FLORIDA**

I have reviewed the Environmental Assessment (EA) for the proposed action. This Finding of No Significant Impact (FONSI) incorporates by reference all discussions and conclusions contained in the EA enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

a. The dike raising included in the proposed action would occur within the existing diked disposal sites being actively used for containment of dredged materials. Raising of the dikes would occur within the existing footprint of the diked disposal areas. Minimal environmental resources occur on these sites. No eligible historic resources are found on the sites.

b. The U.S. Army Corps of Engineers, Jacksonville District, will take measures to minimize the effects to the West Indian Manatee. Additional consultation would be initiated with the U.S. Fish and Wildlife Service (USFWS) for sea turtles and piping plover should placement of material occur at Egmont Key or Mullet Key. There will be no unauthorized impacts to other threatened and endangered species. The projects will not jeopardize the continued existence of any federally listed species or adversely modify designated critical habitat.

c. Under Section 106 of the National Historic Preservation Act, consultation with the State Historic Preservation Officer (SHPO) and appropriate federally recognized tribes will be required for each project utilizing this National Environmental Policy Act (NEPA) document. An archeological monitor will be required to be present during dredge disposal operations at Egmont Key to ensure the protection of significant resources on the island. In a letter dated 8 August 2011, the SHPO concurred with this FONSI.

d. State water quality standards will be met. Modification of the Tampa Harbor Maintenance Dredging Environmental Resource Permit was completed and issued on April 7, 2006. This permit expires on April 7, 2016. The U.S. Army Corps of Engineers, Jacksonville District, will obtain the necessary permits from the Florida Department of Environmental Protection (FDEP) prior to placing dredged materials at disposal sites not covered under the existing permit.

e. The U.S. Army Corps of Engineers, Jacksonville District, has determined this project to be consistent with the Florida Coastal Zone Management Program. The State has provided their final determination for the activities identified by FDEP Permit No. 0157891-009-DF. Prior to construction of activities not described and permitted under FDEP Permit No. 0157891-009-DF, USACE will pursue water quality certification from the State. Construction of these activities will not occur without final State concurrence.

f. The proposed project has been evaluated pursuant to the Migratory Bird Treaty Act. The Jacksonville District's Migratory Bird Protection procedures will be implemented for all maintenance dredging and dike raising actions associated with the Tampa Harbor Federal Navigation project. These procedures have been coordinated with the USFWS and the State of Florida.

g. This project was coordinated with the USFWS in accordance with the Fish and Wildlife Coordination Act (FWCA), NEPA, and the Endangered Species Act (ESA). The Department of the Interior expressed no objections to this project, and it is in full compliance with the ESA, the Coastal Barrier Resources Act, and the FWCA.


h. Benefits to the public include maintenance of the navigation channel and continued local economic stimulus.

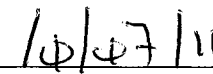
i. Measures to eliminate, reduce below the level of significance, or avoid potential impacts to fish and wildlife resources will be implemented during project construction, including the following:

Dike raising would occur within the foot-print of the existing diked disposal sites;

- (1) Dike raising would occur within the foot-print of the existing diked disposal sites;
- (2) All water based activities would follow standard manatee protection measures;
- (3) The Jacksonville District's Migratory Bird Protection Plan would be followed if any migratory birds are encountered;
- (4) Prior to construction, the State must concur with the Coastal Zone Consistency Statement; and
- (5) Prior to construction, the State Historic Preservation Officer must concur with the Jacksonville District's determination of no effect on any eligible historic resources.

In consideration of the information summarized, I find that the proposed action will not significantly affect the human environment and does not require an Environmental Impact Statement. This document will be available to the public on the U.S. Army Corps of Engineers Jacksonville District website at [http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices\\_OnLine\\_Hill\\_sboroughCo.htm](http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices_OnLine_Hill_sboroughCo.htm).

  
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ALFRED A. PANTANO, JR.  
Colonel, Corps of Engineers  
Commanding

  
\_\_\_\_\_  
Date

**FINAL ENVIRONMENTAL ASSESSMENT**

**TAMPA HARBOR  
FEDERAL NAVIGATION PROJECT**

**OPERATIONS AND  
MAINTENANCE DREDGING**

Prepared for



**U.S. Army Corps of Engineers  
Jacksonville District  
Jacksonville, Florida**

**September 2011**





# **FINAL ENVIRONMENTAL ASSESSMENT**

## **TAMPA HARBOR FEDERAL NAVIGATION PROJECT**

### **OPERATIONS AND MAINTENANCE DREDGING**

Contract No. W912EP-09-D-0005  
Delivery Order No. 0019  
GEC Project No. 27307719

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**U.S. ARMY CORPS OF ENGINEERS  
JACKSONVILLE DISTRICT  
JACKSONVILLE, FLORIDA**

**September 2011**







**FINAL ENVIRONMENTAL ASSESSMENT**  
**TAMPA HARBOR FEDERAL NAVIGATION PROJECT**  
**OPERATIONS AND MAINTENANCE DREDGING**

**EXECUTIVE SUMMARY**

The U.S. Army Corps of Engineers (USACE) is proposing to update the Dredged Material Management Plan (DMMP) for the Tampa Harbor Federal Navigation Project in Pinellas and Hillsborough Counties, Florida. The purpose of this study is for the Jacksonville District (CESAJ), to develop a management plan for the maintenance dredging and placement of dredged material for the operation of the Tampa Harbor Federal Navigation Project (Figure ES-1). The actions and strategies set forth in the DMMP would provide for the management of dredged materials for 20 years.

The project is located on the west central coast of Florida in Tampa Bay and the adjacent Gulf of Mexico. The project is located in Pinellas and Hillsborough Counties, Florida. Dredging is proposed to occur throughout the Bay along the entire Federal Project and associated berthing areas.

Federally Authorized and Maintained Channel sections in which maintenance actions would take place consist of:

- Egmont Cut 1
- Egmont Cut 2
- Mullet Key Cut
- Cut A
- Cut B
- Cut C
- Cut D
- Cut E
- Cut F
- Cut G
- Cut J
- Cut J2
- Cut K
- Gadsden Channel
- Cut A (Hillsborough Bay)
- Cut C (Hillsborough Bay)
- Alafia River Channel

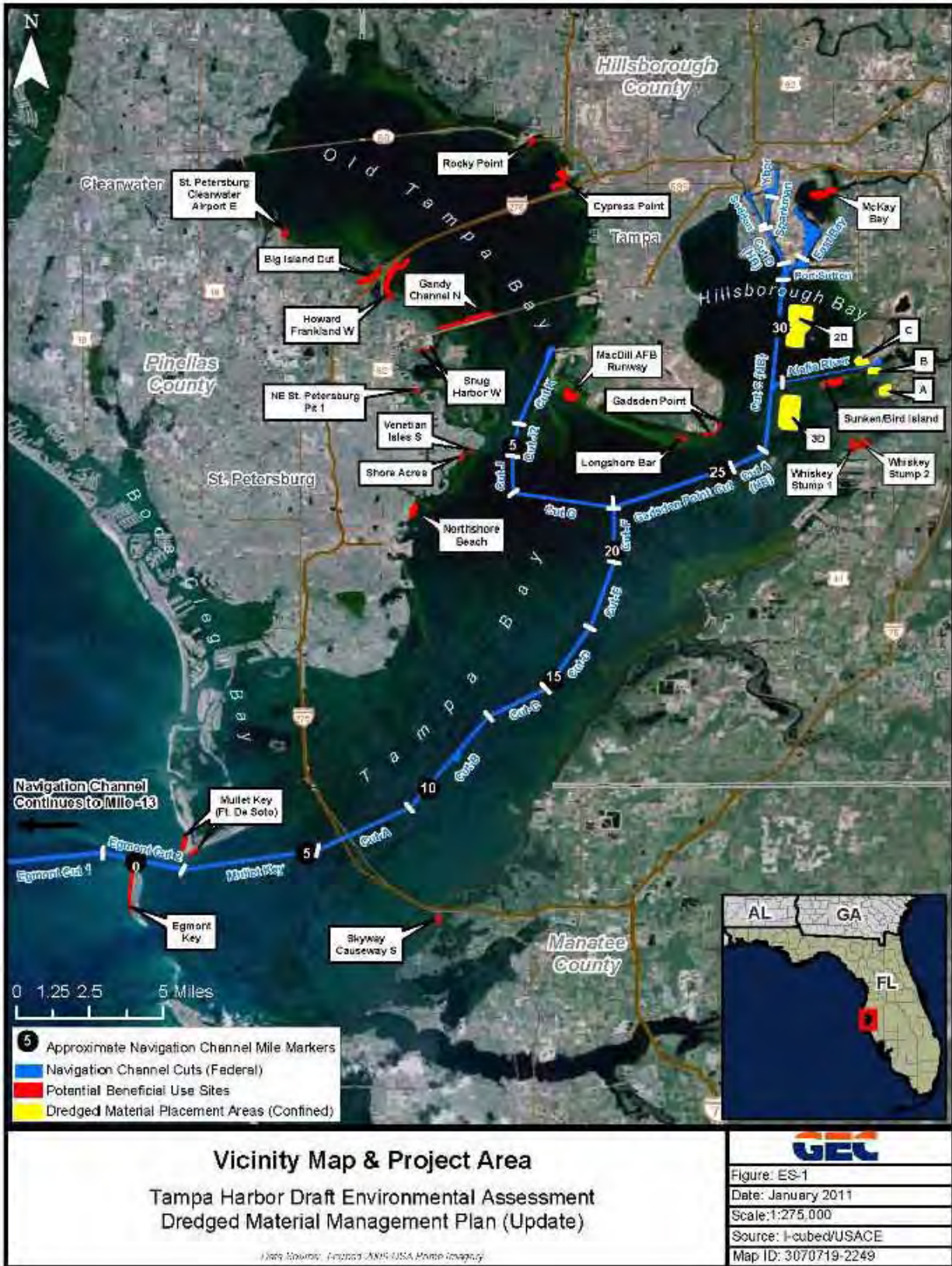
- Port Sutton Entrance, Terminal
- East Bay Approach, Entrance, Extensions
- Cut D (Hillsborough Bay)
- Sparkman Channel
- Ybor Channel

Sediment will be dredged using a cutter-suction, mechanical, or hopper dredge, and either pumped or barged to several alternative locations. Disposal sites considered for placement in this Environmental Assessment include:

- Ocean Dredged Material Disposal Site (ODMDS)
- Dredged Material Management Area (DMMA) 2-D
- DMMA 3-D
- Mullet Key (Fort De Soto Beach and nearshore)
- Egmont Key (beach and nearshore)
- Longshore Bar
- Bird/Sunken Island
- Dredged holes:
  - Big Island Cut Hole
  - Cypress Point Hole
  - Gadsden Point Holes
  - Gandy Channel North Hole
  - Howard Frankland West Hole
  - Northshore Beach Hole
  - MacDill AFB Runway Hole
  - Northeast St. Petersburg Borrow Pit 1
  - McKay Bay Hole
  - Rocky Point Dredge Hole
  - St. Petersburg-Clearwater Airport East Hole
  - Shore Acres Hole
  - Skyway Causeway Hole
  - Snug Harbor West Holes
  - Venetian Isles South Hole
  - Whiskey Stump Key Holes 1 and 2

Previous Environmental Assessments (EAs) prepared by the USACE have assessed the environmental impacts of maintenance dredging as well as dredged material placement in upland and beneficial use disposal sites. This EA consolidates the findings of the previous EAs and provides updates and additional evaluations where appropriate.

Figure ES-1. Vicinity Map and Project Area



Two alternatives were evaluated in detail. Under the No Action Alternative, maintenance dredging of the Federal Channel would cease, and sediment would be allowed to accumulate in the channel. The second alternative evaluated was the Tentatively Selected Plan (TSP). Prior to developing this plan, numerous disposal sites were evaluated. Following extensive discussions with stakeholders, the disposal options were narrowed to those evaluated in detail in the TSP. Under the TSP, periodic maintenance will be performed to remove accumulated sediments, and the channel will be maintained at its authorized dimensions. The location for the placement of dredged material, whether the ODMDS, upland disposal sites (DMMA 2-D and/or 3-D), or beneficial use sites, will be the least cost option as determined at the time of the dredging event. Dike raising within the existing footprints of the DMMA 2-D and/or 3-D will be conducted as necessary to ensure adequate disposal capacity for dredged materials. If there is local interest in paying for any cost difference for placement in beneficial use sites, beneficial use placement options that are not least cost may be incorporated into the project. The TSP was determined to be the environmentally preferred alternative, and was the only alternative aside from the No Action Alternative carried forward.

The No Action Alternative and the TSP were assessed for effects on the following environmental issues, which were considered to be relevant to the decision to be made:

- Sediment characteristics
- Fish and wildlife, including migratory birds, relevant habitats and relevant biological communities
- Threatened and endangered species, including the Florida manatee, sea turtles, smalltooth sawfish, and Gulf sturgeon
- Wildlife refuges, sanctuaries, and management areas
- Essential fish habitat
- Water quality
- Hazardous, toxic, and radioactive waste
- Noise
- Aesthetic resources
- Recreation resources
- Socioeconomics
- Navigation and safety
- Cultural resources

Significant adverse impacts to navigation will be associated with the No Action Alternative, including shoaling and shallowing of the channel. Deep draft navigation will be affected initially, light loading of deeper draft vessels will become necessary, and deep draft cruising vessels will no longer be able to use the port. As shoaling continues, the navigability of the channel will decrease. Because vessels



tend to use the center of the channel, shoaling at the sides will result in a narrowing of the channel and affect public safety by increasing the potential for collisions. Decreased navigability may result in vessels shifting to alternative harbors, possibly downsizing the area's economy and increasing the need for road transportation to and from those alternative harbors. Filling of certain dredged holes may adversely affect the recreational fishery at those sites. Filling some dredge holes adjacent to channels may temporarily adversely affect navigation by temporarily impeding vessel movements past the dredge holes during material placement.

By implementing actions to prevent or reduce adverse environmental effects associated with dredging of the Federal project and the placement of dredged material at locations permitted by the State of Florida, the TSP will have no significant impacts on the human environment, and a Finding of No Significant Impact (FONSI) is warranted.







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# FINAL ENVIRONMENTAL ASSESSMENT

## TAMPA HARBOR FEDERAL NAVIGATION PROJECT

### OPERATIONS AND MAINTENANCE DREDGING

#### 1.0 PROJECT PURPOSE, SCOPE, AND AUTHORITY

##### 1.1 INTRODUCTION

The U.S. Army Corps of Engineers, Jacksonville District (USACE) is proposing to update the Dredged Material Management Plan (DMMP) (USACE 2002) for the Tampa Harbor Federal Navigation Project in Pinellas and Hillsborough counties, Florida. The actions set forth in the DMMP provide for the management and placement of materials dredged from the Federal channels through operations and maintenance (O&M) of the harbor for a period of 20 years.

Previous environmental assessments (EAs) prepared by the USACE have assessed the environmental impacts of maintenance dredging as well as dredged material placement in upland and beneficial use disposal sites for specific O&M dredging operations within Tampa Harbor. The DMMP update is accompanied by an EA that supplements and combines previous EAs by assessing the impacts of placing material dredged from any of the channel cuts into any of the approved placement areas.

Please note that links, where available, are provided to websites containing documents, studies, or other references cited in this EA. Depending on the context in which the citation is mentioned, the link may be in the text or in Section 9.0, Literature Cited.

##### 1.2 PROJECT AUTHORITY

Specific authorization information is found in Table 1. If beneficial use is not the least cost disposal for the dredged materials, the project would need to be pursued under a separate authority for cost sharing opportunities.

**Table 1. Tampa Harbor Project Authorizations**

ACTS	WORK AUTHORIZED	DOCUMENTS
<b>TAMPA BAY</b>		
3 Mar 1899	Channel 27 feet deep by 300-500 feet wide from Gulf of Mexico to Port Tampa	Specified in Act & H. Doc. 52/55/3
3-Mar-1905	Channel depth of 26 feet with sufficient width	Specified in Act.
<b>TAMPA AND HILLSBOROUGH BAYS</b>		
25-Jun-1910	Depth of 24 feet in Hillsborough Bay	H. Doc. 634/61/2
8-Aug-1917	Channels 27 feet deep by 200-500 feet wide from Gulf of Mexico to and in Hillsborough Bay, and basins at mouth of Hillsborough River and Ybor Estuary.	H. Doc. 1345/64/1
<b>HILLSBOROUGH RIVER</b>		
3 Mar 1899	Channel 12 feet deep by 200 feet wide to within 100 feet of Lafayette St. Bridge (maintenance only)	H. Doc. 545/55/2 & A.R. for 1898 p. 1357
<b>TAMPA HARBOR</b>		
22-Sep-1922	Consolidation of above projects	Specified in Act.
3-Jul-1930	Egmont Channel 29 feet deep and Sparkman Channel 300 feet wide.	H. Doc. 100/70/1
30-Aug-1935	Egmont Bar Channel 32 feet deep by 600 feet wide; Mullet Key Cut 30 feet deep by 400 feet deep; other project channels in Tampa Harbor, except in Hillsborough River, 30 feet deep by 300 feet wide and basin at Port Tampa 550 feet by 2,000 feet.	S. Doc. 22/72/1
20-Jun-1938	Widen bend between Sparkman Channel and Cut D, Hillsborough Bay Channel by 250 feet; Ybor Channel 400 feet wide; and extend Hillsborough River basin easterly 300 feet.	S. Doc. 164/75/3
20-Jun-1938	Breakwater at Peter O. Knight Field.	S. Comm. Print 76/1
2-Mar-1945	Sparkman and Ybor Channels 400 and 500 feet wide; extend Ybor basin westerly 250 feet, and Hillsborough River basin easterly 150 feet in lieu of 300 feet.	S. Doc. 183/78/2
2-Mar-1945	Channel 9 feet deep by 100 feet wide in Hillsborough River and removal of obstructions to Florida Ave. Bridge.	H. Doc.119/77/1
2-Mar-1945	Channel 25 feet deep by 150 feet wide and basin in Alafia River	S. Doc.16/77/1
17-May-1950	Egmont Channel 36 feet deep; Mullet Key Cut 34 feet deep by 500 feet wide; Tampa Bay, Hillsborough Bay, Port Tampa Channels 34 feet deep by 400 feet wide; Port Tampa turning basin 34 feet deep by 750 feet by 2,000 feet wide; Sparkman Channel and Ybor turning basin 34 feet deep; and channel 30 feet deep by 200 feet wide to and including turning basin 700 feet by 1,200 feet in Alafia River.	H. Doc. 258/81/1
3-Sep-1954	Removal of obstructions in Hillsborough River from Florida Ave. Bridge to City Water Works Dam (maintenance to be assumed by local interests).	H. Doc. 567/81/2
29-Dec-1961	Reduced dimensions of the Seddon Channel from 30 feet to 12 feet in depth and from 300 feet to 200 feet in width.	Public Law 97-128
23-Oct-1962	Channel and turning basin at Port Sutton 30 feet deep; Ybor Channel 34 feet deep and 400 feet wide.	H. Doc. 529/87/2
31-Dec-1970	Egmont Bar Channel 46 feet deep by 700 feet wide; Mullet Key Cut Channel 44 feet deep by 600 feet wide; Tampa Bay Main Channel 44 feet deep by 500 feet wide to junction of Hillsborough Bay and Port Tampa Channels; Hillsborough Bay Channel 44 feet deep by 500 feet wide to junction with Port Sutton entrance channel, thence 42 feet deep by 400 feet wide; Ybor Channel 40 feet deep by 300 feet wide; Port Tampa Channel 42 feet deep by 400 feet wide from junction with Hillsborough and Tampa Bay Channels to Port Tampa turning basin; Port Tampa turning basin. 42 feet deep, 2,000 feet long and 900 feet wide; Port Sutton entrance channel 44 feet deep by 400 feet wide; Port Sutton 44 feet deep with turning diameter of 1,200 feet; enlargement of turning basin at the entrance of Ybor Channel and deepening to 42 feet; East Bay entrance channel 44 feet deep by 400 feet and 500 feet wide about 2,000 feet North from Port Sutton turning basin; East Bay turning basin 44 feet deep with 1,200 feet turning diameter; East Bay approach channel 44 feet deep by 300 feet about 2,500 feet North from the East Bay turning basin; and maintenance of Port Sutton terminal channel 44 feet deep by 200	H. Doc. 91-401/91/2
17-Nov-1986	Maintenance of local channel and turning basin to a depth of 34 feet in Tampa East Bay.	Public Law 99-662
17-Nov-1986	Widening of Port Sutton Turning Basin an additional 105 feet to the fender line along Pendola Point.	Public Law 99-662
17-Nov-1986	De-authorization of the bottom one foot of the main ship channel (see above) from 44 feet to 43 feet and of the turning basin at the junction of Garrison Channel, Seddon Channel, and Hillsborough River.	Public Law 99-662
17-Nov-1988	Port Sutton Channel deepening to 43 feet over length of 3,700 feet.	Public Law 100-676
28-Nov-1990	Maintenance of the Alafia Channel at a depth of 34 feet if the non-Federal sponsor dredges the channel to such depth, except that the non-Federal sponsor shall reimburse the United States for the incremental costs incurred by the Secretary in maintaining the channel at a depth greater than 30 feet.	Public Law 101-640
19-Jun-1995	“Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army review the report of the Chief of Engineers on the Tampa Harbor, Florida, published as House Document 491, 91 <sup>st</sup> Congress, Second Session and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to a deep draft	H.R. Congressional Resolution 2533, 105 <sup>th</sup> Congress
23-Jul-1999	The Committee on Appropriations provided \$3,200,000 to initiate and complete a project to widen the Ybor Channel Turning Basin at Tampa Harbor, Florida.	House Report 106-253
17-Aug-1999	The project for navigation, Tampa Harbor-Big Bend Channel, Florida consisting of an entrance channel extending east from the main ship channel, a turning basin, an east channel, and an inner channel at a depth of 41 feet. The authorization includes raising the dikes on placement area 3D in order to accommodate the construction material and an additional dike raising to accommodate maintenance material.	Public Law 106-53
11-Dec-2000	Port Sutton, Florida - a channel extending east from Port Sutton Turning Basin over a length of 3,700 feet with a width of 290 feet and a depth of 42 feet.	Public Law 106-541
21-Dec-2000	Alafia River, Florida-Widening the channel by 50 feet to the south (total width of 250 feet) and deepening the channel to a project depth of 42 feet MLLW. Enlarging the turning basin to provide a 1,200-foot diameter area at the channel depth of 42 feet MLLW. Placement within the designated ODMDS site, with some material going into beneficial use areas as the least cost placement option. These include the expansion of Bird Island, creation of tidal wetland habitat adjacent to Disposal Area 2D, and shore protection along the northern bank of Bird Island.	Public Law 106-554
7-Nov-2003	Congressional interest in Tampa Harbor navigational improvements was confirmed by the statement: “That the Secretary of the Army, acting through the Chief of Engineers, is directed to use funds appropriated for the navigation project, Tampa Harbor, Florida, to carry out, as part of the project, construction of passing lanes in an area approximately 3.5 miles long, centered on Tampa Bay Cut B, if the Secretary determines that such construction is technically sound, environmentally acceptable, and cost effective.”	Energy and Water Act 2003, 108 <sup>th</sup> Congress, Report 108-357
2007	SEC. 5001. MAINTENANCE OF NAVIGATION CHANNELS. (a) IN GENERAL.—Upon request of a non-Federal interest, the Secretary shall be responsible for maintenance of the following navigation channels and breakwaters constructed or improved by the non-Federal interest if the Secretary determines that such maintenance is economically justified and environmentally acceptable and that the channel or breakwater was constructed in accordance with applicable permits and appropriate engineering and design standards: ... (2) Tampa Harbor, Sparkman Channel...	WRDA 2007, Section 5001
2010	Sec. 120. As soon as practicable after the date of enactment of this Act, from funds made available before the date of enactment of this Act for the Tampa Harbor Big Bend Channel project, the Secretary of the Army shall reimburse the non-Federal sponsor of the Tampa Harbor Big Bend Channel project for the Federal share of the dredging work carried out for the project.	Public Law 111-85: Energy and Water Development Act 2010



### 1.3 PROJECT LOCATION

The project is located in Pinellas and Hillsborough Counties, on the west central coast of Florida in Tampa Bay and the adjacent Gulf of Mexico. Dredging is proposed to occur throughout the Bay along the entire Federal Project and associated berthing areas. The placement sites assessed in this EA include an ocean dredged material disposal site (ODMDS), dredged material management areas (DMMAs) 2-D and 3-D, and a number of beneficial use sites. The Florida Department of Environmental Protection (FDEP) issued a consolidated Environmental Resource Permit (ERP) and Sovereign Submerged Lands (SSL) Authorization in 2006 (see Appendix D) for the ODMDS, the DMMAs, and the following beneficial use sites: portions of Egmont Key, Fort De Soto Beach on Mullet Key, Sunken/Bird Island, Gandy Channel North dredged hole, Northshore Beach dredged hole, MacDill Hole, McKay Bay, and Whiskey Stump Key Holes 1 and 2. The following beneficial use sites were also assessed, but would require an ERP and SSL authorization prior to use (Figure 1):

1. St. Petersburg Clearwater Airport East Dredge Hole
2. Rocky Point Dredge Hole
3. Big Island Cut Dredge Hole
4. Cypress Point Dredge Hole
5. Howard Frankland West Dredge Hole
6. Snug Harbor West (2 Dredge Holes)
7. Northeast St. Petersburg Pit 1
8. Venetian Isles South Dredge Hole
9. Shore Acres Dredge Hole
10. Gadsden Point (2 Dredge Holes)
11. Skyway Causeway South Dredge Hole
12. Longshore Bar

### 1.4 PROJECT HISTORY

The Tampa Harbor Federal Navigation Project consists of the main ship channel, including the Port Sutton Turning Basin and East Bay, and Hillsborough River, Alafia River, and the Upper Channels. The project, as authorized and as constructed, is described in Table 2.

**Table 2. Project Dimensions**

(All depths are project depths and do not include required or allowable overdepths)

Cut Name	Authorized		Constructed Depth (ft)	Notes
	Depth (ft)	Width (ft)		
Egmont 1	45	700	45	
Egmont 2	45	700	45	

Cut Name	Authorized		Constructed Depth (ft)	Notes
	Depth (ft)	Width (ft)		
Mullet	43	600	43	
A	43	500	43	
B	43	500	43	
C	43	500	43	
D	43	500	43	
E	43	500	43	
F	43	500	43	
G	41	400	34	
J	41	400	34	
J2	41	400	34	
K	41	400	34	
Port Tampa	41	400	34	
Gadsden	43	500	43	
A (Hillsborough Bay)	43	500	43	
Big Bend	41	250	36	Locally maintained
C (Hillsborough Bay)	43	500	43	
Alafia River	42	250	32	
Port Sutton Entrance	43	400	43	
Port Sutton Terminal	42	290	34	Locally provided and maintained
East Bay Entrance	43	400-500	43	
East Bay Extension 1	34	300	34	Constructed locally and maintained by Federal government
East Bay Extension 2	34	Varies	34	Constructed locally and maintained by Federal government
East Bay Approach	43	300	43	
D (Hillsborough Bay)	42	400	34-41	The 1,000 feet of Hillsborough Channel south of the junction with Sparkman and Seddon is 34 feet in depth
Sparkman	41	400	34	
Ybor	39	300	34	
Seddon	12	200	30	Deauthorized to 12 feet in 1981
Hillsborough River South	12	200	12	
Hillsborough River North	9	100	9	

Cut Name	Authorized		Constructed Depth (ft)	Notes
	Depth (ft)	Width (ft)		
Turning Basins	Authorized		Constructed Depth (ft)	Notes
	Depth (ft)	Diameter (ft)		
Hillsborough River	12	Unknown	30	
Port Sutton	43	1,200	43	
Ybor	41	Unknown	34	
Port Tampa	41	900 x 2,000	41	
East Bay	43	1,200	43	
Alafia River	42	700 x 1,200	32	

The authorized project includes approximately 67 miles of channel, at various depths and widths, and six turning basins. Two stretches of waterway have been de-authorized. One stretch is the Garrison Channel, in the Upper Channels portion of the harbor project (P.L. 97-128, Dec. 29, 1981, 95 STAT 1684). This channel now lies between two bridges and is inaccessible to deep-draft vessels due to low overhead clearances at the bridges. The second stretch is the turning basin at the junction of Garrison Channel, Seddon Channel, and the Hillsborough River (P.L. 99-662, Nov. 17, 1986, 100 STAT 4206). A third stretch, Seddon Channel, was modified to reduce its dimensions (P.L. 97-128, Dec. 29, 1961, 95 STAT 1684). Seddon Channel lies in the Upper Channels portion of the harbor project between the Hillsborough River and Hillsborough Bay Channel Cut D. It has been modified from 30 feet in depth to 12 feet and from 300 feet in width to 200 feet.

Several stretches of waterway have been constructed to depths shallower than authorized. These stretches include Hillsborough Bay Channel Cut D, constructed to depths of 41 and 34 feet and authorized to 42 feet; Sparkman Channel, constructed to 34 feet and authorized to 41 feet; Ybor Turning Basin, constructed to 34 feet and authorized to 41 feet; and Ybor Channel, constructed to 34 feet and authorized to 39 feet.

## 1.5 PURPOSE AND NEED

The purpose of this EA is for the USACE to assess the impacts of maintenance dredging and placement of dredged material for the operation of the Tampa Harbor Federal Navigation Project, including the actions and strategies set forth in the 2010 DMMP update, to provide for the management of dredged materials for 20 years.

A navigation channel's sediment-carrying capacity decreases when the velocity of its water slows. Sediment drops out and settles on the channel bottom. In addition, as

waves generated by wind or by vessel passage reach the shoreline, the shoreline material erodes and falls to the channel bottom, or is suspended within the water column and deposited downstream. Rainstorms may move additional sediment into the channel. Periodic dredging is required to remove accumulated sediments and thus maintain the channel at its authorized depth for navigation purposes.

As necessary, the USACE will pursue permit renewals or new permits for the proposed work.

## 1.6 PROJECT SCOPE

In the Tampa Bay area, many projects involve sediment removal and placement. These projects include Federal harbors, non-Federal berthing areas and channels, beach erosion control, beneficial use, and private marinas and boat basins. This study of dredged material management focuses on the Tampa Harbor Federal Navigation Project. This project consists of the main ship channel, including the Port Sutton Turning Basin and East Bay, and Hillsborough River, Alafia River, and the Upper Channels (Figure 1). This EA evaluates the affects of all operations and maintenance activities associated with the Tampa Harbor Federal Navigation Project.

Several options exist for dredging, including the use of cutter-suction, hopper, or mechanical dredges. The USACE does not normally specify the type of dredging equipment to be used. Generally, this is left to the dredging industry to enable them to offer the most appropriate and competitive equipment available at the time. However, certain types of dredging equipment may be considered more appropriate than others based on the type of material, the depth of the dredge site, the depth of access to the placement site, the amount of material to be dredged, the distance to the placement site, the wave-energy environment, etc. A more detailed description of types of dredging equipment and their characteristics can be found in Engineer Manual, EM 1110-2-5025, *Engineering and Design - Dredging and Dredged Material Disposal*. This Engineer Manual is available on the internet at <http://www.usace.army.mil/publications/eng-manuals/em1110-2-5025/toc.htm>.

Dredging equipment uses either hydraulic or mechanical means to transport material from the substrate to the surface. Hydraulic dredges use water to pump the dredged material as slurry to the surface and mechanical dredges use a bucket-type device to excavate and raise the material from the channel bottom. The most common hydraulic dredges include suction, cutter-suction, and hopper dredges; the most common mechanical dredges include clamshells, backhoes, and marine excavator dredges. Public Law 100-329 requires dredges working on U.S. government projects to have U.S. built hulls, which can limit the options for equipment types if a new type of dredge is developed overseas.

Various project elements influence the selection of the dredge type and size. These factors include the type of material to be dredged (rock, clay, sand, silt, or combination); the water depth; the dredge cut thickness, length, and width; the sea or wave conditions; vessel traffic conditions; environmental restrictions; other operating restrictions; and the required completion time. In addition, all of these factors impact dredge production and, as a result, costs. Multiple dredges of the same or different types may be used to expedite work or to accommodate varying conditions within the dredging areas. Potential equipment must be able to reach project depths and excavate the volumes of material required by the project.

### **1.6.1 Tampa Harbor Federal Navigation Project: Main Ship Channel, Hillsborough River, Alafia River, and Upper Channels**

The Tampa Harbor Federal Navigation Project consists of approximately 67 miles of channels from the Gulf of Mexico entrance at Egmont Bar north to Ybor City, including the Hillsborough River, Alafia River, and the Upper Channels.

### **1.6.2 Non-Federal Projects**

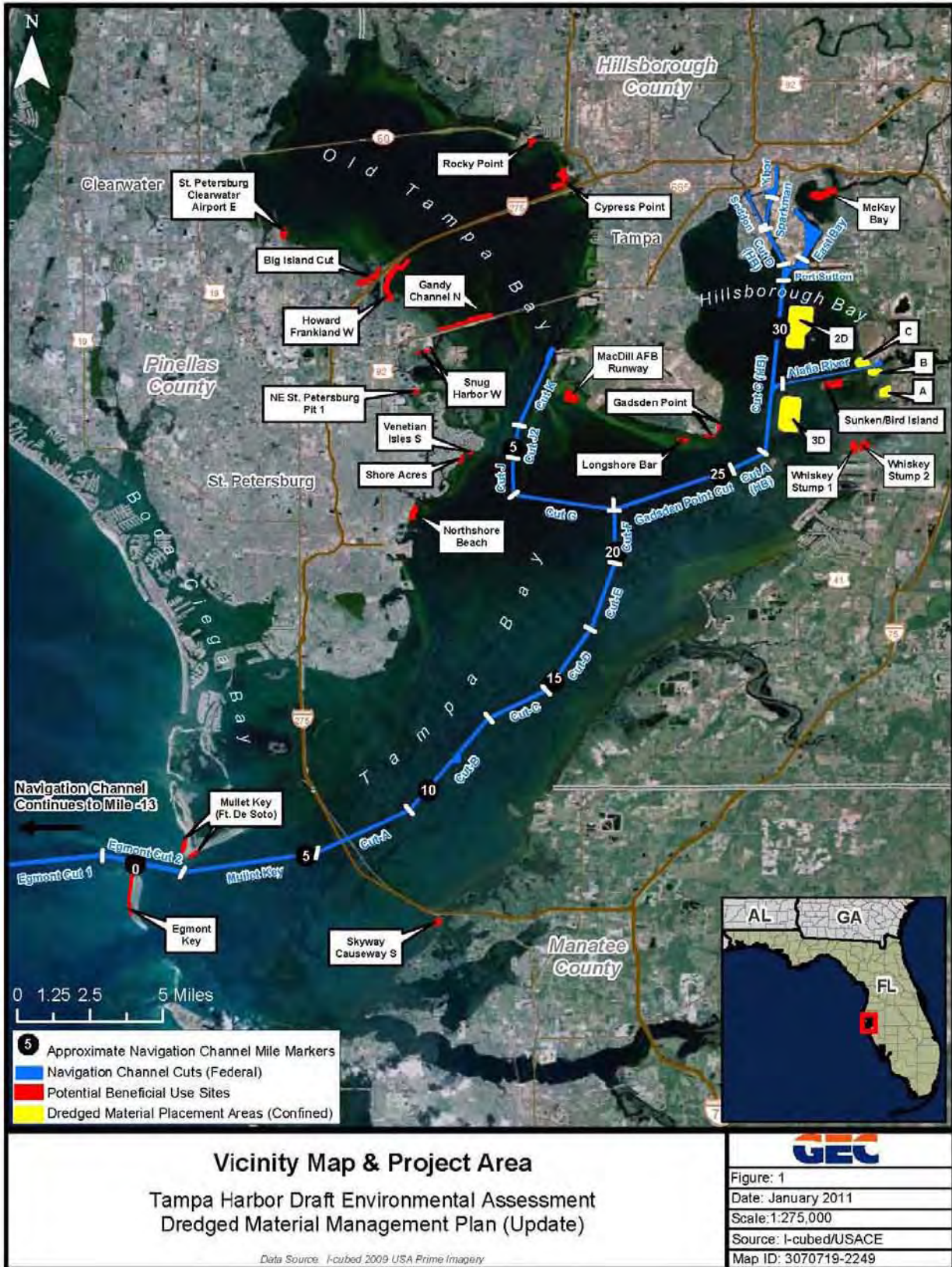
Several channels in the Tampa Bay area that serve large, ocean-going vessels were not constructed with assistance from the Federal government and are not maintained by the Federal government. The Port Sutton Terminal Channel and the Big Bend Channel, along with their associated turning basins and berthing areas, were constructed by and are maintained by the Tampa Port Authority (TPA) and private interests. However, the DMMP provides for the placement of material dredged from the Port Sutton Terminal Channel and the Big Bend Channel, and this EA evaluates maintenance dredging activities in these channels.

### **1.6.3 Berthing Areas**

Berthing area costs associated with Federal harbor projects, whether construction costs or maintenance costs, are generally paid in total by others, not the Federal government. However, construction or maintenance dredging at berthing areas, and placement of that material, sometimes occurs simultaneously with dredging of a Federal channel.



Figure 1. Vicinity Map & Project Area



## **1.6.4 Dredged Material Disposal Areas**

Placement areas to be evaluated for disposal of dredged materials, including beneficial use sites, are described below.

### ***1.6.4.1 Ocean Dredged Material Disposal Site (ODMDS)***

The ODMDS is a 72-foot deep area of approximately four square miles located 21 miles offshore in Federal waters of the Gulf of Mexico. An Environmental Impact Statement (EIS) was prepared by the Environmental Protection Agency (USEPA 1995) and the ODMDS was approved for use in 1995 under the Marine Protection, Research, and Sanctuaries Act (MPRSA) of 1972. The site is operated jointly by the USEPA and the USACE. The USEPA has assumed overall responsibility for site management (USACE 2002). When the ODMDS was approved by the USEPA, it provided an environmentally acceptable option for the disposal of maintenance dredged material from the southern cuts of the Tampa Harbor Federal Navigation Project that previously did not exist. It has not been used for material from the Tampa Harbor Federal Navigation Project since 1997, but is currently listed as available for the disposal of suitable dredged material from the greater Tampa, Florida vicinity. Suitability of fill is outlined in the Site Management and Monitoring Plan (SMMP)(USACE 2009). The ODMDS is included as an authorized dredged material disposal area in the Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization Permit dated April 7, 2006, from the FDEP.

### ***1.6.4.2 Egmont Key (Figure 2)***

Egmont Key is a historically significant island in Hillsborough County. The island is listed on the National Register of Historic Places, and was part of the Fort De Soto complex that protected the inlet to Tampa Bay (Appendix C). It has a 1.6-mile segment of critically eroded beach that has been maintained in the past with material dredged from the greater Tampa Bay area, including the Tampa Harbor Federal Navigation Project. The land is Federally owned (Egmont Key National Wildlife Refuge), but it is managed by the Florida Division of Recreation and Parks as Egmont Key State Park.

Egmont Key is suitable for placing sand or silty sand materials based on the guidelines in F.A.C. 62B-41.007(2)(j). The use of Egmont Key as a placement site for the beneficial use of dredged material has been previously assessed in other EAs (USACE 2004, 2010a). This project was coordinated with the U.S. Fish and Wildlife Service (USFWS) and with the National Marine Fisheries Service (NMFS) under the Endangered Species Act (ESA) through the NMFS Gulf Regional Biological Opinion (GMRBO) (November 19, 2003; Revision No. 1, June 24, 2005; Revision No. 2, January 9, 2007). Section 7 consultation was completed with the USFWS in 2000 and 2010. The Egmont Key shoreline and nearshore disposal sites received a

Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization Permit dated April 7, 2006, from FDEP (Appendix D).

#### **1.6.4.3 Mullet Key (Fort De Soto) (Figure 3)**

Fort De Soto Park is located on Mullet Key, at the southernmost tip of Pinellas County. The fort is a Spanish-American era mortar battery used at the turn of the century to defend the Tampa Bay area, and is on the National Register of Historic Places. Fort De Soto Beach is at the southeast corner of the island, and directly adjacent to the fort and the entrance to Tampa Bay.

The beach experiences erosion due to regular waves and currents as well as those induced by storms. Placement of dredged material for beneficial use would help to protect the historic fort, provide recreational areas, and extend the life of the upland disposal areas. In 2006, approximately 275,000 cubic yards of material from the entrance channel were placed at Fort De Soto Beach; the site requires periodic re-nourishment of suitable sand based on the guidelines in F.A.C. 62B-41.007(2)(j).



Figure 2. Egmont Key



Figure 3. Mullet Key (Ft. De Soto)



An EA was completed on the effects of shoreline placement of dredged material on Mullet Key (USACE 2006a). In accordance with Section 7 of the ESA of 1973 the NMFS was consulted; this project is covered by the NMFS GMRBO (November 19, 2003; Revision No. 1, June 24, 2005; Revision No. 2, January 9, 2007). A Biological Opinion dated July 14, 2006 was provided by the USFWS. The FDEP issued Joint Coastal Permit No. 0157891-011-EM on September 12, 2006 for the project.

#### **1.6.4.4 Dredged Material Management Area (DMMA) 2-D**

This disposal area was created between 1978 and 1982 during the deepening of the Tampa Harbor Federal Navigation Project in Hillsborough County. The placement site was nearing its capacity in the early 2000s and was subsequently enlarged by the TPA. The area's containment dikes have been raised to increase capacity.

DMMA 2-D has been assessed for compliance with NEPA (USACE 1996, 1999a, 2000a, 2000b, 2000c, 2001, 2004, 2009, and 2010a). Coordination with the USFWS was accomplished through the 1999 Fish and Wildlife Coordination Act Report (FWCAR) (USFWS 1999) and a Biological Opinion was offered that the project was "not likely to jeopardize the continued existence of the Florida manatee or result in the adverse modification of designated critical habitat. . ." The USFWS provided additional coordination through a letter of November 3, 1999 (FWS/R4/ES-JAFL) and comments dated July 20, 2009. In accordance with Section 7 of the ESA of 1973 the NMFS was consulted and this project is covered by the NMFS GRBO (November 19, 2003; Revision No. 1, June 24, 2005; Revision No. 2, January 9, 2007).

#### **1.6.4.5 Dredged Material Management Area (DMMA) 3-D**

DMMA 3-D was created between 1978 and 1982, in association with DMMA 2-D, during the deepening of Tampa Harbor Federal Navigation Project. In 2007, the area's containment dikes were raised to increase capacity.

The use of DMMA 3-D was evaluated under NEPA by the USACE (USACE 1996, 2001, 2004, and 2010a). The USFWS coordinated through comments dated July 20, 2009. In accordance with Section 7 of the ESA of 1973 the NMFS was consulted and this project is covered by the NMFS GMRBO (November 19, 2003; Revision No. 1, June 24, 2005; Revision No. 2, January 9, 2007).

DMMA 2-D and DMMA 3-D received a Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization from FDEP dated April 7, 2006 (Appendix D).

#### **1.6.4.6 Longshore Bar (Figure 4)**

The proposed Longshore Bar pilot project would use dredged material beneficially to construct a 950-foot-long bar system along the southeastern shoreline of Interbay

Peninsula. This proposed project was developed by stakeholders in the Tampa Bay community to mitigate wave energy and aid in seagrass recovery. The proposed project consists of four 200-foot-long bars with a 50-foot space between each bar. If constructed, the project will be monitored for at least three years. The structural integrity of the bars would serve as a success criterion. Additional monitoring includes seagrass resources within the project site and at a control site. The project goal is the restoration of 50 acres of seagrass by 2019. Seagrass may be transplanted in front of and behind bars, but natural recruitment is also expected (TBEP, 2009).

Partners in this proposed project include the Environmental Protection Commission of Hillsborough County, City of Tampa, Mote Marine Laboratory, Pinellas County Environmental Foundation, EPA's Gulf of Mexico Program, Coastal Resources Group, Inc. (CRG), MacDill Air Force Base, USFWS, and the TPA.

#### **1.6.4.7 Bird/Sunken Island (Figure 5)**

The USACE has proposed beneficial use of dredged material to expand Bird Island/Sunken Island to enhance bird nesting areas and wildlife habitat. The island has experience land loss through erosion during major storm events and routine tidal forces. Historically, material has been periodically added along the western and northwestern banks to replace those losses. The beneficial use of dredged material to expand the island will assist in protecting, restoring, and enhancing the suitability of the island as a colony site for nesting birds as well as habitat for aquatic and marsh-dwelling wildlife. *Spartina* may be planted along the southeastern and eastern shoreline, and mangrove stands will likely develop rapidly (USACE, 2000c).

Using dredged material for restoring habitat at Bird/Sunken Island has been examined in previous NEPA documents (USACE 1996, 2000a, 2000c, 2005). This site received a Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization (Appendix D) from FDEP dated April 7, 2006. This site would benefit most from sandy materials, but it may benefit from less suitable material as well. The extent of the restoration project would depend upon the quantity of dredged materials available at the time. Sand could be used to cap sub-optimal material.



Figure 4. Longshore Bar Project



Figure 5. Sunken/Bird Island



#### **1.6.4.8 Permitted Dredged Holes**

The beneficial use of dredged material for filling holes created by previous dredging in Tampa Bay has been assessed under NEPA (USACE 2006b). The following dredged holes received a Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization (Appendix D) from FDEP dated April 7, 2006. These sites will benefit most from sandy materials, but they may also benefit from less suitable materials. Sand could be used to cap sub-optimal material. To provide the best opportunity for seagrass recruitment, all holes would be filled to the surrounding depths based on the availability of sufficient quantities of dredged materials.

##### **1.6.4.8.1 Gandy Channel North Dredge Hole (Figure 6)**

The Gandy Channel dredge hole in Pinellas County is approximately 41.5 acres in area and 8.0 feet deep. The surrounding area is a one-foot-deep sand flat habitat with patchy seagrasses and algae cover. The hole was created during construction of the Gandy Bridge causeway, and is owned by State of Florida. Based on a report by the Tampa Bay Estuary Program (TBEP), this area was determined to have low feasibility for use as a dredged material placement site due to the difficult site accessibility (fill material would have to be transported under the Howard Frankland Bridge) and low cost effectiveness (only a small amount of material would fill the hole). The TBEP recommended this hole not be filled due to its high benthic resources; however, filling the hole would help promote seagrass growth (TBEP 2005; USACE 2006b).

##### **1.6.4.8.2 MacDill Air Force Base (AFB) Runway Dredge Hole (Figure 7)**

The MacDill dredge hole in Hillsborough County is approximately 59.3 acres in area and 9.8 feet deep. It is owned by the TPA. The surrounding area is a three-foot-deep sand flat habitat with patchy seagrass. The hole was created when the main runway of MacDill Air Force Base was lengthened into Tampa Bay. The USACE partially filled the hole in 2000 with material dredged from the Federal Channel during maintenance dredging operations. Based on a report by the TBEP, this area was determined to have high feasibility for use as a dredge material placement area due to its location and the possibility for easier and cheaper equipment mobilization, and its moderate cost effectiveness. However, the hole contains viable fish habitat and has become a fish refuge because the area has restricted access. Therefore, the TBEP did not recommend that this hole be filled, but did note that filling the hole would promote seagrass growth (TBEP 2005; USACE 2006b).

Figure 6. Gandy Channel North Dredge Hole





Figure 7. MacDill AFB Runway Extension



Figure 8. McKay Bay Dredge Hole



#### 1.6.4.8.3 McKay Bay Dredge Hole (Figure 8)

The McKay Bay dredge hole in Hillsborough County is approximately 84.3 acres in area and 16.2 feet deep. The hole is owned by the TPA. The surrounding area is a two-foot-deep mud and sand flat habitat. The hole was created to allow equipment to pass at low tide during construction activities upstream of McKay Bay. In a 2005 report by the TBEP, this area was determined to be highly feasible for dredged material placement due to relatively easy and cheap equipment mobilization. In addition, it may be cost effective due to the large amount of fill required. However, nearby bridges may impede access to the site. The TBEP recommended that this hole be filled to the surrounding depth to promote seagrass growth and reduce hypoxia (TBEP 2005; USACE 2006b).

#### 1.6.4.8.4 Northshore Beach Dredge Hole (Figure 9)

The Northshore Beach dredge hole in Pinellas County is approximately 30 acres in area and 17.7 feet deep. The hole is owned by the City of St. Petersburg and the State of Florida. The surrounding area is a 1.5-foot-deep sand flat with patchy seagrass and algae cover. This hole was created during the construction of the Northshore Park and recreational beach. The hole may be a public safety hazard for people wading offshore due to the rapid increase in water depth. In a 2005 report by the TBEP, this area was determined to be highly feasible for use as a dredged material placement site due to relatively easy and cheap equipment mobilization, and because it is moderately cost effective. The TBEP recommended that the hole be filled to the surrounding water depth to promote seagrass growth (TBEP 2005; USACE 2006b).

#### 1.6.4.8.5 Whiskey Stump Key 1 and 2 Dredged Hole (Figure 10)

The Whiskey Stump Key holes are in Hillsborough County and are owned by the TPA. Whiskey Stump 1 dredge hole is approximately 21.6 acres in area and 11.4 feet deep. The surrounding area is a 1.5-foot-deep sand flat habitat. The Whiskey Stump 2 dredge hole is approximately 27.3 acres in area and 14.9 feet deep. The surrounding area is a two-foot-deep sand flat habitat with sparse patchy seagrass and algae coverage. These holes were created to serve as “settling areas” for excess spoil material from Port Redwing (Big Bend) dredge/fill activities that overtopped the berm in the “kitchen” area of Tampa Bay. The 2005 report by the TBEP determined that these areas had high feasibility for use as placement sites due to easier and cheaper equipment mobilization. They were also determined to be moderately cost effective. The TBEP considered filling these areas, but ultimately recommended not filling them since they are suitable fish habitat (TBEP 2005). However, filling the holes to the surrounding depth may promote seagrass growth and help to prevent hypoxia (USACE 2006b).



Figure 9. Northshore Beach Dredge Hole



Figure 10. Whiskey Stump Key 1 & 2 Dredge Holes



#### **1.6.4.9 Unpermitted Dredged Holes**

In addition to the dredge holes previously permitted, consideration is given to the following dredged holes. These holes would require FDEP permitting prior to their use. These sites would benefit most from sandy materials, but they may also benefit from less suitable materials. Sand could be used to cap sub-optimal material. To provide the best opportunity for seagrass recruitment, all holes would be filled to the surrounding depths based on the availability of sufficient quantities of dredged materials.

##### **1.6.4.9.1 Big Island Cut Dredge Hole (Figure 11)**

The Big Island Cut hole is located in Pinellas County just north of the Howard Frankland Bridge Causeway. It has an area of approximately 46.3 acres and a depth of up to 20.7 feet. The surrounding area is approximately two feet deep and is a sand/mud flat with patchy seagrass and algae and a mangrove shoreline. The area is owned by the State of Florida. The hole was dredged to provide material for constructing the Howard Frankland Bridge Causeway and the 4<sup>th</sup> Street interchange. The feasibility of the USACE filling this area was considered to be low in the 2005 TBEP study due to its distance from the nearest channel, the need to transport equipment around two bridges, and the shallow water depths in the area. In addition, the TBEP recommended that the hole not be filled because of the fishery benefits the hole currently offers (TBEP 2005).

##### **1.6.4.9.2 Cypress Point Dredge Hole (Figure 12)**

The Cypress Point hole is located in Hillsborough County on the eastern shoreline of Old Tampa Bay just north of the Howard Frankland Bridge Causeway. It has an area of approximately 63.6 acres and a depth of up to 11.9 feet. The surrounding area includes a beach and a sand flat approximately 2.5 feet deep with patchy seagrass and algae. The area is owned by the TPA. The hole was dredged to provide material for constructing the Howard Frankland Bridge Causeway and the Westshore Mall. In the 2005 TBEP study, the feasibility of the USACE filling this area was considered to be low due to its distance from the nearest channel and the need to negotiate two bridges. However, the TBEP recommended partially filling this area to stabilize the shoreline and reduce erosion (TBEP 2005).

##### **1.6.4.9.3 Gadsden Point (2 Dredge Holes) (Figure 13)**

The Gadsden Point holes are located in Hillsborough County at the southeastern corner of the Interbay Peninsula adjacent to the MacDill AFB golf course. The two holes comprise 6.8 and 3.8 acres. The area around the southern hole contains patchy seagrass, while the eastern hole appears to be surrounded by sand flat. The area is managed by the U.S. Air Force. The holes were apparently dredged to provide fill for construction purposes at MacDill AFB. Jason Kirkpatrick, a contractor for the USAF, stated in an email message that the holes are at least

partially responsible for much of the erosion that occurs at the southeastern corner of MacDill AFB. Due to the close proximity of the site to the Federal channel, the feasibility of the USACE filling the holes is considered to be moderate.



Figure 11. Big Island Cut Dredge Hole





Figure 12. Cypress Point Dredge Hole



Figure 13. Gadsden Point Dredge Holes



#### 1.6.4.9.4 Howard Frankland West Dredge Hole (Figure 14)

The Howard Frankland West hole is located in Pinellas County just south of the Howard Frankland Bridge Causeway. It has an area of approximately 104.7 acres with an unknown depth. The area appears to be owned by Pinellas County and private concerns. The surrounding area is shallow and based on aerial photography, appears to be a sand/mud flat with patchy seagrass and algae. The hole was dredged to provide material for constructing the Howard Frankland Bridge Causeway. The feasibility of the USACE filling this area is considered low due to distance from the nearest channel.

#### 1.6.4.9.5 Northeast St. Petersburg Pit 1 (Figure 15)

The Northeast St. Petersburg Borrow Pit 1 is located in Pinellas County adjacent to the Pinellas County Aquatic Preserve in St. Petersburg. It has an area of approximately 9.5 acres and a depth of up to 24.4 feet. The surrounding area is approximately three feet deep. The area is owned by the City of St. Petersburg. The hole was dredged to provide fill material for constructing the Mangrove Bay Golf Course, a mobile home park, and residential areas. The feasibility of the USACE filling this area is considered high due to proximity to the nearest channel. The TBEP recommended partially filling this area to depths between -10 and +3 feet to address hypoxia problems (TBEP 2005).

#### 1.6.4.9.6 Rocky Point Dredge Hole (Figure 16)

The Rocky Point hole is located in Hillsborough County on the eastern shore of Old Tampa Bay just south of the West Courtney Campbell Causeway. It has an area of approximately 15.8 acres. Based on aerial photography, the surrounding area includes mud/sand flat area with patchy seagrass and mangroves along the shore. The site is owned by the TPA. The hole was likely dredged to construct the causeway and nearby commercial buildings at Rocky Point. The feasibility of the USACE filling the site is considered low due to the distance from the nearest channel.

#### 1.6.4.9.7 Shore Acres Dredge Hole (Figure 17)

The Shore Acres hole is located in Pinellas County along the west-central portion of Tampa Bay. It has an area of approximately 5.1 acres and a depth of up to 15.4 feet. The surrounding area is approximately 1.5 feet deep and is a sand flat with patchy seagrass and algae. The area is owned by the State of Florida. The hole was dredged to provide fill material for constructing residential areas. The feasibility of the USACE filling this area is considered high due to proximity to the nearest channel. The TBEP recommended not filling this site because of its use as a small boat channel and its high quality fishery (TBEP 2005).



Figure 14. Howard Frankland West



Figure 15. Northeast St. Petersburg Pit 1





Figure 16. Rocky Point Dredge Hole



Figure 17. Shore Acres Dredge Hole





#### 1.6.4.9.8 Skyway Causeway South Dredge Hole (Figure 18)

The Skyway Causeway South hole is located in Manatee County on the south side of the approach to the Bob Graham Sunshine Skyway Bridge. It has an area of approximately 13.7 acres. The surrounding area appears to be a sand/mud flat with continuous seagrass. The ownership of the site is unknown. The hole appears to have been dredged to construct the approach to the Skyway Causeway Bridge. Although the site is near to a channel, the likelihood of it receiving fill is likely low because the material would more likely be placed at the nearby Mullet Key and Egmont Key. Brandt Henningsen with the Southwest Florida Water Management District stated in a personal communication that the site may not be a good candidate to receive dredged material because a continuous seagrass bed is nearby and the site is apparently well flushed.

#### 1.6.4.9.9 Snug Harbor West (2 Dredge Holes) (Figure 19)

The Snug Harbor West Holes are located in Pinellas County along the southwestern corner of Old Tampa Bay. The holes have a combined acreage of approximately 4.4 acres. The surrounding area includes an adjacent navigation channel and a sand flat with patchy seagrass/algae and mangroves. The site is owned by the Pinellas Aquatic Preserve. The holes were apparently the source of fill for constructing the nearby residential and commercial sites. The feasibility of the USACE filling the holes is considered moderate; although the site is located not far from the nearest ship channel, a pipeline to transport dredged material would require a circuitous route through the navigation channel. The potential for impacts to the locally maintained channel with its aids to navigation around the site may create permitting problems.

#### 1.6.4.9.10 St. Petersburg-Clearwater Airport East Dredge Hole (Figure 20)

The St. Petersburg-Clearwater Airport East hole is located in Pinellas County in southwest Old Tampa Bay. It has an area of approximately 21 acres and a depth of up to 9.5 feet. The surrounding area is approximately 1.5 feet deep with a sand/mud flat and a mangrove/riprap shoreline. The area is owned by the State of Florida. The hole was dredged to provide fill material for extending the airport runway. The feasibility of the USACE filling this area is considered low due to distance from the nearest channel and the need to negotiate two bridges. The TBEP recommended not filling this area because of the fishery benefits the hole offers (TBEP 2005).

#### 1.6.4.9.11 Venetian Isles South Dredge Hole (Figure 21)

The Venetian Isles hole is located in Pinellas County along the northwestern side of Tampa Bay. It has an area of approximately 3.2 acres. The surrounding area includes an adjacent navigation channel and a sand flat with patchy seagrass/algae. The site is owned by the Pinellas County Aquatic Preserve. The hole was



apparently the source of fill for constructing the nearby residential area. The feasibility of the USACE filling the hole is high due to the proximity to the ship channel. Representatives of the TBEP have stated in email messages that the biological characteristics of the site are probably similar to the nearby Shore Acres Dredge Hole, and therefore it is probably not a good candidate for receiving fill. Additionally, the potential for impacts to the locally maintained channel with its aids to navigation around the site may create permitting problems.

A summary of comments and recommendations on dredge holes by personnel and representatives associated with interested agencies are provided in Table 3.

Figure 18. Skyway Causeway South Hole

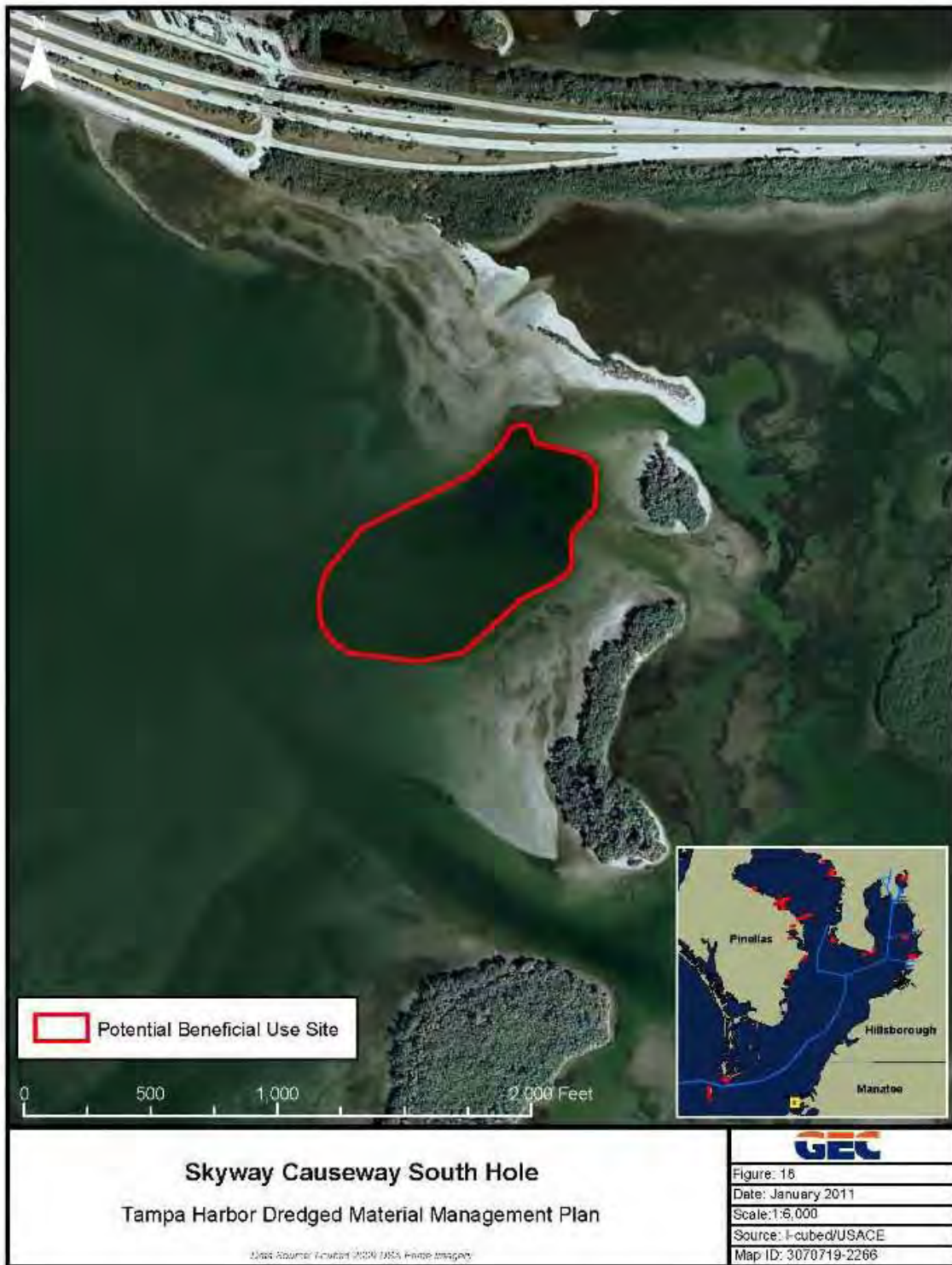


Figure 19. Snug Harbor West Dredge Cuts





Figure 20. St. Petersburg/Clearwater Airport East



Figure 21. Venetian Isles South



**Table 3. Summary of Agency Comments on Dredge Holes**

<b>Location</b>	<b>Agency</b>	<b>Comments</b>
Big Island Cut	TBEP	Do not fill – high quality fishery
Cypress Point	TBEP	Partially fill to stabilize shoreline and reduce erosion
Gadsden Point (2 holes)	USAF	Filling could reduce erosion
Gandy Channel North	TBEP	Do not fill - high quality benthic resources
Howard Frankland West	None	No agency comments
MacDill AFB Runway	TBEP	Do not fill – high quality fishery and benthic resources
McKay Bay	TBEP	Fill to surrounding depth to reduce hypoxia
Northeast St. Petersburg Pit 1	TBEP	Partially fill to reduce hypoxia
Northshore Beach	TBEP	Fill to surrounding depth to encourage seagrass expansion
Rocky Point	None	No agency comments
Shore Acres	TBEP	Do not fill - used as a boat channel and has high quality fishery
Skyway Causeway South	SWFWMD	Not a good candidate because of nearby continuous seagrass beds and good flushing
Snug Harbor West (2 holes)	None	No agency comments
St. Pete-Clearwater Airport	TBEP	Do not fill - high quality fishery
Venetian Isles	TBEP	Do not fill - boat channel and high quality fishery
Whiskey Stump Key 1 & 2	TBEP	Do not fill – high quality fishery and benthic resources



## 1.7 RELATED STUDIES

Previous EAs have assessed the impacts of maintenance dredging to ensure that the channel retains its federally authorized dimensions and the impacts of placing material dredged from the channel into sites identified in the DMMP (Table 4 and Table 5). Environmental impacts associated with the maintenance dredging of Tampa Harbor and the placement of this dredged material have been previously assessed in two EAs (USACE 2004, 2006b; Table 3) resulting in Findings of No Significant Impact (FONSI). The USFWS provided coordination for both documents under the ESA. The USFWS, by letter of April 5, 2000, concurred with the USACE determination that the 2004 project was not likely to jeopardize the continued existence of the loggerhead or green turtle, and was not likely to destroy or adversely modify designated critical habitat. No impact to manatees was expected with the 2006 dredging if the project adhered to the standard manatee protection conditions. The two main documents that cover the entire project are listed in Table 4. Other documents covering portions of the project are listed in Table 5. The documents addressed in Tables 4 and 5 are incorporated by reference. Website links to related studies and material cited in this EA, where available, are listed in Section 9.0, *Literature Cited*. The following environmental documents related to the Tampa project are incorporated by reference:

- *National Marine Fisheries Service (NOAA Fisheries) Gulf Regional Biological Opinion: Endangered Species Act – Section 7 Consultation*. November 19, 2003, <http://el.erdc.usace.army.mil/tessp/pdfs/2003GulfBO.pdf>; Revision No. 1, June 24, 2005, <http://el.erdc.usace.army.mil/tessp/pdfs/2005GulfBO.pdf>; Revision No. 2, January 9, 2007, <http://el.erdc.usace.army.mil/tessp/pdfs/2007GulfBO.pdf>.
- *U.S. Army Corps of Engineers Management Protocol for Effective Implementation of the National Marine Fisheries Service Regional Biological Opinion for Hopper Dredging Gulf of Mexico*. USACE, issued December 2006 and updated April 2010, <http://el.erdc.usace.army.mil/seaturtles/docs/GRBOProtocol.pdf>.

## 1.8 DECISION TO BE MADE

This EA evaluates the impacts of conducting operations and maintenance dredging in Tampa Harbor and to dispose of the resulting dredged material at the locations described in Section 1.0, Project Purpose, Scope, and Authority. This assessment includes containment dike raising and other construction and maintenance activities at DMMAs 2-D and 3-D required to conduct necessary operations and maintenance dredging of Tampa Harbor. Potential beneficial uses of dredged

material would be taken advantage of whenever economically feasible. The findings of this EA will be considered in the decision on whether to conduct these activities, or to cease maintenance dredging of the navigation channel.

**Table 4. Previous Environmental Assessments for Entire Federal Project**

Action Areas	Document Name	Action Assessed	Decision
<p><b>Channels to be Maintenance Dredged:</b> Egmont 1 &amp; 2, Mullet Key Tampa Bay A, B, C, D, E, F, G, J, J2, &amp; K, Gadsden Point, Big Bend, Hillsborough Bay A, C, &amp; D, Alafia, Port Sutton, East Bay, East Bay Extensions 1 &amp; 2 , Lower Sparkman, Upper Sparkman, Sparkman, Ybor, Seddon</p> <p><b>Placement Areas:</b> Egmont Key, ODMDS, DMMA 2-D &amp; 3-D, Mosaic Site A</p>	<p><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</p>	<p>This EA assessed:</p> <ul style="list-style-type: none"> <li>• Dredging Entrance Channel and Turning Basin to be disposed at ODMDS</li> <li>• Dredging Entrance Channel and Turning Basin to be disposed at Egmont Key</li> <li>• Dredging Hillsborough Bay and disposal in DMMA 2-D and/or 3-D</li> <li>• Dredging Big Bend and Alafia River and disposal at Mosaic Site A</li> </ul>	<p>FONSI Feb 7, 2005</p>
<p><b>Channels to be Maintenance Dredged:</b> Egmont 1 &amp; 2, Mullet Key Tampa Bay A, B, C, D, E, F, G, J, J2, &amp; K, Gadsden Point, Big Bend, Hillsborough Bay A, C, &amp; D, Alafia, Port Sutton, East Bay, East Bay Extensions 1 &amp; 2 , Lower Sparkman, Upper Sparkman, Sparkman, Ybor, Seddon</p> <p><b>Placement Areas:</b> Dredged hole</p>	<p><i>Tampa Harbor O&amp;M (Holes) Navigation Project Final.</i> USACE, February 2006.</p>	<p>This EA assessed the maintenance dredging of the Tampa Harbor Navigation Project and disposal at any of the following dredged holes:</p> <ul style="list-style-type: none"> <li>• Gandy Channel North</li> <li>• MacDill Air Force Base Runway Extension</li> <li>• McKay Bay</li> <li>• Northshore Beach</li> <li>• Whiskey Stump Key 1</li> <li>• Whiskey Stump Key 2</li> </ul>	<p>FONSI Feb 7, 2006</p>



**Table 5. Previous Environmental Assessments by Reach and Placement Area**

Action Area	Document Name	Action Taken
<b>Egmont 1</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>Egmont 2</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>Mullet</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Tampa Harbor Maintenance Dredging and Beneficial Use of Dredged Material Mullet Key (Ft. De Soto) Shoreline Placement Hillsborough County, Florida.</i> USACE, September 2006.</li> </ul>	FONSI Feb 7, 2005 FONSI Oct 2, 2006
<b>A</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, June 2010.</li> </ul>	FONSI Feb 7, 2005 FONSI June 29, 2010
<b>B</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>C</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>D</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>E</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>F</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, June 2010.</li> </ul>	FONSI Feb 7, 2005 FONSI June 29, 2010
<b>G</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Tampa Harbor – MacDill Seagrass Bed and Harbor Isle Lake Restoration Hillsborough and Pinellas Counties, Florida.</i> USACE, August 2001.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, June 2010.</li> </ul>	FONSI Sept 5, 2001 FONSI Feb 7, 2005 FONSI June 29, 2010
<b>J</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>J2</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>K (Port Tampa &amp; Tampa Bay)</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> </ul>	FONSI Feb 7, 2005 FONSI Aug 13, 2009
<b>Gadsden</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>A (Hillsborough Bay)</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>Big Bend</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Sep 20, 1996 FONSI Feb 7, 2005
<b>C (Hillsborough Bay)</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> </ul>	FONSI Feb 7, 2005 FONSI Aug 13, 2009
<b>Alafia River &amp; Tampa Bay</b>	<ul style="list-style-type: none"> <li><i>Channel and Turning Basin Tampa Harbor – Alafia River Hillsborough County, Florida.</i> USACE, August 2000.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	Final EA Issued May 15, 2000 FONSI Feb 7, 2005

Action Area	Document Name	Action Taken
<b>Port Sutton Entrance, Terminal &amp; Tampa Bay</b>	<ul style="list-style-type: none"> <li>• <i>Port Sutton Channel – Tampa Harbor Hillsborough County, Florida.</i> USACE, September 2000.</li> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li>• <i>Evaluation of Two Additional Disposal Options for the New Construction Port Sutton Navigation Channel for Beneficial Uses of Dredged Material Tampa Harbor Hillsborough County, Florida.</i> USACE, September 2000 Revised August 2005.</li> <li>• <i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> </ul>	FONSI Oct 4, 2000 FONSI Feb 7, 2005 FONSI Feb 24, 2006  FONSI Aug 13, 2009
<b>East Bay Approach, Entrance, Extensions, &amp; Tampa Bay</b>	<ul style="list-style-type: none"> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>D (Hillsborough Bay)</b>	<ul style="list-style-type: none"> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>Sparkman</b>	<ul style="list-style-type: none"> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li>• <i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> </ul>	FONSI Feb 7, 2005 FONSI Aug 13, 2009
<b>Ybor &amp; Tampa Bay</b>	<ul style="list-style-type: none"> <li>• <i>Construction and Beneficial Use of Dredged Material Tampa Harbor – Ybor Navigation Channel Turning Basin Hillsborough County, Florida.</i> USACE, February 2000.</li> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li>• <i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> </ul>	FONSI Feb 29, 2000 FONSI Feb 7, 2005 FONSI Aug 13, 2009
<b>Hillsborough River &amp; Tampa Bay</b>	<ul style="list-style-type: none"> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	FONSI Feb 7, 2005
<b>ODMDS</b>	<ul style="list-style-type: none"> <li>• <i>Final Environmental Impact Statement for the Designation of an Ocean Dredged Material Disposal Site Located Offshore Tampa, Florida.</i> USEPA, September 1994</li> <li>• <i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> <li>• <i>Channel and Turning Basin Tampa Harbor – Alafia River Hillsborough County, Florida.</i> USACE, August 2000.</li> <li>• <i>Port Sutton Channel – Tampa Harbor Hillsborough County, Florida.</i> USACE, September 2000.</li> <li>• <i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	Approval May 1995 FONSI Sept 20, 1996 Final EA Issued May 15, 2000 FONSI Oct 4, 2000 FONSI Feb 7, 2005

Action Area	Document Name	Action Taken
<b>DMMA 2-D</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> <li><i>Disposal Island 2D Dike Height Increase,</i> USACE 1999</li> <li><i>Construction and Beneficial Use of Dredged Material Tampa Harbor – Ybor Navigation Channel Turning Basin Hillsborough County, Florida.</i> USACE, February 2000.</li> <li><i>Channel and Turning Basin Tampa Harbor – Alafia River Hillsborough County, Florida.</i> USACE, August 2000.</li> <li><i>Port Sutton Channel – Tampa Harbor Hillsborough County, Florida.</i> USACE, September 2000.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Tampa Harbor – MacDill Seagrass Bed and Harbor Isle Lake Restoration Hillsborough and Pinellas Counties, Florida.</i> USACE, August 2001.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Port Tampa, 43 and 34 Foot Project, Cut C, Port Sutton Turning Basin, Sparkman Channel Upper, and the Ybor Channel Hillsborough County, Florida.</i> USACE, August 2009.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, March 2010.</li> </ul>	<p>FONSI Sept 20, 1996</p> <p>FONSI Feb 29, 2000 Final EA Issued May 15, 2000</p> <p>FONSI Oct 4, 2000</p> <p>FONSI Sept 5, 2001</p> <p>FONSI Feb 7, 2005</p> <p>FONSI Aug 13, 2009</p> <p>FONSI June 29, 2010</p>
<b>DMMA 3-D</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Tampa Harbor – MacDill Seagrass Bed and Harbor Isle Lake Restoration Hillsborough and Pinellas Counties, Florida.</i> USACE, August 2001.</li> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, June 2010.</li> </ul>	<p>FONSI Sept 20, 1996</p> <p>FONSI Sept 5, 2001</p> <p>FONSI Feb 7, 2005</p> <p>FONSI June 29, 2010</p>
<b>Mosaic Site A</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> </ul>	<p>FONSI Feb 7, 2005</p>
<b>Bird/Sunken Island Expansion</b>	<ul style="list-style-type: none"> <li><i>Environmental Assessment, Big Bend Navigation Study, Hillsborough County, Florida.</i> USACE September 1996.</li> <li><i>Final Environmental Assessment, Channel, and Turning Basin Expansion, Tampa Harbor – Alafia River, Hillsborough County, Florida.</i> USACE. August 2000</li> <li><i>Evaluation of Two Additional Disposal Options for the New Construction Port Sutton Navigation Channel for Beneficial Uses of Dredged Material, Tampa Harbor, Hillsborough County, Florida,</i> USACE. September 2000, Revised August 2005.</li> </ul>	<p>FONSI Sep 20, 1996</p> <p>Final EA Issued Aug 2000</p> <p>FONSI Feb 24, 2006</p>
<b>Gandy Channel North Hole</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor O&amp;M (Holes) Navigation Project Final.</i> USACE, February 2006.</li> </ul>	<p>FONSI Feb 7, 2006</p>
<b>MacDill AFB Runway Hole</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Tampa Harbor – MacDill Seagrass Bed and Harbor Isle Lake Restoration Hillsborough and Pinellas Counties, Florida.</i> USACE, August 2001.</li> <li><i>Tampa Harbor O&amp;M (Holes) Navigation Project Final.</i> USACE, February 2006.</li> </ul>	<p>FONSI Sept 5, 2001</p> <p>FONSI Feb 7, 2006</p>
<b>McKay Bay Dredge Hole</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor O&amp;M (Holes) Navigation Project Final.</i> USACE, February 2006.</li> </ul>	<p>FONSI Feb 7, 2006</p>
<b>Northshore Beach Hole</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor O&amp;M (Holes) Navigation Project Final.</i> USACE, February 2006.</li> </ul>	<p>FONSI Feb 7, 2006</p>
<b>Whiskey Stump Key Holes 1 &amp; 2</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> <li><i>Channel and Turning Basin Tampa Harbor – Alafia River Hillsborough County, Florida.</i> USACE, August 2000.</li> <li><i>Tampa Harbor – Big Bend Channel Navigation Improvements.</i> USACE, September 1996.</li> </ul>	<p>FONSI Sept 20, 1996</p> <p>Final EA Issued May 15, 2000</p> <p>FONSI Sept 20, 1996</p>
<b>Egmont Key</b>	<ul style="list-style-type: none"> <li><i>Maintenance Dredging and Beneficial Use of Dredged Material Egmont Key Shoreline Placement Tampa Harbor Pinellas County, Florida.</i> USACE, June 2004.</li> <li><i>Maintenance Dredging, Cut A, Cut F, and Cut G, 43 Foot and 34 Foot Project Hillsborough and Pinellas Counties, Florida.</i> USACE, June 2010.</li> </ul>	<p>FONSI Feb 7, 2005</p> <p>FONSI June 29, 2010</p>
<b>Mullet Key (Fort De Soto)</b>	<ul style="list-style-type: none"> <li><i>Tampa Harbor Maintenance Dredging and Beneficial Use of Dredged Material Mullet Key (Ft. De Soto) Shoreline Placement Hillsborough County, Florida.</i> USACE, September 2006.</li> </ul>	<p>FONSI Oct 2, 2006</p>

## 1.9 PERMITS, LICENSES, AND ENTITLEMENTS

Permits and licenses required include a State Water Quality Certificate under Section 401 of the Clean Water Act, a Coastal Zone Consistency Determination (Appendix A), and a Clean Water Act Section 404(b)(1) report (Appendix B). The project is in compliance with environmental requirements (presented in Sections 5 and 6). Water quality certification for both the dredge areas and the placement sites discussed herein was provided according to the Consolidated Environmental Resource Permit and Sovereign Submerged Lands Authorization Permit dated April 7, 2006, issued by the FDEP for 67 miles of existing channels and berthing areas, including: Egmont Bar Channels 1 and 2; Mullet Key Channel; Tampa Bay Channel; Cuts A, B, C, D, E, F, G, J, J-2, and K; Gadsden Point Cut; Big Bend Channel; Alafia River; Hillsborough Bay Channel; Cuts A, C, and D; Port Sutton Channel; East Bay Channel; East Bay Extensions 1 and 2; Lower Sparkman Channel; Upper Sparkman Channel; Sparkman Channel; and Ybor Channel (Appendix D). Chapter 403, Environmental Control, of the Florida State Regulations authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Protection. The Coastal Zone Consistency Determination is addressed in Appendix A and provides compliance with Chapter 403.

Regulations implementing Section 7 of the Endangered Species Act (50 CFR 402.02) define Reasonable and Prudent Measures as actions the Secretaries of the Departments of Commerce and Interior believe necessary or appropriate to minimize the impacts of actions on protected species. Reasonable and Prudent Measures provided by the NMFS, which are conditions for dredging by the USACE, are found in the 2003 NMFS Gulf Regional Biological Opinion (GRBO).

The USFWS issued a Biological Opinion for the Florida manatee in the 1999 Fish and Wildlife Coordination Act Report appended to the EA for the Ybor Channel Turning Basin and Port Sutton Terminal Channel Projects (USACE 1999b). Although several discretionary conservation recommendations were offered, no Reasonable and Prudent Measures were provided. Subsequent USFWS consultation under Section 7 for Tampa Harbor NEPA documents has referred to the 1999 Biological Opinion.

A USFWS Biological Opinion for the loggerhead and green sea turtles was provided to the USACE for Tampa Harbor maintenance dredging with material used for beach nourishment at Mullet Key (USACE 2006a). Reasonable and Prudent Measures consisted of:

1. *Beach quality sand suitable for sea turtle nesting, successful incubation, and hatchling emergence must be used on the project site. Sand shall not be placed on any areas where fallen trees occur.*

2. *If the beach nourishment project will be conducted during the sea turtle nesting season, surveys for nesting sea turtles must be conducted. If nests are constructed in the area of beach nourishment, the eggs must be relocated.*
3. *Immediately after completion of the beach nourishment project and prior to the next three nesting seasons, beach compaction must be monitored and tilling must be conducted as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.*
4. *Immediately after completion of the beach nourishment project and prior to the next three nesting seasons, monitoring must be conducted to determine if escarpments are present and escarpments must be leveled as required to reduce the likelihood of impacting sea turtle nesting and hatching activities.*
5. *The applicant must ensure that contractors doing the beach nourishment work fully understand the sea turtle protection measures detailed in this incidental take statement.*
6. *During the sea turtle nesting season, construction equipment and pipes must be stored in a manner that will minimize impacts to sea turtles to the maximum extent practicable.*
7. *During the sea turtle nesting season, lighting associated with the project must be minimized to reduce the possibility of disrupting and misdirecting nesting and/or hatchling sea turtles.*
8. *In areas of the project where there is no dune, a dune must be constructed.*





## **2.0 ALTERNATIVES**

This section describes the No Action Alternative and the TSP. The TSP is the environmentally preferred alternative chosen after evaluating numerous disposal sites and discussing disposal options with stakeholders. Based on the information and analysis presented in Section 3.0, Affected Environment, and Section 4.0, Environmental Effects, this section presents the beneficial and adverse environmental effects of all alternatives in comparative form, providing a clear basis for choice among the options for the decision maker and the public.

### **2.1 DESCRIPTION OF ALTERNATIVES**

#### **2.1.1 No Action Alternative**

The No Action Alternative is to discontinue maintenance dredging of the navigational channels of Port of Tampa, which would include ceasing the use of the disposal areas identified in Section 1.0, Project Purpose, Scope, and Authority. The navigational channels will slowly shoal in, and the Port will not be able to operate at full capacity.

#### **2.1.2 Tentatively Selected Plan**

The TSP is to conduct operations and maintenance dredging of Tampa Harbor and to dispose of the resulting dredged material at the locations described in Section 1.0, Project Purpose, Scope, and Authority. The TSP includes containment dike raising and other construction and maintenance activities at DMMAs 2-D and 3-D required to conduct necessary operations and maintenance dredging of Tampa Harbor. Potential beneficial uses of dredged material will be taken advantage of whenever economically feasible.

### **2.2 COMPARISON OF ALTERNATIVES**

The major features and consequences of the proposed project (TSP) and the No Action Alternative are described in Table 6. Section 4.0, Environmental Effects, includes a detailed discussion of the impacts of the alternatives. The proposed plan and the No Action Alternative would have similar effects on threatened and endangered species, fish and wildlife species, hardbottom and livebottom resources, benthic habitat, Essential Fish Habitat, water quality, noise, aesthetics, recreation, and public safety.

**Table 6. Comparison of Alternatives**

<b>Environmental Factor</b>	<b>Tentatively Selected Plan</b>	<b>No Action Alternative</b>
Sediment Characteristics	No effect to native sediment characteristics.	The native sediment characteristics would remain unchanged.
Fish and Wildlife	Restrictions on the placement of material at migratory and shore bird nesting areas would be implemented through the Migratory Bird Protection Policy. Otherwise, dredging and placement would have only minor, temporary effects on fish and wildlife.	No impact.
Threatened and Endangered Species	With the implementation of procedures to protect manatees, Gulf sturgeon, and sea turtles, the project is not likely to adversely affect threatened or endangered species.	No impact.
Wildlife Refuges, Sanctuaries, and Management Areas	No adverse impact. Egmont Key National Wildlife Refuge would benefit from the placement of sand to offset erosion and to protect resources.	Continued erosion at Egmont Key and Mullet Key would result in the loss of important wildlife sanctuaries.
Essential Fish Habitat	No impact.	No impact.
Water Quality	Minor, temporary reduction of water quality due to turbidity from dredging and disposal operations.	No impact.
HTRW	No impact.	No impact.
Noise	A temporary increase in the noise level during construction in the vicinity of the project would occur.	No impact.
Aesthetic Resources	During construction, equipment used for dredging would be visible, resulting in a temporary reduction in the aesthetic value in the construction area.	No impact.

Environmental Factor	Tentatively Selected Plan	No Action Alternative
Recreation Resources	Placement of material may cause minor, temporary restrictions in recreation during operations. Filling some holes would adversely affect recreational fisheries.	Continued erosion at Egmont Key and Mullet Key would result in the loss of recreational areas.
Socioeconomics	Social and economic benefits that are based on navigation associated with the Federal project would continue.	Severe deleterious effects on the local and regional economy as the navigation channels would not have the draft to accommodate much of the waterborne commerce.
Navigation and Public Safety	During dredging and placement activities, access to the area in the immediate vicinity of construction could temporarily affect navigation.	Shoaling and reduced channel depths would adversely affect navigation and public safety.
Cultural Resources	No adverse impact. Egmont Key would benefit from the placement of sand to mitigate for erosion and to protect cultural resources. Coordination with the Park/State Historic Preservation Office (SHPO) would be maintained.	Continued erosion at Egmont Key and Mullet Key would result in the loss of historic properties.
Energy Requirements and Conservation	Fuel would be required to operate dredges, pumps, and land moving equipment.	No impact





### **3.0 AFFECTED ENVIRONMENT**

The Affected Environment section describes the existing environmental resources of the areas that would be affected if either alternative were implemented. This section describes only those environmental resources that are relevant to the decision to be made. It does not describe the entire existing environment, but only those environmental resources that would affect or that would be affected by the alternatives if they were implemented. This section, in conjunction with the description of the No Action Alternative, forms the baseline conditions for determining the environmental impacts of the reasonable alternatives.

#### **3.1 SEDIMENT QUALITY**

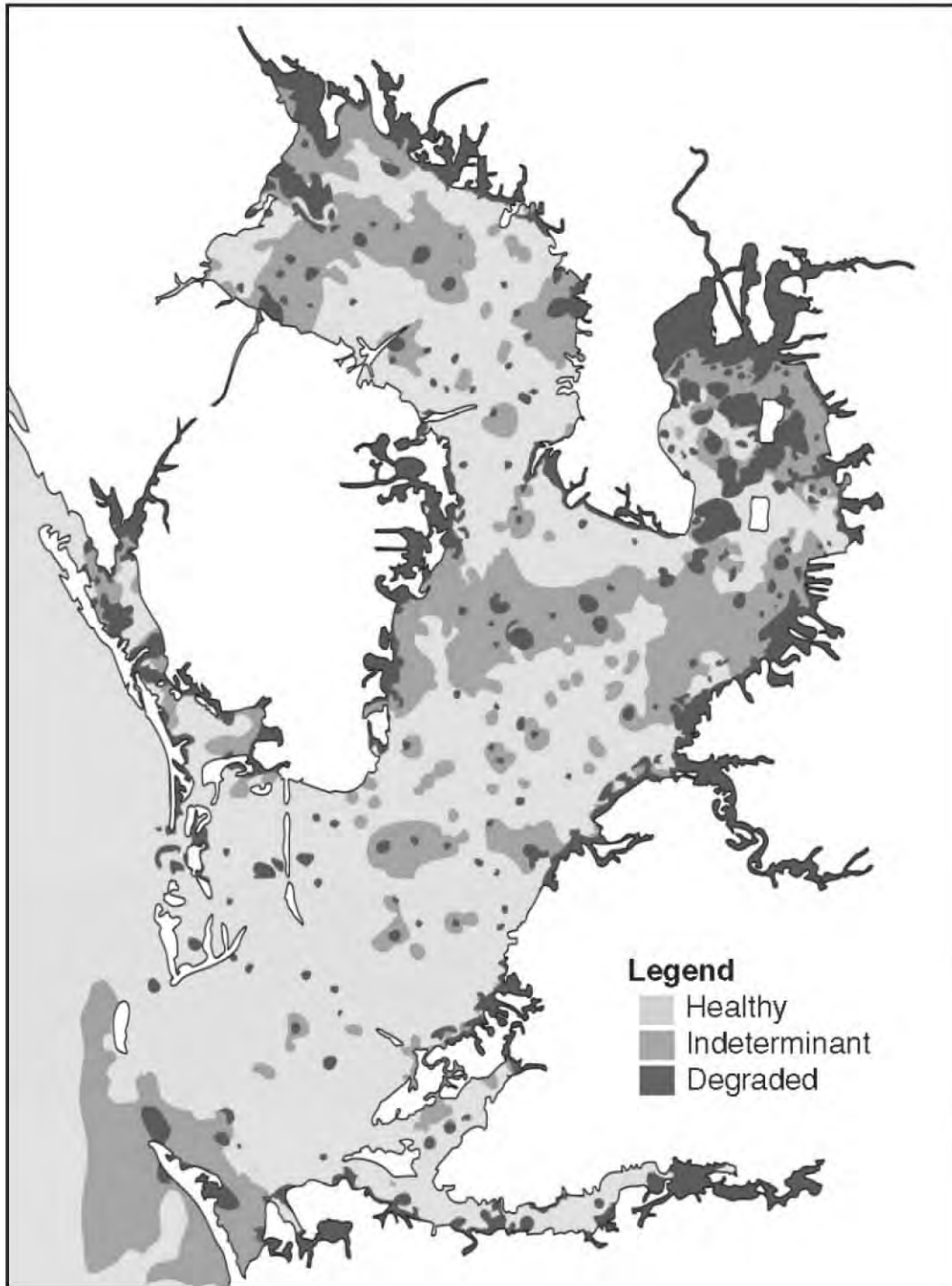
##### **3.1.1 Tampa Bay Sediment Quality**

The development and use of the Tampa Bay Benthic Index (TBBI) has enabled the assessment of contaminated sediments in the Tampa Bay system. Low dissolved oxygen, excessive contamination of heavy metals, and hydrocarbons in sediments can affect the structure of the assemblages of benthic (bottom-dwelling) organisms living in or on these sediments (Malloy et al., 2007). Benthic monitoring is coordinated by the TBEP and the Environmental Protection Commission of Hillsborough County with participation by Manatee and Pinellas counties. About 120 samples are analyzed each year (TBEP 2006).

Sampling indicates no significant changes in contamination since 1993, when intensive sediment sampling began (TBEP 2006). However, the TBBI has enabled the identification of sites where degraded benthic communities are associated with contaminants and the severity of contamination at the sites (TBEP 2005). Contaminants of concern include cadmium, chromium, copper, lead, zinc, polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs), and the pesticides DDT, Chlordane, Mirex, Endosulfan, and Dieldrin (TBEP 2006).

The TBBI scores indicate that much of Tampa Bay is not adversely affected by sediment contamination (Figure 22). There are, however, contaminated sites at the Port of Tampa, the mouth of the Hillsborough River, the St. Petersburg/Clearwater Airport, Bayboro Harbor, and the Apollo Beach/Big Bend area; contaminants include heavy metals, PAHs, PCBs, and pesticides (TBEP 2011). It was concluded that the source of most of the contamination was stormwater runoff and atmospheric deposition.

**Figure 22. Distribution of Contamination in Tampa Bay based on the Tampa Bay Benthic Index**



Source: TBEP 2006.

### 3.1.2 Characteristics of Sediments in Dredge Holes

As part of the 2005 study of Tampa Bay dredged holes (TBEP 2005), the quality of sediments in the holes was assessed. For each of the contaminants which were sampled, a determination was made for the possible effects of the contaminant. Two threshold levels have been defined by the USEPA: Threshold Effects Level (TEL) and Probable Effects Level (PEL). TEL is defined as “a chemical concentration in some item (dose) that is ingested by an organism, above which some effect (or response) will be produced and below which it will not. This item is usually food, but can also be soil, sediment, or surface water that is incidentally (accidentally) ingested as well.” PEL is defined as “a chemical concentration in some item (dose) prey that is ingested by an organism, which is likely to cause an adverse effect. The ingested item is usually food, but can be soil, sediment, or surface water that is incidentally (accidentally) ingested” (USEPA 2011). No contaminant concentrations that exceeded PELs were found during the TBEP (2005) study. Exceedances for TELs are presented in Table 7.

**Table 7. Threshold Effects Level (TEL) Exceedances on Sediments at Tampa Bay Dredge Holes**

Dredge Hole	Threshold Effects Level (TEL) Exceedances
Big Island Cut	Cadmium, chromium, nickel
Cypress Point	Cadmium, chromium, copper, nickel, lead, PAHs
Gandy North	Cadmium
MacDill Runway	Cadmium, chromium, nickel
McKay Bay	Cadmium, chromium, copper, nickel, lead, zinc, Lindane
NE St. Petersburg	Cadmium, copper, chromium, nickel, lead
Northshore Beach	Cadmium, copper, chromium, nickel, lead, zinc
Shore Acres	Cadmium
St. Petersburg/ Clearwater Airport	Cadmium, chromium, nickel
Whiskey Stump 1	Cadmium, chromium, copper, nickel, Lindane
Whiskey Stump 2	Cadmium, chromium, copper, nickel

Source: TBEP 2005.

### 3.1.3 Characteristics of Dredged Material

The sediments of the navigation channel have been analyzed and it has been determined that there are no contaminants of concern (according to USEPA standards). The sediments of channel cuts nearest to Egmont Key, Egmont Cuts 1 and 2, Mullet Key Cut, and Cut A have been used previously to nourish the Egmont Key beaches.

The corresponding permit (Appendix D) for the proposed activities states:

*. . . the permittee shall submit for review and approval, a dredged material QA/QC plan. The plan shall provide assurance that the material to be placed along the shore, or in the nearshore of Egmont Key meets the criteria specified in 62B-41.007, F.A.C., for the placement of dredged material. The plan shall also provide assurance that any material to be placed within the dredge hole (beneficial use) sites is free from elevated levels of metals or other contaminants and the sediment type is suitable to restore bay bottom contours and provide for re-colonization of estuarine habitat and organisms comparable to that of the neighboring bay bottom environments.*

## 3.2 BIOLOGICAL COMMUNITIES AND LAND USE

### 3.2.1 Land Use

The Florida Land Use, Cover, and Forms Classification System (FLUCFCS) was used to examine the land use and land cover of the Tampa Bay area. A three-level hierarchy can be used to define a wide variety of land uses with FLUCFCS. Due to the large number of categories present in the Tampa Bay area, the first-level hierarchy was primarily examined (FDOT 1999).

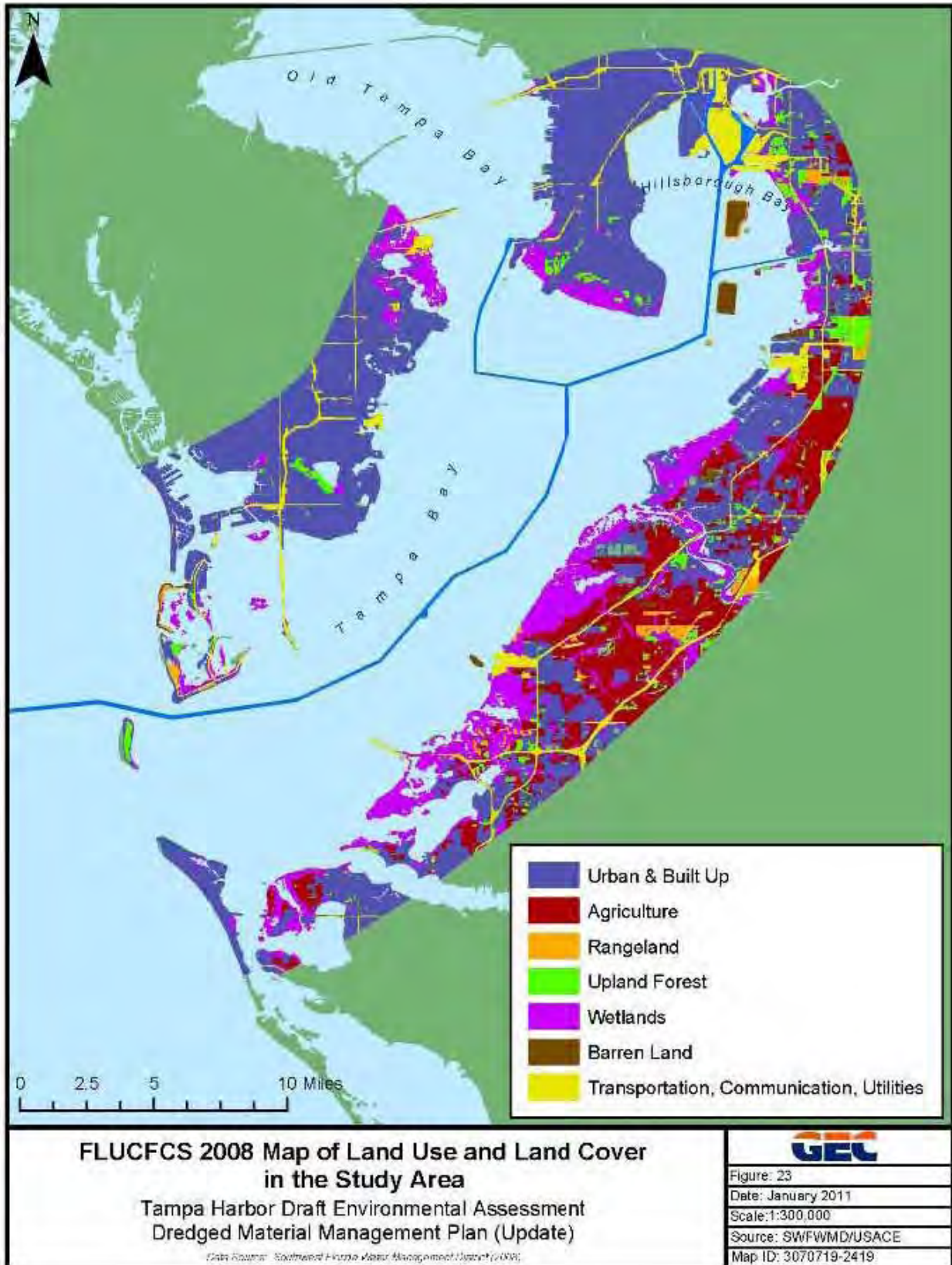
Vegetation and land use in the area surrounding Tampa Bay consists of water (including bays, lakes, and streams); urban and built up areas; agriculture; wetlands; transportation, communication, and utilities; upland forest; rangeland; and barren land (Table 8; Figure 23). Water is the most common land cover in the Tampa Bay area and is mainly in bays and estuaries. Urban and built-up land consists of areas of intensive use with much of the land occupied by man-made structures. Urban and built-up land in the Tampa Bay area is predominantly high density residential units. Agricultural lands are lands cultivated to produce food crops and livestock. Agricultural lands in the Tampa Bay area are primarily cropland, pastureland, and other open lands (rural areas). Rangeland has historically been defined as land where the potential natural vegetation is predominantly grasses, grass-like plants, forbs, or shrubs and is capable of being grazed. Rangeland in the Tampa Bay area is generally shrub and brushland. Upland forests support a tree canopy closure of 10 percent or more. Most of the upland forests in the Tampa Bay area are hardwood conifer mixed forests. Wetlands are areas where the water table is at, near, or above the land surface for a

significant portion of most years. Wetlands in the Tampa Bay area are predominantly mangrove swamps, in addition to mixed wetland forests. Transportation, communication, and utilities in the Tampa Bay area are primarily transportation and utilities. Barren land has little or no vegetation and limited potential to support vegetative communities. In the Tampa Bay area, barren land is generally disturbed land (FDOT 1999; SWFWMD 2008).

**Table 8. FLUCFCS 2008 Land Use and Land Cover in the Study Area**

<b>FLUCFCS Category</b>	<b>FLUCFCS Code</b>	<b>Acres</b>
Water	500	109,557.3
Bays and Estuaries	540	97,708.9
Urban and Built-Up Land	100	72,720.9
Agriculture	200	21,830.7
Wetlands	600	21,584.5
Transportation, Communication, and Utilities	800	8,441.4
Upland Forest	400	6,207.7
Rangeland	300	2,386.5
Barren Land	700	1,444.3

**Figure 23. FLUCFCS 2008 Map of Land Use and Land Cover in the Study Area**





### 3.2.2 Plant Communities

Plant community types surrounding Tampa Bay include forests, scrub forests, hammocks, and wetlands including salt marshes. Pine flatwoods are the most widespread terrestrial vegetative habitat in Florida and are the dominant vegetative association in the Tampa Bay watershed. Flatwoods are generally found in flat, poorly drained areas. The two main types of pine flatwoods are the slash pine (*Pinus eliottii*) and the longleaf pine (*P. palustris*). Slash pine flatwoods are generally found in wetter, more poorly drained areas, whereas longleaf pine flatwoods are in drier sites (Schomer *et al.* 1990). Sand pine scrub is a minor habitat in Tampa Bay and consists of an overstory of sand pine (*P. clausa*) and a well-developed shrub layer of evergreen shrubs. Four types of hammocks are found in the area. Hammocks are forests with differentiated by the dominant species and moisture level; these types include live oak (*Quercus virginiana*), cabbage palm (*Sabal palmetto*), with mesic and hydric variations (Schomer *et al.* 1990).

Estuarine and coastal habitats in the Tampa Bay area include salt prairies, marshes, and mangrove forests. Salt-tolerant herbs and succulents are generally found in salt prairie transitional zones. Marsh vegetation can range from freshwater species such as spikerush (*Eleocharis* spp.) to smooth cordgrass (*Spartina alterniflora*), saltmeadow cordgrass (*S. patens*), and needlegrass rush (*Juncus roemerianus*). Three species of mangroves are commonly found around Tampa Bay. Red mangroves (*Rhizophora mangle*) typically grow close to the water and have roots that branch out over the water. Black mangroves (*Avicenna germinans*) have projections called pneumatophores surrounding the base of the tree. White mangroves (*Laguncularia racemosa*) are frequently found at higher elevations than the other mangrove species.

### 3.2.3 Open Water Habitats

The open water habitats of Tampa Bay consist of vegetated communities and nonvegetated open-bottom benthic communities composed of mixtures of sand, mud, and oystershell (Schomer *et al.* 1990). Hard bottom areas and artificial reefs are also present in Tampa Bay. Three hard bottom areas have been located in Tampa Bay (Savercool and Lewis 1994): (1) from the mouth of Cockroach Bay south to the mouth of Terra Ceia Bay in Lower Tampa Bay; (2) near the Gandy Bridge in Middle Tampa Bay; and (3) in northern portions of Old Tampa Bay off Booth and Rocky Points. Artificial reefs are located in: (1) Old Tampa Bay near the Courtney Campbell and Howard Frankland bridges, Picnic Island; and (2) in Hillsborough Bay off Ballast Point; and in Tampa Bay off Bahia Beach, Port Manatee, and near Shell Island, east of Egmont Key (FFWCC 2010b). Oyster (*Crassostrea virginica*) beds in the area are primarily in Old Tampa Bay, the southeastern shore of Hillsborough Bay, the Ybor Turning Basin, and Tampa Bay. Potential beneficial use sites with nearby oyster beds include Big Island Hole, Gandy Channel North Hole, Howard Frankland Hole West, MacDill AFB Runway Extension Hole, Snug Harbor West Hole, and Whiskey Stump Key Holes 1 and 2. Artificial reefs, hard

bottoms, oyster beds, and seagrasses/submerged aquatic vegetation (SAV) in Tampa Bay are shown in Figure 24.

Open water vegetated communities in Tampa Bay consist of seagrass/SAV and algal beds (Schomer *et al.* 1990). Due to high turbidities, vegetation is typically limited to about 3 meter water depths. Seagrass beds can be patchy or continuous and are generally limited to soft marl, mud, or sand substrates. Roughly 27,306.6 acres of patchy and continuous seagrass/SAV beds are present in the project area (Figure 24).

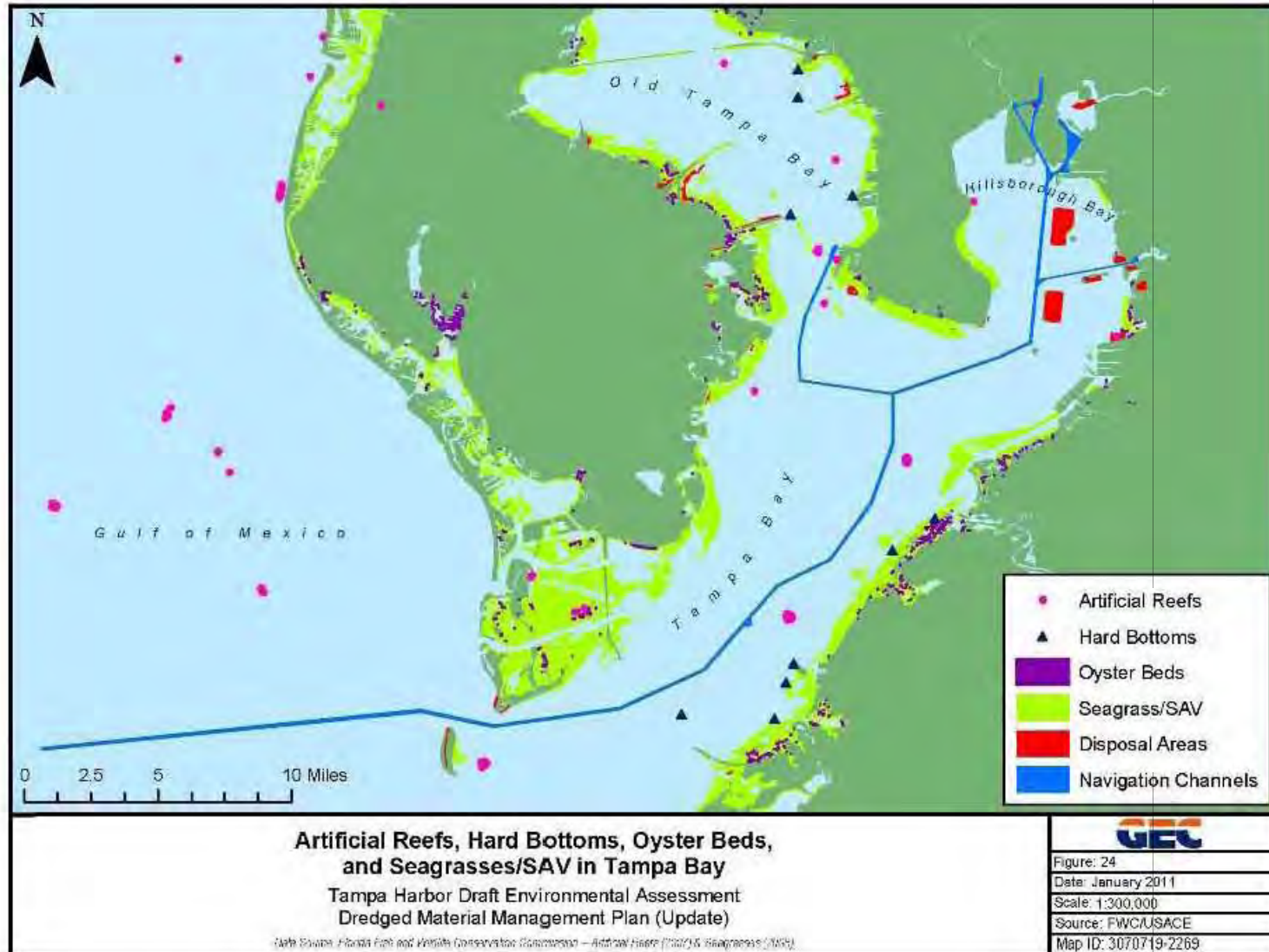
Five species of seagrasses are found in Tampa Bay, including widgeongrass (*Ruppia maritima*), manatee grass (*Cymodocea filiformis*), shoalweed (*Halodule wrightii*), turtlegrass (*Thalassia testudinum*), and Englemann's seagrass (*Halophila engelmannii*). Turtlegrass and shoalweed are the most abundant species.

Widgeongrass dominates the northern portions of the bay, whereas shoalweed and turtlegrass dominate the southern portions. Seagrass beds in the Tampa Bay area declined between 1940 and 1963, primarily due to major shoreline modifications; these losses included Hillsborough Bay (94 percent), Old Tampa Bay (45 percent) and Tampa Bay proper (35 percent) (Schomer *et al.* 1990). Since 1982, seagrass cover has expanded throughout the bay because of improved water quality (Li and Nui 2005; Sherwood 2010).

Figure 24 depicts areas of seagrasses at or near each of the potential beneficial use areas. Of the various beneficial use sites, only McKay Bay has no adjacent or nearby seagrass beds.

Macroalgae are generally attached to a substrate and are another important vegetative community type in Tampa Bay. A total of 221 taxa of macroalgae are reported from the Tampa Bay area. Algae grow in the sand areas between grass beds, as epiphytes on seagrasses, on limestone rubble, oyster shells, and man-made objects (Schomer *et al.* 1990).

Figure 24. Artificial Reefs, Hard Bottoms, Oyster Beds, and Seagrasses/SAV in Tampa Bay



### **3.3 FISH AND WILDLIFE**

This section contains a brief description of the fish and wildlife in the Tampa Bay area and their habitats.

#### **3.3.1 Migratory Birds**

Migratory birds are protected through the provisions of the Migratory Bird Treaty Act (MBTA) and the Wild Bird Conservation Act. Most of these migratory birds are shorebirds and colonial nesting birds that could be impacted during construction and/or dredging along waterways. The Jacksonville District, in coordination with the USFWS, the Florida Fish and Wildlife Conservation Commission (FFWCC), and the Audubon Society, prepared the Migratory Bird Protection Plan to provide protection to nesting migratory bird species that commonly use dredged material disposal sites within the Jacksonville District while facilitating disposal of dredged material to meet the need for maintaining navigation channels and harbors.

The 2009 Seasonal Bird Survey by the Audubon of Florida provides data for birds present on the DMMA-2D, DMMA-3D, and Alafia Bank islands (Table 9; Hillsborough County and City of Tampa 2010).

#### **3.3.2 Bald Eagle**

Although the bald eagle has been delisted by the USFWS, it remains protected by the Bald and Golden Eagle Protection Act and the MBTA of 1918.

In Florida, the bald eagle was abundant and common during the early 20th century. Florida's historic bald eagle population is thought to have exceeded 1,000 nesting pairs, with populations around Tampa Bay and Merritt Island believed to be among the densest breeding concentrations of any large raptor (Peterson and Robertson 1978; FFWCC 2008).

The FFWCC has defined bald eagle important use areas as sites used by more than one eagle or by an individual eagle during more than one year. To identify these areas, satellite transmitter locations were combined for 48 migratory Florida sub-adult (less than five years old) eagles and analyzed using a nearest-neighbor clustering program. Much of the Tampa Bay vicinity is an important use area (Figure 25).

**Table 9. Audubon of Florida Coastal Islands Sanctuaries**

Bird Species		Colony Name		
		DMMA-2D	Alafia Bank	DMMA-3D
Brown Pelican	<i>Pelecanus occidentalis</i>		150	
Double-Crested Cormorant	<i>Phalacrocorax auritus</i>		65	
Anhinga	<i>Anhinga anhinga</i>			
Least Bittern	<i>Ixobrychus exilis</i>			
Great Blue Heron	<i>Ardea herodias</i>		30	
Great Egret	<i>Ardea alba</i>		225	
Snowy Egret	<i>Egretta thula</i>		95	
Little Blue Heron	<i>Egretta caerulea</i>		65	
Tricolored Heron	<i>Egretta tricolor</i>		160	
Reddish Egret	<i>Egretta rufescens</i>		10	
Cattle Egret	<i>Bubulcus ibis</i>		320	
Green Heron	<i>Butorides virescens</i>			
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>		50	
Yellow-crowned Night-Heron	<i>Nyctanassa violacea</i>		15	
White Ibis	<i>Eudocimus albus</i>		4,520	
Glossy Ibis	<i>Plegadis falcinellus</i>		200	
Roseate Spoonbill	<i>Ajaja ajaja</i>		310	
Wood Stork	<i>Mycteria americana</i>			
Common Moorhen	<i>Gallinula chloropus</i>			
Limpkin	<i>Aramus guarauna</i>			
Snowy Plover	<i>Charadrius alexandrinus</i>			
Wilson's Plover	<i>Charadrius wilsonia</i>			
American Oystercatcher	<i>Haematopus palliatus</i>	34	15	18
Black-necked Stilt	<i>Himantopus mexicanus</i>	50		
Willet	<i>Tringa semipalmata</i>	5	4	5
Laughing Gull	<i>Larus atricilla</i>	1,810		
Gull-billed Tern	<i>Gelochelidon nilotica</i>	7		
Caspian Tern	<i>Hydroprogne caspia</i>	64		
Royal Tern	<i>Thalasseus maximus</i>	25		
Sandwich Tern	<i>Thalasseus sandvicensis</i>			
Least Tern	<i>Sternula antillarum</i>	50		
Black Skimmer	<i>Rynchops niger</i>	107		
<b>TOTAL PAIRS</b>		<b>2,152</b>	<b>6,234</b>	<b>23</b>

Notes:

- All Colonies are in Hillsborough County.
- 2D and 3D Colonies were counted on multiple occasions; Alafia Bank was counted on 05/12/009.
- On nearby Fantasy Island, one American oystercatcher pair nested several times throughout the season, but did not fledge any chicks.

Source: Hillsborough County and City of Tampa 2010.

Figure 25. Bald Eagle Important Use Areas



Source: FFWCC, Important Use Areas of the Florida Bald Eagle; information from Mojica and Meyers 2006.

### 3.3.3 Marine Mammals

The marine mammals of the Gulf of Mexico are represented by members of the taxonomic order Cetacea, which is divided into the suborders Mysticeti (i.e., baleen whales) and Odontoceti (i.e., toothed whales), as well as the order Sirenia, which includes the manatee. Within the Gulf of Mexico, there are 28 species of cetaceans (seven mysticete and 21 odontocete species) and one sirenian species, the manatee (Jefferson *et al.* 1992; Davis *et al.* 2000). Bottlenose dolphins (*Tursiops truncatus*) and Atlantic spotted dolphins (*Stenella frontalis*) are common in shallow Gulf waters [up to 656 feet (200 m) deep]. Threatened and endangered marine mammals are discussed further in Section 3.4.



### 3.3.4 Benthos

The Tampa Bay Estuary Program conducted benthic surveys of 11 dredge holes as part of their assessment of habitats for determining recommendations for using dredged material for filling holes (TBEP 2005). A synopsis of the findings for the predominant animals (crustaceans, annelids, and mollusks) is presented in Table 10. An index based on benthic community variables was used to ascertain the health of the community at each location and provide a means for comparing assemblages and ranking the various dredged holes considered in the study.

### 3.3.5 Fishery Resources

Recreationally and commercially important species found within Tampa Bay include shellfish: blue crab (*Callinectes sapidus*), stone crab (*Menippe* spp.), and pink shrimp (*Farfantepenaeus duorarum*); and finfish: red drum (*Sciaenops ocellatus*), spotted seatrout (*Cynoscion nebulosus*), common snook (*Centropomus undecimalis*), southern kingfish (*Menticirrhus americanus*), Gulf flounder (*Paralichthys albigutta*), cobia (*Rachycentron canadum*) and snappers (*Lutjanus* spp.)(TBEP 2005; USGS 2011).

An examination of the fish populations at 11 of the dredge holes considered in this EA was conducted by the TBEP (2005). Using data from seines and trawls, samples were collected within the holes and the surrounding area, where possible. The Fisheries Independent Monitoring (FIM) program developed by the Fish and Wildlife Research Institute (a division of the Florida Fish and Wildlife Conservation Commission) was used to evaluate and compare fishery data among the holes. Results of the survey are presented in Table 11.

## 3.4 THREATENED AND ENDANGERED SPECIES

This section provides background information on federally protected species potentially affected by the project. Listed species known to be present in the Tampa Bay vicinity and evaluated to determine if they may be affected by the project are presented in Table 12.

The Florida scrub-jay, red-cockaded woodpecker, and Florida golden aster are present in the Tampa Bay area, but are unlikely to be found in the project area. The following sections discuss the Eastern indigo snake, sea turtles, Florida manatee, Gulf sturgeon, smalltooth sturgeon, wood stork, and piping plover. These species have the potential to be affected by the proposed project.

**Table 10. Benthic Community Characteristics of Eleven Dredge Holes in Tampa Bay**

<b>Dredged Hole</b>	<b>Dominant Organisms</b>	<b>Benthic Rank</b>	<b>Notes</b>
Gandy North	Fall: amphipods Spring: amphipods	1	“Unusually speciose and diverse” fall assemblage
Shore Acres	Fall: amphipods Spring: amphipods	2	“Relatively diverse” benthic community
MacDill Runway	Fall: decapods, bivalves, hemichordates Spring: bivalves, polychaetes	3	Fall community was more speciose, diverse, and abundant than similar habitats in Tampa Bay
St. Petersburg AP	Fall: amphipods, polychaetes Spring: polychaetes, amphipods	4	Benthic community similar to comparable habitats in Tampa Bay
Whiskey Stump 2	Fall: polychaetes, cumaceans amphipods Spring: amphipods	5	Sparsely populated during fall sampling
Big Island Cut	Fall: polychaetes Spring: amphipods, oligochaetes	6	Benthic community similar to comparable habitats in Tampa Bay
Whiskey Stump 1	Fall: polychaetes, cumaceans, amphipods Spring: amphipods, bivalves	7	Sparsely populated during fall sampling
Northshore Beach	Fall: polychaetes Spring: amphipods	8	“Impoverished” benthic community
Cypress Point	Fall: None Spring: amphipods	9	Low species richness and diversity
NE St. Petersburg	Fall: None Spring: polychaetes, oligochaetes, amphipods	10	“Noticeably degraded” benthic assemblage
McKay Bay	Fall: bivalves Spring: polychaetes	11	“Most impoverished” of the 11 dredge holes

Source: TBTP 2005.

**Table 11. Fishery Resources of Eleven Dredge Holes in Tampa Bay**

<b>Dredge Hole</b>	<b>Dominant Species</b>	<b>FIM Rank</b>	<b>Notes</b>
Shore Acres	Spot, pinfish, silver perch, blue crab, pink shrimp	1	Economically important species: 11 in hole, 5 in trawls outside hole, 8 in seines
Whiskey Stump 1	Bay anchovy, pink shrimp, pinfish, silver jenny, blue crab	2	Economically important species: 10 in hole, 9 in trawls outside hole, 7 in seines
Whiskey Stump 2	Silver perch, silver jenny, pinfish, bay anchovy, pink shrimp	3	Economically important species: 9 in hole, 9 in trawls outside hole, 8 in seines
Gandy North	Bay anchovy, blue crab, code goby, pinfish, pink shrimp	4	Economically important species: 12 in hole, 8 in trawls outside hole, 8 in seines
MacDill Runway	Pink shrimp, bay anchovy, leopard searobin, blue crab, inshore lizardfish	5	Economically important species: 8 in hole, 5 in trawls outside hole, 9 in seines
Cypress Point	Bay anchovy, spot, sand seatrout, pink shrimp, blue crab	6	Economically important species: 11 in hole, 6 in trawls outside hole, 11 in seines
St. Petersburg AP	Pinfish, spot, bay anchovy, blue crab, sand seatrout	7	Economically important species: 8 in hole, 9 in trawls outside hole, 8 in seines
Northshore Beach	Pinfish, mojarras, silver perch, pink shrimp, silver jenny	8	Economically important species: 11 in hole, 7 in trawls outside hole, 11 in seines
McKay Bay	Bay anchovy, spot, sand seatrout, pink shrimp Atlantic croaker	9	Economically important species: 8 in hole, 6 in trawls outside hole, 7 in seines
Big Island Cut	Bay anchovy, spot, sand seatrout, pink shrimp, blue crab	Not Ranked	Economically important species: 7 in hole. No external sampling.
NE St. Petersburg	Bay anchovy, blue crab, mojarras, sand seatrout, southern kingfish	Not Ranked	Economically important species: 9 in hole. No external sampling.

Source: TBEP 2005.

**Table 12. Federally-Listed Species in the Project Area**

Category	Common Name	Scientific Name	Status
Reptiles	Eastern indigo snake	<i>Dymarchon corais couperi</i>	T
	Green turtle	<i>Chelonia mydas</i>	E
	Leatherback sea turtle	<i>Dermochelys coriacea</i>	E
	Hawksbill turtle	<i>Eretmochelys imbricata</i>	E
	Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	E
	Loggerhead sea turtle	<i>Caretta caretta</i>	T*
Mammals	Florida manatee	<i>Trichechus manatus latirostris</i>	E/CH
	Blue whale	<i>Balaenoptera musculu</i>	E
	Fin whale	<i>Balaenoptera hysalus</i>	E
	Sei whale	<i>Balaenoptera borealis</i>	E
	Humpback whale	<i>Megaptera novaeangliae</i>	E
	Sperm whale	<i>Physeter catodon</i>	E
Fish	Gulf sturgeon	<i>Acipenser oxyrhynchus desotoi</i>	T/CH
	Smalltooth sawfish	<i>Pristis pectinata</i>	E
Birds	Piping plover	<i>Charadrius melodus</i>	T/CH
	Florida scrub-jay	<i>Aphelocoma coeruluscens</i>	T
	Wood stork	<i>Mycteria americana</i>	E
	Red-cockaded woodpecker	<i>Picoides borealis</i>	E
Plants	Florida golden aster	<i>Chrysopsis (= Heterotheca) floridana</i>	E

Code: E = Endangered, T = Threatened, CH = Critical Habitat Designated in the Tampa Bay area

\*Proposed for listing as endangered (FR Vol. 75, No. 50/March 16, 2010).

Source: U.S. Fish and Wildlife Service  
<http://www.fws.gov/northflorida/gotocity.htm>

### 3.4.1 Eastern Indigo Snake

The range of the Eastern indigo snake historically extended from South Carolina through Georgia and Florida to the Keys, and west to southern Alabama and Mississippi. This snake is now known to occur only in Florida and the Coastal Plain of southern Georgia. In southern Florida, the indigo snake can be found in a variety of habitats, including wet prairies and mangrove swamps. In the more northern latitudes of its range in winter, it is found almost exclusively in sandy habitats typical of the Florida scrub communities, typically in association with gopher tortoises. From spring to fall, they can also be found in pine-hardwood forest, mixed hardwood forest, creek bottoms, and agricultural fields (USFWS 1999; Hallam *et al.*

1998). The indigo snake is unlikely to be found in proximity to the proposed project area.

### 3.4.2 Sea Turtles

**Distribution and Habitats.** Loggerhead, green, Kemp's ridley, and hawksbill sea turtles occur in and around the Tampa Bay area (Meylan *et al.* 1998). The leatherback turtle is also reported in offshore waters (USFWS 2009a). Most sea turtles in the Tampa Bay area are loggerheads (Meylan *et al.* 1998). The loggerhead is currently listed as threatened, but NMFS has proposed that the listing be changed to endangered (FR Vol. 75, No. 50/March 16, 2010). The other species of turtles are listed as endangered (USFWS 2009b).

Loggerhead sea turtles are found in temperate and subtropical waters of the world. They feed in coastal bays, estuaries, and in shallow water along the continental shelves of the Atlantic, Pacific, and Indian Oceans (Conant *et al.* 2009). Loggerhead turtles occur throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian oceans and are widely distributed within their range. They can be found hundreds of miles offshore or inshore in bays, lagoons, salt marshes, creeks, ship channels, and the mouths of large rivers (Conant *et al.* 2009). Loggerheads primarily feed on mollusks, crustaceans, fish, and other marine animals. Feeding areas often include coral reefs, rocky areas, and shipwrecks. Adult loggerheads may migrate considerable distances between foraging areas and nesting beaches. Loggerheads reach sexual maturity at about 35 years of age. No critical habitat has been designated.

Green turtles are found in all temperate and tropical waters around the world and stay mainly near the coastline and around islands. Green turtles are found in shallow flats and seagrass meadows during the day and return to scattered rock ledges, oysters beds, and coral reefs during the evening (FFWCC 2010a). In the U.S. Atlantic waters, green turtles are found from Texas to Massachusetts, the U.S. Virgin Islands, and Puerto Rico. Green turtles are generally found over shallow flats, seagrasses, and algae areas inside bays and inlets. Resting areas include rocky bottoms, oyster, worm, and coral reefs. Post-hatchling pelagic-stage turtles may be omnivorous. Adult turtles are herbivores and consume algae and seagrasses. Critical habitat consists of waters surrounding Culebra Island, Puerto Rico. No critical habitat is present within the Tampa Bay area.

Leatherbacks, the most widely distributed of the sea turtles, are found throughout the Atlantic, Pacific, and Indian oceans, including areas near Alaska and Labrador. Leatherback turtles are highly migratory and pelagic and can be found at depths more than 3,000 feet. Because of their ability to regulate their body temperature, they can be found in deeper water than other species of sea turtles, and can be active in water below 40°F. Leatherbacks primarily feed on jellyfish, but also consume sea urchins, squid, crustaceans, tunicates, fish, blue-green algae, and

floating seaweed. In the Gulf of Mexico, leatherbacks are frequently associated with cabbage head *Stomolophus* and *Aurelia* jellyfish. The distribution and food habits of post-hatchling and juvenile leatherbacks are unknown, although they may be pelagic and associate with *Sargassum* weed. Critical habitat is designated in the U.S. Virgin Islands. No critical habitat is present within the Tampa Bay area.

Kemp's ridley turtles inhabit shallow nearshore and inshore waters of the northern Gulf of Mexico, particularly in Texas and Louisiana. During winter, turtles in the northern Gulf may travel to deeper water. Turtles found in the northwestern Atlantic Ocean feed in coastal waters of New England during the summer and migrate southward during the winter (NMFS and USFWS 1992). Kemp's ridleys are often found in waterbodies associated with salt marshes. Nesting occurs along the western Gulf of Mexico primarily in the Mexican state of Tamaulipas, but sometimes on Padre Island, Texas. Neonatal Kemp's ridleys feed on *Sargassum* and infauna or other epipelagic species. Post-pelagic turtles are benthic feeders over sand and mud bottoms and primarily consume crabs, particularly portunid crabs, and other crustaceans. Hatchlings may become entrained in Gulf of Mexico eddies and dispersed by oceanic surface currents, then enter coastal shallow water habitats when they reach about 20 cm in length. No critical habitat has been designated.

Hawksbill turtles occur in tropical and subtropical seas of the Atlantic, Pacific, and Indian oceans. In the continental U.S., hawksbills have been found along the Gulf of Mexico and along the eastern seaboard as far north as Massachusetts; however, but are rare north of Florida. Hawksbill turtles are frequently found along rocky areas, coral reefs, shallow coastal areas, lagoons or oceanic islands, and narrow creeks and passes. Post-hatchlings are pelagic and occupy convergence zones, floating among *Sargassum* and debris and may eat fish eggs, *Sargassum*, and debris (NMFS and USFWS 1993). Hawksbill sea turtles feed primarily on sponges once they transition to a benthic existence. Critical habitat has been designated at Isla Mona, Culebra Island, Cayo Norte, and Island Culebrita, Puerto Rico. No critical habitat is present within the Tampa Bay area.

**Nesting.** Three species of sea turtles regularly nest in Florida: the loggerhead, green, and leatherback. Kemp's ridley turtles have historically nested on the Gulf coast. Loggerhead nests are the most prevalent sea turtle nests in the Tampa Bay. Nesting information of the three species in Hillsborough, Pinellas, and Manatee counties is summarized in Table 13.

The loggerhead sea turtle concentrates its nesting efforts in two main areas of the world: at Masirah Island, Oman, and on the coast of the southeastern U.S. Most nesting in the U.S. occurs between Cape Canaveral and the Sebastian Inlet on the eastern coast of Florida. More than 15,000 female loggerheads migrate to the beaches of Brevard, Indian River, St. Lucie, Martin, and Palm Beach counties each May through August (FFWCC 2010a).



**Table 13. Sea Turtle Nesting in the Tampa Bay Area, 2009**

County	Survey Length (Km)	Loggerhead		Green		Leatherback	
		No. of Nests	No. of False Crawls	No. of Nests	No. of False Crawls	No. of Nests	No. of False Crawls
Manatee	21.7	265	242	0	0	0	0
Hillsborough	4.8	33	41	0	0	0	0
Pinellas	72.0	212	181	0	0	0	0
<b>Gulf Totals</b>	692.4	5,303	5,272	28	29	1	0
<b>State Totals</b>	1,324.1	52,374	55,721	4,462	5,802	1,747	360

Source: FFWCC ([http://research.myfwc.com/features/view\\_article.asp?id=11812](http://research.myfwc.com/features/view_article.asp?id=11812)).

Green turtles nest mainly on the eastern coast of Florida. Approximately 100 to 1,000 green turtles nest along Florida beaches from June through late September every year (FFWCC 2010a). The largest nesting site is at Tortuguero, Costa Rica. Leatherbacks approach coastal waters of the U.S. only during breeding season; nesting occurs throughout the Caribbean, the northern coast of South America, the Pacific Coast of Central America, and on the east coast of Florida. Only a small number of leatherback nests (30 to 60) are found annually (April through July) in Florida.

The NMFS has prepared an ESA, Section 7 Consultation Regional Biological Opinion, *Dredging of Gulf of Mexico Navigation Channels and Sand Mining (“Borrow”) Areas Using Hopper Dredges by COE Galveston, New Orleans, Mobile, and Jacksonville Districts (Consultation Number F/SER/2001/01287 (as amended)*. The NMFS prepared reasonable and prudent measures to protect sea turtles, which were summarized:

*NOAA Fisheries believes that seasonal dredging windows, deflector dragheads, observer and screening requirements, and relocation trawling have proved convincingly over the last decade to be an excellent combination of reasonable and prudent measures for minimizing the number and impact of sea turtle takes, enabling NOAA Fisheries to assess the quantity of turtles being taken, and allowing the affected COE Districts (Wilmington, Charleston, Savannah, Jacksonville, New Orleans, and Galveston) to meet their essential dredging requirements to keep Federal navigation channels open.*

### 3.4.3 Marine Mammals

Four baleen whales (blue, fin, sei, and humpback), one toothed whale (the sperm whale), and one sirenian (the West Indian manatee) occur in the Gulf of Mexico and are listed as endangered under the ESA. The sperm whale is common in oceanic waters of the northern Gulf of Mexico and may be a resident species, while the baleen whales are considered rare or extralimital in the Gulf (Würsig *et al.* 2000). The West Indian manatee (*Trichechus manatus*) inhabits only coastal marine, brackish, and freshwater areas.

The Florida manatee is a subspecies of the West Indian manatee (*Trichechus manatus*) and can be found throughout the southeastern United States, including the project area. Manatees may travel great distances during warm months and have been spotted in Massachusetts and Texas (USFWS 2007). Manatees are a sub-tropical species and are cold intolerant. In Florida, they prefer warm-water sites during the winter, only leaving to feed during warming trends. Manatees congregate near warm water sites, such as natural springs, power plants, and deep canals, when temperatures drop. Florida manatees are found in freshwater, brackish, and marine environments, including coastal tidal rivers and streams, mangrove swamps, salt marshes, freshwater springs, and vegetated bottoms. Manatees are herbivores and feed on aquatic vegetation. Preferred feeding areas in coastal and riverine habitats appear to be shallow grass beds near deep channels. Primary threats include watercraft-related strikes, entanglement in fishing lines and crab pot lines, exposure to cold and red tide (USFWS 2007).

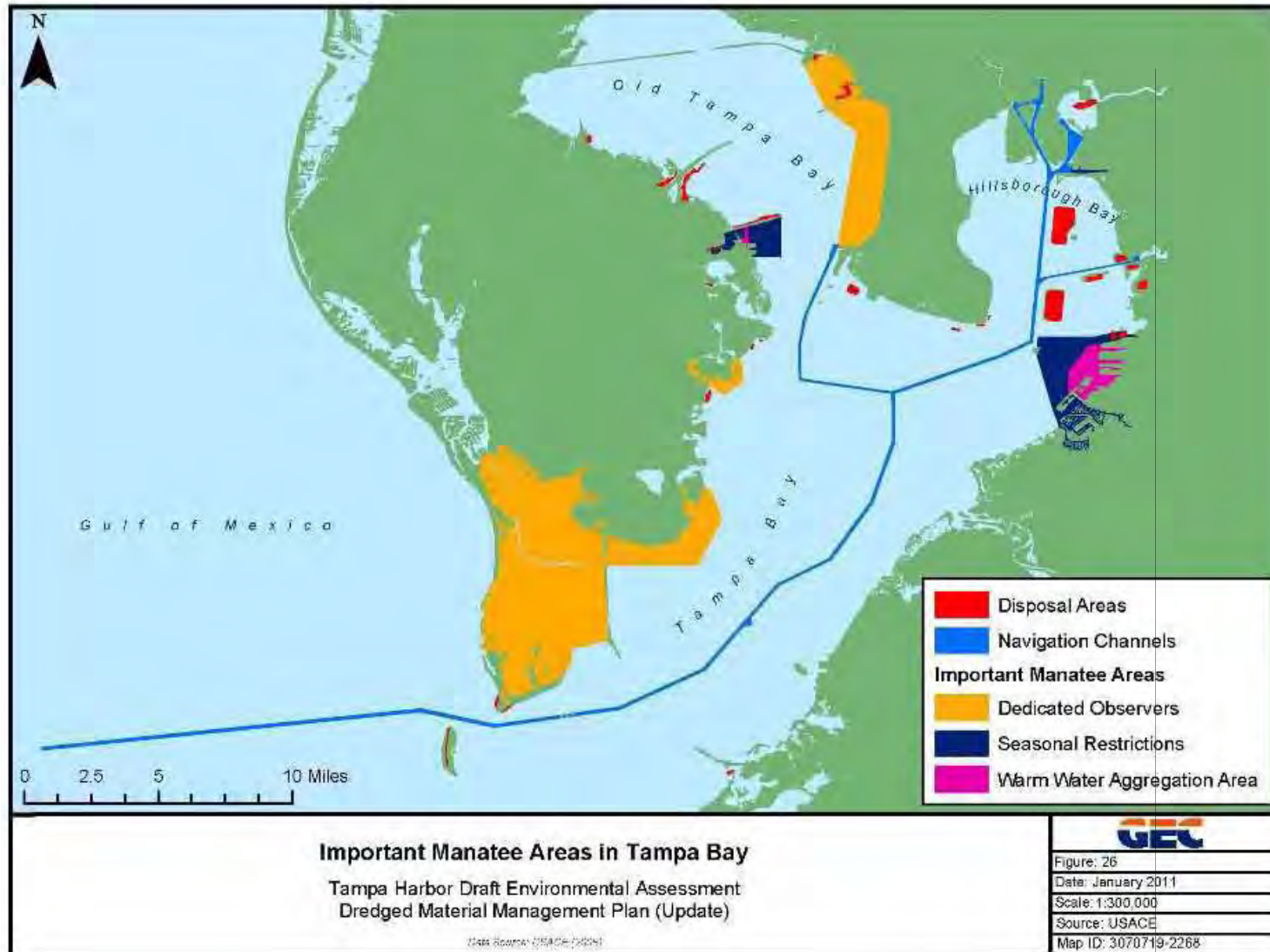
Several Federal and state manatee protection areas are located in Tampa Bay, including around several power plants (Figure 26). Manatees inhabit both fresh and salt water and have been observed in canals, rivers, estuaries, bays, and on rare occasion have been seen as far as 6 km off the Florida Gulf coast (USFWS 1996). Beneficial Use sites at which manatee protection has been established include Gandy Channel North, Snug Harbor West, and Whiskey Stump Key Holes 1 and 2 (Figure 24).

Surveys show that over 900 manatees inhabit the west coast of Florida with as many as 190 using Tampa Bay (Ackerman 1995). The highest concentrations of manatees along Florida's Gulf coast are found in Citrus, Levy, Lee, and Collier counties. Most of the manatees living in the Tampa Bay area appear to occur within the bay where water temperatures are more stable year round.

Critical habitat within the Tampa Bay area includes Important Manatee Areas (IMAs) and Warm Water Aggregation Areas (WWAAs) (Figure 26). An IMA is a recognized gathering area for manatees due to natural habitat features. Some IMAs are federally designated (Dedicated Observer Areas), other IMAs are state designated *seasonal no-entry* zones (Seasonal Restriction Areas). WWAAs are locations of natural warm water discharges that attract large numbers of manatees (USACE 2008). IMAs that have seasonal restrictions are at the Progress Energy

Bartow Power Plant, the Port Sutton Manatee Refuge, and Apollo Beach. Dedicated Observer IMAs are Coffeepot Bayou, Boca Ciega and Fort De Soto Beach, and Terra Ceia Bay. In the Tampa Bay area, there are WWAAs at Port Sutton, the TECO Energy Big Bend Power Station, and the Progress Energy Bartow Power Plant.

Figure 26. Important Manatee Areas in Tampa Bay



### 3.4.4 Gulf Sturgeon

The Gulf sturgeon is a geographically distinct subspecies of the Atlantic sturgeon (*Acipenser oxyrinchus*). This anadromous species is generally restricted to the Gulf of Mexico from Tampa Bay to Lake Pontchartrain in Louisiana. Its range also includes the drainages of the Gulf of Mexico from the Mississippi River to the Suwannee River in Florida. It also occurs sporadically as far west as Texas and in Florida waters from Tampa Bay south to Florida Bay (Florida Museum of Natural History 2010a).

The gulf sturgeon inhabits coastal rivers during the warm months. Subadults and adults spend three to four months during the winter in estuaries, bays, or open waters of the Gulf of Mexico. Sturgeon younger than two years old may stay year-round in rivers and estuaries and not enter Gulf waters (USFWS and GSMFC 1995). Mud bottoms, sand bottoms, and seagrass areas appear to be important habitats for this species. Sturgeon do not appear to forage in the rivers, but feed only in estuaries and the Gulf of Mexico (NMFS 2010). Gulf sturgeon are bottom feeders, and typically feed on macroinvertebrates, including brachiopods, mollusks, worms, and crustaceans.

Gulf sturgeon may not sexually mature until eight or 12 years of age for females and seven to nine years old for males. Adult sturgeon spawn during the spring in fresh water and migrate to the Gulf and estuarine waters in the fall. Spawning may only occur in specific rivers.

Tampa Bay was the location of the first recorded significant sturgeon fishery on the Gulf of Mexico coast. The fishery began in 1886-1887 with a catch of 1,500 fish yielding 2,268 kg (5,000 lb) of roe. Two thousand fish and 2.858 kg (6,300 lb) of roe were marketed in 1887-1888. The fishery ended after the 1888-1889 season when only seven sturgeon were caught. Sturgeon catches in the Tampa Bay vicinity have been reported only sporadically since 1890.

A commercial netter incidentally caught and released a Gulf sturgeon 56.4 cm (1.8 ft) in length, one mile west of Redington Beach near St. Petersburg in December 1992 (Reynolds 1993). Before this time, the most recent Gulf sturgeon catch reported from Tampa Bay was a 144cm (56.7 in) Florida female weighing 25.8 kg (56.9 lb), collected on December 11, 1987 near Pinellas Point (USFWS and GSMFC 1995).

Gulf sturgeon critical habitat is located between the eastern portion of Lake Pontchartrain in Louisiana and Suwannee Sound in Florida. No critical habitat for the Gulf sturgeon is present in the Tampa Bay area.

### 3.4.5 Smalltooth Sawfish

The smalltooth sawfish, one of seven sawfish species, is an elasmobranch, in the same group as the sharks, skates, and rays. The smalltooth sawfish is a tropical marine and estuarine fish that has been reported to be circumtropically distributed. Sawfish have long, flat snouts edged with pairs of teeth used to locate, stun, and kill prey. Sawfish feed primarily on small schooling fish, slashing sideways with their saws through schools of fish to impale and injure the fish. They also appear to feed on some crustaceans. Smalltooth sawfish commonly reach 18 feet in length and may grow to 25 feet. This species appears to mature at about 10 years, and may live to be 25 to 30 years old. Smalltooth sawfish are ovoviviparous, retaining the eggs inside their bodies and giving birth to litters of 15 to 20 pups. Sawfish inhabit shallow coastal waters of tropical seas and estuaries and are generally found in nearshore shallow waters and in estuaries and mouths of rivers. Encounter data have reported sawfish primarily over mud (61 percent), sand (11 percent), seagrass (10 percent), and limestone (75 percent) (Poulakis and Seitz 2004), and mangroves, seagrasses and the shoreline (Simpfendorfer and Wiley 2005). Smaller sawfish have also been encountered more frequently in shallower water, whereas larger sawfish occur regularly at depths greater than 32 feet (Poulakis and Seitz 2004; Simpfendorfer and Wiley 2005). River mouths in southwest Florida have been the location of many of the encounters (Simpfendorfer and Wiley 2005).

According to the National Sawfish Encounter Database (NSED), most of the 46 recent (2008-2009) encounters with smalltooth sawfish have been from Charlotte Harbor south and on the east coast of Florida to northeast of Titusville (Florida Museum of Natural History 2010b). Only two sawfish were reported during 2008-2009 north of Tampa Bay (near Horseshoe Beach and Bald Point State Point). One smalltooth sawfish was captured during USACE-authorized relocation trawling during Tampa Harbor Entrance Channel maintenance dredging on August 12, 2006.

Designated critical habitat for the smalltooth sawfish includes the Charlotte Harbor estuary and the Ten Thousand Islands/Everglades Unit along the southwestern coast of Florida between Charlotte Harbor and Florida Bay, all of which are located outside of Tampa Bay and are not in the project area.

### 3.4.6 Wood Stork

Historically, the wood stork nested almost exclusively in southern Florida, especially in the Corkscrew Swamp, Big Cypress, and Cape Sable area. By the late 1960s, wood stork breeding declined by more than 90 percent due to the degradation and loss of wetland habitat (Kushlan and Frohring 1986; Ogden *et al.* 1987). In 1984, the wood stork was federally listed as an endangered species.

Wood storks feed in shallow water in both freshwater and coastal wetlands, including tidal creeks and flats, marshes, cypress swamps, ponds, ditches, and

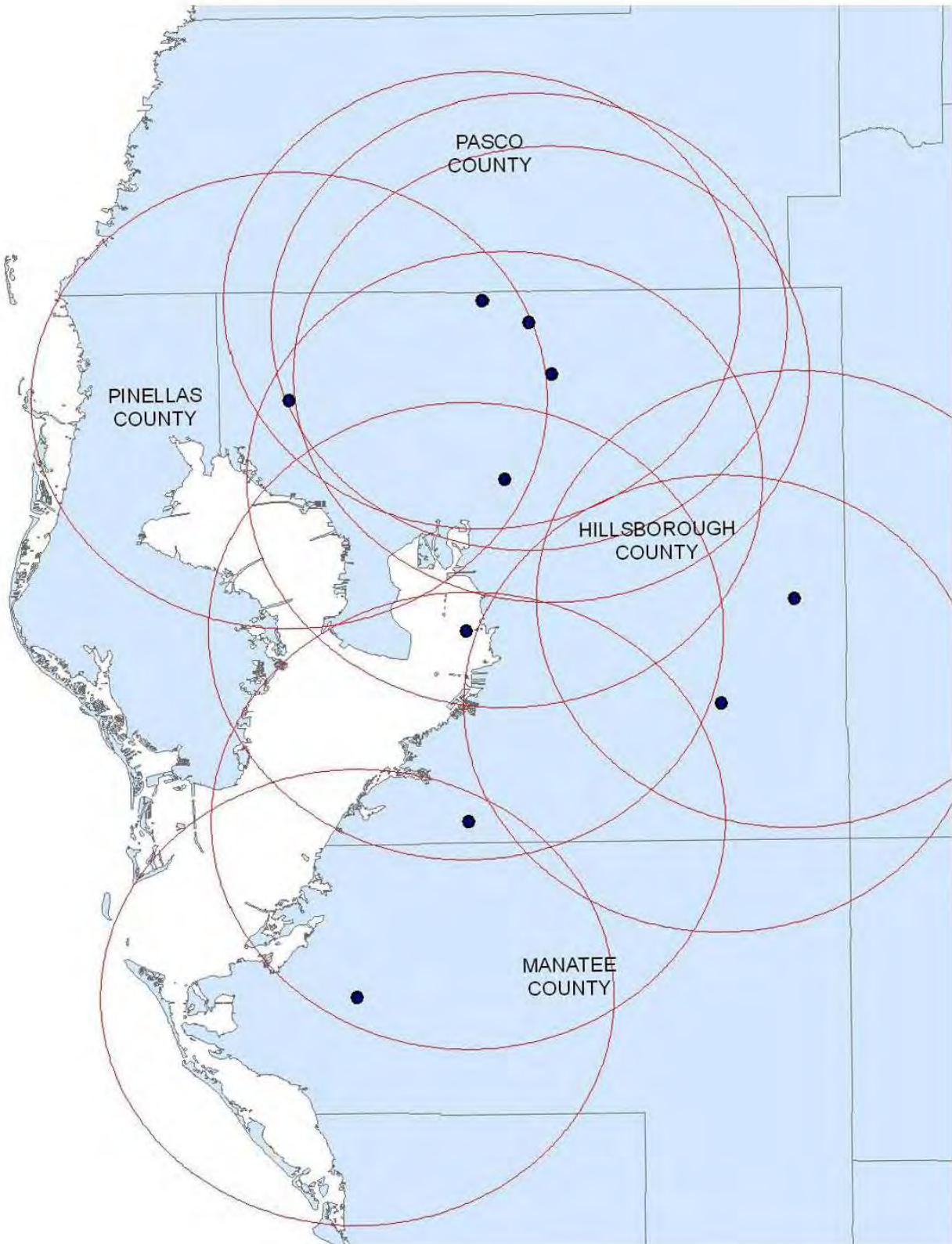


flooded fields. They have a unique feeding technique that requires higher prey concentrations than other wading birds. Optimal water regimes involve periods of flooding, during which prey (fish) populations increase, alternating with dryer periods, during which receding water levels concentrate fish at higher densities coinciding with the stork's nesting season. Wood storks also eat small reptiles, amphibians, and mammals, as well as other aquatic organisms.

The wood stork is colonial and usually nests in large rookeries and feeds in flocks. Wood stork breeding colonies are found scattered throughout the peninsula north to Columbia, Baker, and Duval counties. Colonies may be found on coastal islands and in swamps, impoundments, and other inundated areas. Nests are platforms of large sticks frequently located in the upper branches of large cypress trees or in mangroves on islands. Several nests are usually located in each tree. Loss of nesting habitat (primarily cypress swamps) may be affecting wood storks in central Florida, where nesting in non-native trees has occurred. Less significant factors known to affect nesting success include prolonged drought and flooding, raccoon predation on nests, and human disturbance of rookeries (FFWCC 2003).

Ten nesting colonies are located in Hillsborough and Manatee counties (Figure 27), one colony is located on the dredged material placement area DMMA 3-D. Foraging areas associated with the nesting colonies are represented in Figure 27 by circles surrounding each nesting colony point. These 15-mile diameter areas cover much of Tampa Bay. No critical habitat has been designated for the wood stork under the ESA.

**Figure 27. Wood Stork Nesting Colonies (dots) and Foraging Areas (circles) in the Tampa Bay Vicinity**



Source: USFWS

### 3.4.7 Piping Plover

Piping plovers breed during the late spring and summer in three discrete areas of North America: The Northern Great Plains, the Great Lakes, and the Atlantic Coast. They winter in coastal areas of the United States from North Carolina to Texas. The density of wintering Great Lakes individuals was observed to be highest between St. Catherine's Island, Georgia, and Jacksonville, Florida, and the Gulf coast of Florida, particularly in the Tampa Bay region (Strucker and Cuthbert 2006). Piping plovers begin arriving on the wintering grounds in July, with some late-nesting birds arriving in September. Migration is poorly understood, but most plovers appear to migrate non-stop from interior breeding areas to wintering grounds. Individual plovers tend to return to the same wintering sites year after year (Nicholls and Baldassarre 1990). In late February, piping plovers begin leaving the wintering grounds to migrate back to breeding sites. Northward migration peaks in late March, and by late May most birds have left the wintering grounds (Eubanks 1994).

The piping plover has a patchy distribution along the coasts of Florida that is correlated with the availability of suitable, open habitat. The numbers and distribution of plovers are vulnerable to declines with loss and degradation of habitat. The habitats include beaches, mud flats, sand flats, algal flats, and washover passes (Doonan *et al.* 2005).

Behavioral observations of piping plovers on the wintering grounds suggest that they spend the majority of their time foraging (Nicholls and Baldassarre 1990). Primary prey for wintering plovers includes polychaete marine worms, various crustaceans, insects, and occasionally bivalve mollusks (Nicholls 1989).

The USFWS designated 142 areas along the Gulf and Atlantic coasts as critical habitat for the wintering population of the piping plover; several units are within the Tampa Bay project area. The Federal Register, Vol. 66, No. 132, July 11, 2001 stated:

*Unit FL-20: Shell Key and Mullet Key. 190 ha (470 ac) in Pinellas County. The majority of the unit is within Fort De Soto Park. This unit includes the Shell Key island complex. It also includes the northwest portion of Mullet Key including the western shorelines from Bunces Pass extending south, stopping 1.4 km (.86 mi) north of Ft. De Soto County Park pier. It includes from MLLW to where densely vegetated habitat or developed structures, not used by the piping plover, begin and where the constituent elements no longer occur.*

*Unit FL-21: Egmont Key. 153 ha (377 ac) Hillsborough County. The majority of the unit is within Egmont Key National Wildlife Refuge. This unit includes the entire island to MLLW.*

### **3.5 WILDLIFE REFUGES, SANCTUARIES, AND MANAGEMENT AREAS**

Significant wildlife protection/management areas located in the project vicinity (Figure 28) include the following:

#### **3.5.1 Egmont Key National Wildlife Refuge/Egmont Key State Park**

Egmont Key National Wildlife Refuge was established in 1974 and includes 392 acres. The island is listed on the National Register of Historic Places. The beach and coastal berm on the island supports more than 110 species of nesting, migrating, and wintering birds. The island is critical habitat for endangered piping plovers, has a high population of gopher tortoises and box turtles, and provides nesting habitat for sea turtles. Egmont Key State Park is cooperatively managed by the Florida Department of Environmental Protection, the USFWS, and the U.S. Coast Guard.

Non-native black rats were first discovered on Egmont Key during the summer of 2006. Their arrival coincided with a major beach re-nourishment project at the north end of the island. A large dredging vessel was anchored adjacent to the island for several weeks. Rats are suspected to have escaped from the vessel if it was infested. An introduction through swimming or rafting across the shipping channel is possible, but not probable. The USFWS prepared an EA (2009f) for the use of a rodenticide to eliminate the rats, which if not controlled, could have had a catastrophic effect on native wildlife and beach nesting birds.

#### **3.5.2 Passage Key National Wildlife Refuge**

Passage Key National Wildlife Refuge was established in 1905 as a preserve and breeding ground for native birds. The 30-acre island was once a mangrove island with a freshwater lake; however, a 1921 hurricane destroyed much of the island. Passage Key is an important nesting site for shorebirds, gulls, terns, and other species. The royal and sandwich tern nesting colonies may be the largest in the state and the refuge is an important loafing and nesting site for brown pelicans. The island is a loafing/feeding site for migrating and wintering shorebirds and other migratory coastal avian species. Passage Key was designated a Wilderness Area in 1970.

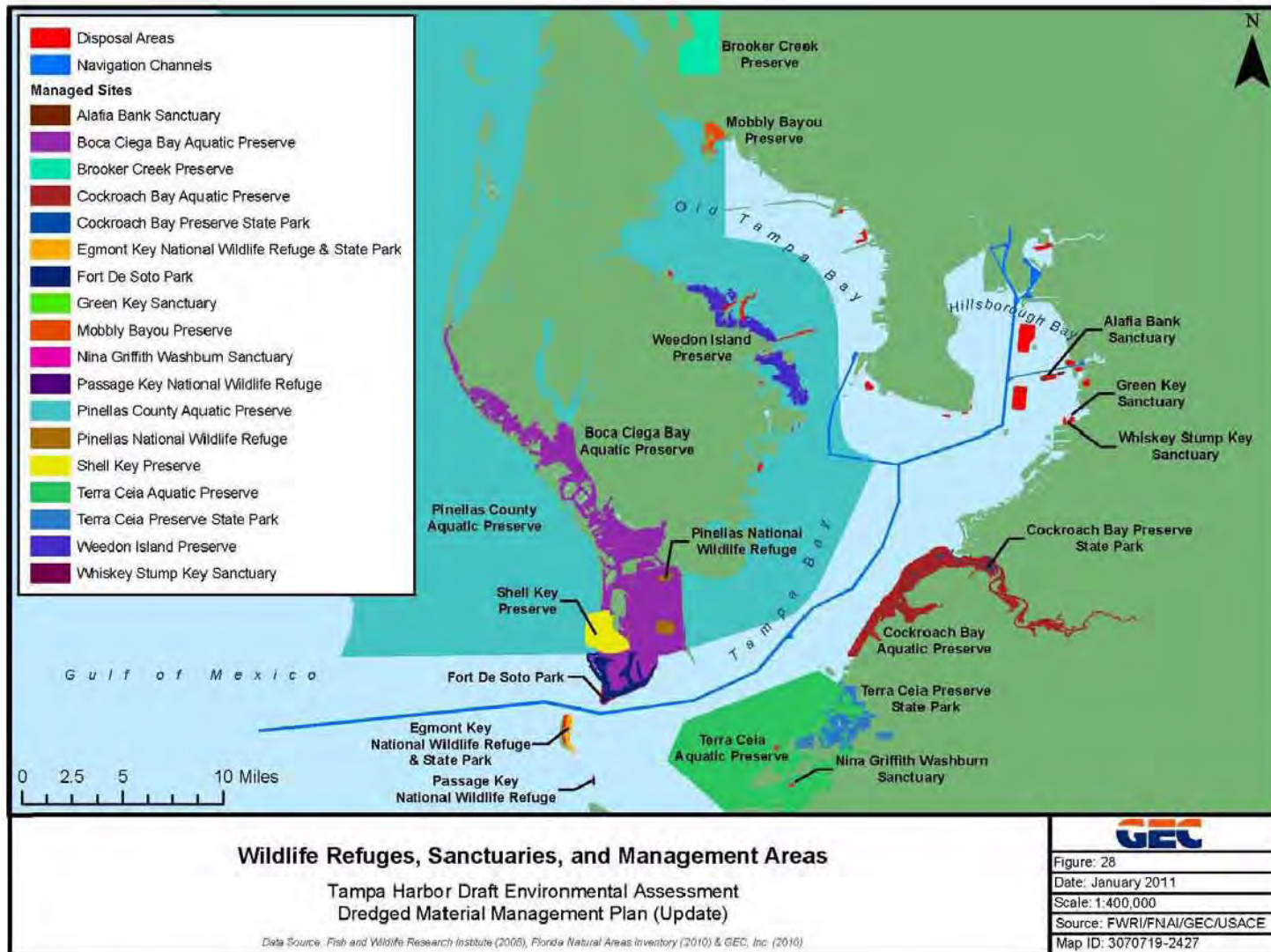
#### **3.5.3 Pinellas National Wildlife Refuge**

The Pinellas National Wildlife Refuge was established in 1951 to preserve a 403-acre breeding ground for colonial bird species. The refuge consists of four keys in Pinellas County. Many species of birds nest on the refuge, including herons,

cormorants, egrets, and brown pelicans. Tarpon Key contains the largest brown pelican rookery in the state of Florida.



**Figure 28. Wildlife Refuges, Sanctuaries, and Management Areas**





### **3.5.4 Pinellas County and Boca Ciega Bay Aquatic Preserves (State)**

The Pinellas County and Boca Ciega Bay Aquatic Preserves include more than 336,000 acres of state-owned submerged land in Pinellas County. The preserves include nearshore habitats, sand beaches, and mangrove-forested shorelines. Submerged habitats in the preserves include oyster bars, seagrass beds, coral communities, and spring-fed caves. Numerous islands, including dredged material islands, are located in the preserves.

### **3.5.5 Terra Ceia Aquatic Preserve/Terra Ceia Preserve State Park**

The Terra Ceia Aquatic Preserve contains 22,000 acres of sovereign submerged lands in northwestern Manatee County. The shoreline of the preserve is dominated by mangroves and mangrove islands and includes tidal creeks and sinkholes. Oyster bars, seagrass beds, and hard bottom habitat are present in open water areas. At least five species of bats, white pelicans and other migratory bird species, and numerous fish and shellfish species are present in the preserve.

### **3.5.6 Cockroach Bay Aquatic Preserve/Cockroach Bay Preserve State Park**

The Cockroach Bay Aquatic Preserve encompasses 8,583 acres of submerged lands owned by the Hillsborough Port Authority in northwestern Manatee County. The preserve contains numerous mangrove islands, seagrass beds, hard bottom, and oyster reefs.

### **3.5.7 Mobbly Bayou Preserve**

The Mobbly Bayou Preserve is located at the north end of Upper Tampa Bay and contains a wide diversity of upland and coastal plant communities. The preserve contains 396 acres and is managed through an interlocal agreement with the City of Oldsmar.

### **3.5.8 Shell Key Preserve**

The Shell Key Preserve contains 1,828 acres and is located immediately west of Tierra Verde in southern Pinellas County. The preserve contains a barrier island, several mangrove islands, seagrass beds, and sandflats.

### **3.5.9 Weeden Island Preserve**

The Weeden Island Preserve now includes the Gateway Tract and additional land parcels. The preserve is approximately 3,164 acres and extends along the west side of Tampa Bay in Pinellas County. The eastern edge of the preserve contains mangrove islands, whereas the landward sections contain upland communities (pine flatwoods, scrub, scrub flatwoods) and hammocks.

### **3.5.10 Brooker Creek Preserve**

The Brooker Creek Preserve is located in the northeast corner of Pinellas County and contains 8,700 acres. The preserve contains wetland areas, including the Brooker Creek, hardwood and mixed wetland forests, cypress domes and strands, marshes and wet prairies. Upland areas are dominated by pine flatwoods with some areas of hammocks and sandhills.

### **3.5.11 Alafia Bank Sanctuary**

The Alafia Bank Audubon Sanctuary (Richard T. Paul Sanctuary) contains Bird Island and Sunken Island and is located in Hillsborough Bay at the mouth of the Alafia River. These two dredged material islands were constructed in the late 1920s and are important bird nesting sites for gulls, terns, and skimmers. Nearly 18,000 nesting pairs of 16 to 20 species of birds nest annually on the Alafia Bank Sanctuary, making it one of the largest colonies in Florida and one of the most diverse colonies in the continental United States. The Alafia Extension, a 12-acre area was added to the west end of Sunken Island in 1977 using material from a nearby dredging project. The extension was planted with smooth cordgrass and is vegetated by mangroves, containing tidal pools, sand and mud flats, small creeks, and salt barrens.

### **3.5.12 Green Key Sanctuary**

The Green Key Audubon Sanctuary is a small island located south of the mouth of the Alafia River and Bullfrog Creek in southeastern Hillsborough Bay. Green Key provides important bird foraging and loafing habitats. The seagrass meadows and oyster bars around the key are excellent bird feeding sites.

### **3.5.13 Whiskey Stump Key Sanctuary**

Whiskey Stump Key Audubon Sanctuary is a small sandy, mangrove island located in Hillsborough Bay three miles south of the mouth of the Alafia River. This island is an important bird nesting area that is managed by Audubon of Florida.

### **3.5.14 Nina Griffith Washburn Sanctuary**

Nina Griffith Washburn Sanctuary is located in Terra Ceia Bay. This Sanctuary has been protected by Audubon wardens since 1939, and it is now owned by the Audubon Society. It is a beautiful natural mangrove key that supports a large breeding colony of up to 4000 pairs of pelicans, cormorants, anhingas, herons, egrets, ibis, and spoonbills. With 16 nesting species, this colony is ranked the second most important in Florida by the Florida Fish and Wildlife Commission.

### 3.5.15 Fort De Soto Park

Fort De Soto Park is the largest park in the Pinellas County Park System. The park consists of five interconnected islands encompassing 1,136 acres. Fort De Soto is a Spanish-American era fortification consisting of two batteries (Battery Bigelow and Battery Laidley), as well as support facilities constructed on Mullet Key as part of the Tampa Bay turn of the century defense systems (Pinellas County Parks and Recreation Undated). Features of this important cultural resource are summarized in Section 3.14.5. The park contains several nature, recreational, and canoe trails, and almost three miles of beach. Fort De Soto is the first landfall for many migratory birds traveling across the Gulf of Mexico in the spring, which makes it a popular location for birding. Brown pelicans, double-crested cormorants, herons, egrets, plovers, gulls, and black skimmers are present throughout the year. Sea turtles nest along the beach in summer.

### 3.6 ESSENTIAL FISH HABITAT

The Gulf of Mexico Fisheries Management Council (GMFMC) has designated areas of vegetated and non-vegetated bottoms, live bottoms, and water columns within the study area as Essential Fish Habitat (EFH) in compliance with the Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996. Managed species that commonly occur in the project area include the stone crab (*Menippe mercenaria*), Spanish mackerel (*Scomberomorus maculatus*), red drum (*Sciaenops ocellatus*), and pink shrimp (*Farfantepenaeus duorarum*).

The Gulf of Mexico in this region also provides essential forage, cover, and nursery habitats for other species that are commercially and recreationally important. These species include the blue crab (*Callinectes sapidus*), flounder, and mullet (*Mugil spp.*).

The project area and its vicinity have been designated as EFH for 30 species (Table 14). The managed species include four species of crustaceans from the Shrimp, Stone Crab and Spiny Lobster Fishery Management Plans and 26 species of fishes from the Red Drum, Reef Fish, Coastal Migratory, and Highly Migratory Fishery Management Plans.

EFH in the project area includes mud, shell, and rock substrates and the estuarine water column in Tampa Bay and the water column and non-vegetated bottoms in the Gulf of Mexico. No Habitat Areas of Particular Concern (HAPCs) are in the project area.

**Table 14. Summary of EFH Designation in the Project Area Vicinity**

Species	Scientific Name	Young of Year	Juveniles	Adults
<b>Shrimp Fishery</b>				
Brown shrimp	<i>Farfantepenaeus aztecus</i>	X	X	X
Pink shrimp	<i>F. duorarum</i>	X	X	X
<b>Stone Crab Fishery</b>				
Florida stone crab	<i>Menippe mercenaria</i>	X	X	X
<b>Spiny Lobster Fishery</b>				
Spiny lobster	<i>Panulirus argus</i>	X	X	X
<b>Red Drum Fishery</b>				
Red drum	<i>Sciaenops ocellatus</i>	X	X	X
<b>Reef Fish Fishery</b>				
Gag grouper	<i>Mycteroperca microlepis</i>	X	X	X
Gray snapper	<i>Lutjanus griseus</i>	X	X	X
Gray triggerfish	<i>Balistes capriscus</i>	X	X	X
Goliath grouper	<i>Epinephelus itaiara</i>		X	
Greater amberjack	<i>Seriola dumerili</i>	X	X	X
Lane snapper	<i>L. synagris</i>	X	X	X
Lesser amberjack	<i>S. fasciata</i>	X	X	X
Red snapper	<i>L. campechanus</i>	X	X	X
Scamp grouper	<i>M. phenax</i>	X	X	X
Yellowtail snapper	<i>Ocyurus chrysurus</i>	X	X	X
<b>Coastal Migratory Pelagic Fishery</b>				
Bluefish	<i>Pomatomus saltatrix</i>			X
Cobia	<i>Rachycentron canadum</i>	X	X	X
King mackerel	<i>Scomberomorus cavalla</i>	X	X	X
Little tunny	<i>Euthynnus alletteratus</i>	X	X	X
Spanish mackerel	<i>S. maculatus</i>	X	X	X
<b>Highly Migratory Pelagic Fishery</b>		<b>Neonate</b>	<b>Juveniles</b>	<b>Adults</b>
Blacknose shark	<i>Carcharinus acronotus</i>			X
Blacktip shark	<i>C. limbatus</i>	X	X	X
Bonnethead shark	<i>Sphyrna tiburo</i>		X	
Bull shark	<i>C. leucas</i>	X	X	X
Great hammerhead shark	<i>S. mokarran</i>			X
Lemon shark	<i>Negaprion brevirostris</i>		X	X
Sandbar shark	<i>C. plumbeus</i>	X	X	X
Spinner shark	<i>C. brevipinna</i>	X		
Nurse shark	<i>Ginglymostoma cirratum</i>		X	X
Tiger shark	<i>Galeocerdo cuvieri</i>		X	

### 3.7 WATER QUALITY

The waters in the project area are used for commercial and recreational activities.

A primary concern regarding water quality of Tampa Bay is the introduction of nutrients, particularly nitrogen. Algal blooms resulting from elevated nutrient concentrations decrease the availability of light for the ecologically important seagrass beds. The TBEP (2011) has estimated that approximately 21 percent of the nitrogen entering the bay is from atmospheric deposition, much of which originates locally from power plants and mobile sources; an additional 63 percent is from stormwater runoff. Chlorophyll-a concentrations, which correlate the amount of phytoplankton (including algae) are generally highest in Hillsborough Bay and Old Tampa Bay and lower toward the Gulf. Since 1980, concentrations of chlorophyll-a have decreased markedly (Sherwood 2010), and water clarity has approached the benchmark 1950s period.

Primary contact recreation, which may involve swimming, wading, or otherwise direct contact with water, is an important recreational activity for both residents and tourists. Tourism, an important part of the local economy, depends to a great extent on Tampa Bay meeting and maintaining high water quality standards. Swimming area closures may occur when large discharges of stormwater enter the bay during and following heavy rainfall events or when wastewater spills or overflows occur.

The Florida Administrative Code (F.A.C.), Section 62-302.400, *Classification of Surface Waters, Usage, Reclassification*, designates five classes for state surface waters according to designated uses:

- CLASS I, Potable Water Supplies
- CLASS II, Shellfish Propagation or Harvesting
- CLASS III, Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife
- CLASS IV, Agricultural Water Supplies
- CLASS V, Navigation, Utility and Industrial Use

Class I has the most stringent requirements, while Class V has the least stringent. A majority of the Tampa Bay system has been designated as Class II. There is a recent proposal to reclassify portions of the Alafia River and Tampa Bypass Canal to Class I Waters.

The FDEP, through F.A.C Section 62-302.700, *Special Protection, Outstanding Florida Waters, Outstanding National Resource Waters*, has designated several

areas in or near the project area as Outstanding Florida Waters (OFW): the Egmont Key, Passage Key, and Pinellas wildlife management areas; the Bower and Howard Frankland/Gateway tracts; and Cockroach and Pinellas County aquatic preserves. These waters are worthy of special protection because of natural attributes. This designation is applied to only certain waters and is intended to protect existing good water quality.

### **3.8 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE**

Two areas were considered to have potential Hazardous, Toxic, and Radioactive Waste (HTRW) issues: The Ybor Harbor Turning Basin (including Port Sutton), and the Fort De Soto Park.

A Phase I Environmental Site Assessment in conformance with the procedures specified in ASTM Practice E 1527 was conducted at the Ybor Turning Basin and Port Sutton in July 1999 (USACE, 1999b). Although heavy industrial port facilities and a petrochemical terminal were located on the property surrounding the navigation channels, the site did not contain evidence of HTRW contamination.

Fort De Soto on Mullet Key was the site of a World War II bombing and gunnery range. To assess if HTRW was present, the USACE performed an investigation as part of the Defense Environmental Restoration Program-Formerly Used Sites (USACE 1992). This investigation concluded: *There are two areas on the site that have been identified as former DOD target areas. Remnants of ordnance have been found at both areas. Both live ordnance and practice bombs have been recovered.* Areas of concern are shown in Figure 29. No remediation of the site has taken place.

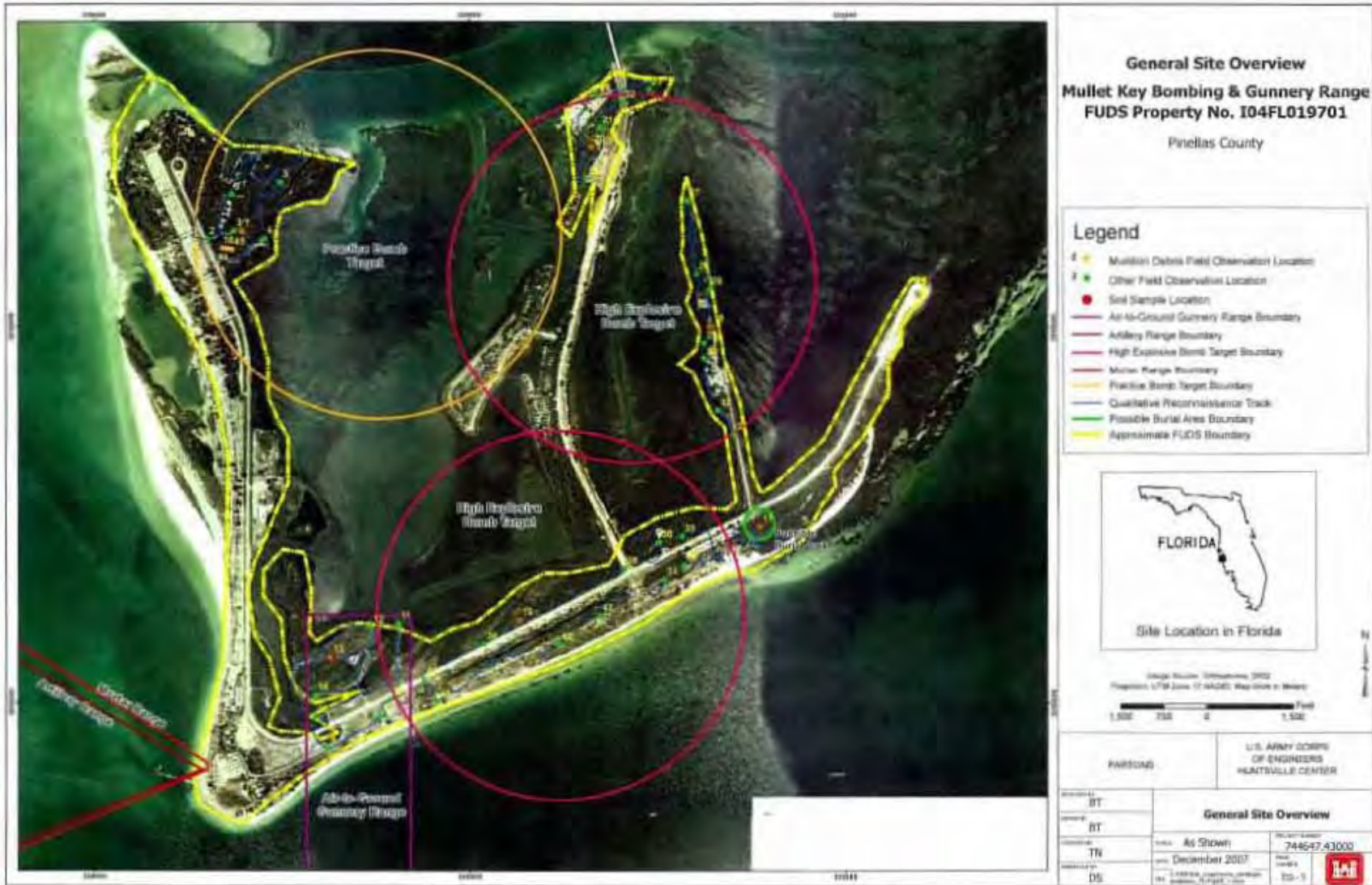
### **3.9 NOISE**

Noise is defined as unwanted sound and, in the context of protecting public health and welfare, implies potential effects on the human and natural environment. Noise is a significant concern associated with construction, dredging, and transportation activities and projects. Ambient noise levels within a given region may fluctuate over time because of variations in intensity and abundance of noise sources.

The degree of disturbance or annoyance of unwanted sound depends on: (1) the amount and nature of intruding noise; (2) the relationship between the background noise and the intruding noise; and (3) the type of activity occurring at the location where the noise is heard. Human response to noise varies from individual to individual and is dependent on the ambient environment in which the noise is perceived. Wind, temperature, and other conditions can change the sound volume perceived at distances from the noise source.



Figure 29. Mullet Key HTRW Areas of Concern



The magnitude of noise is described by its sound pressure. A logarithmic scale is used to relate sound pressure to a common reference level, as the range of sound pressure varies greatly. This is called the decibel (dB) and a weighted decibel scale is often used in environmental noise measurements (weighted-A decibel scale or dBA). This scale emphasizes the frequency range to which the human ear is most susceptible. A 70-dBA sound level can be moderately loud, as in an indoor vacuum cleaner, a 120 dBA can be uncomfortably loud, as in a military jet takeoff at 50 feet, and a 40-dBA sound level can be very quiet and is the lowest limit of urban ambient sound.

Noise is administered under the Noise Control Act of 1972, as amended. The USEPA has also established noise guidelines recommending noise limits for indoor and outdoor noise activities. Under these guidelines, an average noise level over a 24-hour period of 70 A-weighted decibels (dBA) is listed as the threshold for hearing noise between 65 and 75 dBA is generally acceptable, and noise exceeding 75 dBA is unacceptable in all situations. Noise monitoring and impacts are typically evaluated by the local government.

Ambient noise in the area is generated by a broad range of sources, both natural and anthropogenic. Natural noise sources include climatic sources, such as wind and precipitation. Potential sources of anthropogenic sound include commercial shipping, dredging and construction activities, industrial activities, and commercial and residential waterborne traffic. No ambient noise monitoring appears to have been conducted in the project area; consequently, no quantitative data on noise levels within the project area are available for analysis.

Ambient noise levels offshore are generally low. Vessels passing through the area may temporarily raise noise levels.

### **3.10 AESTHETIC RESOURCES**

Tampa Bay contains visually pleasing areas such as fringing mangrove, mudflats, and sandy beaches. The area offshore of Hillsborough and Pinellas counties possesses visually pleasing attributes (such as the coastal views into the waters of the Gulf of Mexico) that supports a strong tourist industry.

### **3.11 RECREATIONAL RESOURCES**

Hillsborough and Pinellas counties are heavily populated and are major tourist destinations. Both counties are in the Southwest Beach Region of Florida. In 2003, the Southwest Beach Region was visited by 14.2 million tourists who spent \$6.4 billion. Beach tourism created 177,000 jobs in the Southwest Beach Region (Murley *et al.* 2003). Beaches that can be accessed by the general public are heavily used year-round. Beaches adjacent to condominiums, apartments, and hotels may have more limited use due to restricted access. The waters of Hillsborough and Pinellas counties are used for swimming, fishing, scuba diving, and boating.

### **3.12 SOCIOECONOMICS**

The Port of Tampa is a deep draft navigation harbor that services both foreign and domestic waterborne commerce. The Port of Tampa is the largest cargo tonnage port in Florida. In 2008, the Port of Tampa handled 39,676,000 short tons according to the Waterborne Commerce Statistics Center and was the 19th busiest port in the United States. An economic impact study based on 2005 data reported that the port contributed nearly \$8 billion to the economy of Tampa Bay and almost 100,000 direct and indirect jobs. Port-related income and consumption exceeded \$6 billion, and area businesses and workers impacted by the Port pay more than \$571 million in state and local taxes (TPA 2010). In addition to waterborne commerce, the area is also used for commercial and recreational fishing and boating, and brings in many tourism dollars for the state.

### **3.13 NAVIGATION AND PUBLIC SAFETY**

Hillsborough and Pinellas county waters support considerable recreational and commercial navigation. Numerous marinas and boat launches are on Hillsborough Bay and Tampa Bay. Federally maintained navigational channels in Hillsborough and Pinellas counties are the subject of this document.

Navigation in the project area is extensive. Deep draft vessels, including large cargo ships, tankers, container ships, and cruise ships, commonly use the channels. Other boats that use the channels include watercraft used for commercial enterprises (e.g., deep-sea fishing and other charters) and recreational activities (fishing, sailing, jet skiing, pleasure boating, etc.). The Port of Tampa is the largest tonnage cargo port in Florida; numerous cargo vessels and cruise ships use the shipping channel.

Fort De Soto on Mullet Key was the site of a World War II bombing and gunnery range. As discussed in Section 3.8, live ordnance and practice bombs were recovered as part of a 1992 investigation (see Figure 29). No remediation of the site has taken place.

### **3.14 CULTURAL RESOURCES**

#### **3.14.1 Potential for Submerged Prehistoric Sites**

Although there are no submerged actual prehistoric sites recorded, Tampa Bay has a high potential for submerged prehistoric sites (see Appendix C, Cultural Resources). Artifacts have been dredged up from several locations in the bay. The frequency of early sites (Paleoindian through Middle Archaic) in the nearby area indicates high nearby populations. Sea levels were considerably lower in the past, and Tampa Bay would have been a river valley at that time. Numerous examples of diagnostic artifacts can found in dredged material from the bay (i.e., shell middens). Table 15 presents examples of dredging locations that contained artifacts.

**Table 15. Examples of Dredge Material from Tampa Bay Containing Prehistoric Artifacts**

<b>Location of Materials</b>	<b>Description</b>	<b>Diagnostic artifacts</b>
<b>Various</b>	Commercial dredging of oyster shell beds Upper Tampa Bay Gadsden Point revealed abundant artifacts.	Artifacts diagnostic of Paleoindian and Early Archaic presence, and Mid-Archaic through Late Archaic items
<b>Apollo Beach</b>	Materials dredged for commercial purposes	Middle Archaic (Culbreath) points. Fiber tempered ceramics, sand tempered ceramics
<b>Turtlecrawl Point</b>	Materials dredged while constructing peninsula, materials in spoil	Greenbriar and Bolen diagnostics. Unifacial tools, Dalton adze, Debitage (core reduction and tool manufacture). Also Middle Archaic Morrow Mountain and Newnan points found
<b>Terra Ceia Bay</b>	Artifacts eroded from dredged material used for beach construction	Dalton and Greenbriar diagnostics, turtle back scraper lithic tools, and ceramics found. Also extinct faunal remains.
<b>Caladesi Causeway</b>	Artifacts in dredged material for roadway fill.	Suwannee and possible Bolen points

### 3.14.2 Previous Investigations

The report in Appendix C provides a discussion of previous cultural resource studies of Tampa Bay that help in the identification of potential resources. Table 16 summarizes studies at or near the navigation channel.

**Table 16. Relevant Previous Cultural Resource Investigations**

<b>Source</b>	<b>Location</b>	<b>Findings</b>
<b>Watts 1999</b>	Alafia, Port Sutton, Ybor Channels	Two previously identified NRHP eligible archaeological sites
<b>Watts 2003</b>	Egmont, Pass-a-Grille Channels	Eight targets, seven were non-significant modern debris, one was known shipwreck (NOAA 11412)
<b>Lydecker 2005</b>	The channel edges of existing ship channel into the port of St.	Of the 31 targets investigated, several fell near the Project Area (Figure 30). Subsequent diver

Source	Location	Findings
	Petersburg, proposed bypass, three possible deep-water anchorage areas along main channel, and proposed new channel due south of the Port Tampa channel	investigations indicated that none represented significant historical resources. Note that this research was performed without subbottom profiler, as it was conducted before the State of Florida required its use, which it does now. Furthermore, the survey only covered outside the top edge of the channel with a footprint somewhat different in size than the current study area. The actual channel(s), which has the potential to contain significant resources, still requires a comprehensive survey.
<b>Faught &amp; James 2009, 2010</b>	Adjacent to and outside the top edge of the channel of Cuts A and B	Fifteen potentially significant targets were identified in the survey. Only 10 were within adverse impact areas. Investigated, these targets were found not to be associated with cultural resources. The channel within these cuts was not surveyed.
<b>James et al. 2006</b>	Egmont Key	Features identified included concrete foundations (i.e., Fog Bell, ammunition bunkers, rifle range shelters, power plant, rifle range butt), Battery Burchsted, Battery John Page, additional structures associated with Fort Dade. These features are considered as contributing components to the National Register listed Egmont Key site.
<b>Faught &amp; James, 2007; Faught and Ambrosino 2007</b>	Tampa Port Authority proposed Berth 214/215 and Berth 218 at Port Sutton	Paleosurfaces buried identified under portions of “made-land.” Archaic artifacts recovered during dredge monitoring.
<b>Landry et al. 2008, 2008a</b>	Port Dolphin pipeline surveys	Several potentially significant anomalies, geomorphic features,

Source	Location	Findings
		and sidescan targets present but all located to the south of the Navigation Channel Project Area

### 3.14.3 Shipwreck Inventory

The Life Saving Service Reports and National Oceanic and Atmospheric Administration (NOAA) Automated Wreck and Obstruction Information System (AWOIS) Lists, as well as other studies of ship losses, show that many vessels have been lost in the Tampa Bay area since the early seventeenth century. Previous remote sensing reports list vessels lost in the survey area. Northern Maritime Research publishes a database of American vessels lost around the world. The Northern Shipwrecks Database contains additional wrecks and information beyond what is available in the NOAA source discussed above. Other secondary sources were examined for references to wrecked or derelict vessels during the research conducted for other aspects of this project, such as for the historic background. A list of all reported losses in Tampa Bay that might be located in or near the project area is presented in Appendix A to the cultural resources report, which is found in Appendix C.

Data from the NOAA AWOIS List are presented in Figure 30. Only four of the points are adjacent to the ship channel, and these are recorded not as shipwrecks, but as “obstacles.”

### 3.14.4 Egmont Key

The area of nearshore placement located along the western side of Egmont Key contains cultural resources associated with Egmont Key, which is listed on the National Register of Historic Places (NRHP) and is potentially eligible as a National Land Mark (James *et al.* 2006). The island has been used by the U.S. Government for both national defense and as an aid to navigation. A small garrison was placed on the island in 1821, and a lighthouse was later constructed in 1846. From 1856 to 1858, the island served as a holding depot for captured Seminoles (James *et al.* 2006). The island had a military function from 1821 through the Seminole, Civil, Spanish American, First and Second World Wars. A portion of Egmont Key became a state park in 1989.

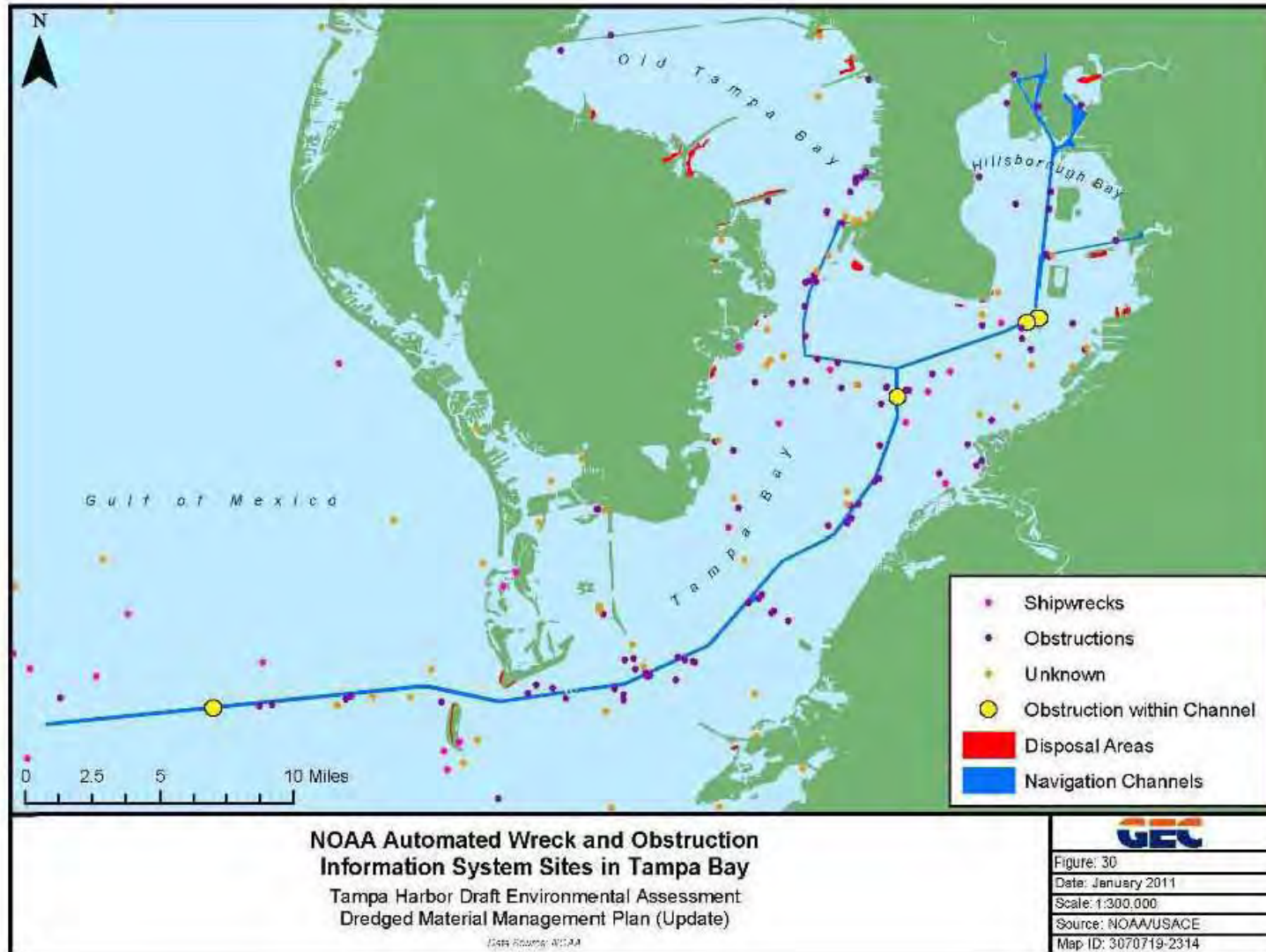
The island has been subject to erosion. Features associated with various forts on the island, such a batteries, target ranges, and a small section of railway, have eroded into the water. In 2004, the State Historic Preservation Officer (SHPO) noted, “Egmont Key contains numerous archaeological remains and historic structures. Recorded cultural resources include the entire island (includes materials once on the island and now submerged), listed in the NRHP as Egmont



Key, a/k/a the Fort Dade Site (8HI117); the Egmont Key Lighthouse (8HI117A0; and the Egmont Key Cemetery (8HI117B).”

The Jacksonville District prepared a feasibility study for the Egmont Key Shore Protection Project that detailed alternatives for erosion control at the island. The report included a study of the feasibility of stabilizing the historic fortifications and the beach areas along Egmont Key. The James *et al.* (2006) study, conducted in conjunction with this study, identified a number of significant cultural resources associated with historic Egmont Key. These resources are contributing components to the National Register listed Egmont Key site, and are within the proposed Egmont Key Shore Protection Project area of potential effects (APE).

Figure 30. NOAA Automated Wreck and Obstruction Information System Sites in Tampa Bay



### **3.14.5 Fort De Soto**

In 1898, the Spanish American War prompted the establishment of military defenses for Tampa Bay. Construction of fortifications on Mullet and Egmont keys began in November 1898, and by April 1900, the fort had been completed and named for the Spanish explorer Hernando De Soto. Fort De Soto was officially a subpost of Fort Dade, located at that time on neighboring Egmont Key.

Eight 12-inch M 1890-MI mortars were mounted in 1902, and two 15-pounder, 3-inch Driggs-Seabury rapid-fire guns were placed in 1903. Post buildings were constructed between early 1900 and 1906. There were 29 buildings including a 100-foot long barrack, hospital, stable, guardhouse, a shop for blacksmiths and carpenters, an administration office, a mess hall and kitchen, a bake house, and a storehouse.

Although manned during World War I in 1923, Fort Dade and Fort De Soto were abandoned in 1932. From 1933 to 1938, the Public Health Service began a mosquito eradication effort on Mullet Key. Mullet Key became a bombing range as a subpost of MacDill Field from 1941 to 1948, when the property was sold to Pinellas County. In 1963, Fort De Soto Park was officially dedicated, and in 1977, the Fort De Soto batteries (8PI48) were placed on the National Register of Historic Places. Fort De Soto is an excellent example of military coastal defense construction. The remains house the last 12-inch M 1890-MI mortars remaining in North America (Pinellas Co., undated).



## 4.0 ENVIRONMENTAL EFFECTS

Previous EAs have assessed the effects of conducting maintenance dredging to ensure that the channel retains its federally authorized dimensions. In addition, previous EAs have assessed the effects of placing material dredged from the channel into sites identified in the DMMP. All of these previous EAs, which are incorporated by reference (Section 1.7, *Related Studies*), had a corresponding Finding of No Significant Impact (FONSI).

### 4.1 SEDIMENT QUALITY

**No Action Alternative.** No adverse effects on native sediment characteristics would occur.

**Tentatively Selected Plan.** No adverse effects on native sediment characteristics would occur.

### 4.2 BIOLOGICAL COMMUNITIES AND LAND USE

#### 4.2.1 Land Use

**No Action Alternative.** No direct adverse effects on land use will occur. However, erosion is expected to continue at Cypress Point and Gadsden Point.

**Tentatively Selected Plan.** No adverse effects on land use will occur. Filling the dredge holes at Cypress Point and Gadsden Point will reduce erosion.

#### 4.2.2 Plant Communities

**No Action Alternative.** No adverse effects on terrestrial, salt prairie, marsh, or mangrove communities are expected.

**Tentatively Selected Plan.** No adverse effects on terrestrial, salt prairie, marsh, or mangrove communities will occur. The filling of some Beneficial Use sites (e.g., Big Island Hole) may increase adjacent marsh and mangrove communities.

#### 4.2.3 Open Water

**No Action Alternative.** No adverse effects on open water communities would occur.

**Tentatively Selected Plan.** No adverse effects on seagrass communities would occur. The construction of the TBEP's Longshore Bar project (see

Section 1.6.4.6) would bury some seagrasses; however, this pilot project is designed to mitigate wave energy and aid in the recovery of former seagrass areas along the southern tip of the Interbay Peninsula. Assuming that partially filling dredge holes to equal the surrounding depths would result in seagrass habitat covering the entire area, acreages of seagrass creation/restoration are presented in Table 17.

**Table 17. Seagrass Communities Resulting from Filling Dredge Holes**

Beneficial Use Site	Acres
Big Island Cut	46.3
Cypress Point	63.6
Gadsden Point (Southern Hole)	6.8
Gandy North	41.5
Howard Frankland West	104.7
MacDill Runway	59.3
NE St. Petersburg	9.5
Northshore Beach	30.0
Rocky Point	15.8
Shore Acres	5.1
Skyway Causeway	13.7
Snug Harbor	1.2
St. Petersburg/Clearwater Airport East	21.0
Venetian Isles	3.2
Whiskey Stump 1	21.6
Whiskey Stump 2	27.3

The filling of some Beneficial Use sites (e.g., Big Island Hole, Northeast St. Petersburg) may increase adjacent marsh and mangrove communities. Oyster beds near or adjacent to the dredge holes at Gandy North, Snug Harbor, and Whiskey Point 1 and 2 could expand if the dredge holes are filled. The extent of the increase in oyster beds and marsh and mangrove communities is dependent on the amount of dredged material placed in the holes (i.e., the depth of the water column following placement).

No loss of shallow water habitat will occur along the channel from the maintenance of the existing channel. The same amount of edge effect as the no action alternative will remain. Increased productivity of this aquatic site



will occur by creating a wetland area and habitat for a wide variety of aquatic life (USACE 2000c, 2000d [Rev. 2005]). There may be a temporary loss of silt habitat acreage and habitat raised to the photic zone with Whiskey Stump seagrass restoration (USACE 2000a).

### 4.3 FISH AND WILDLIFE

**No Action Alternative.** No short-term adverse effects on fish and wildlife will occur. Discontinuing the use of DMMA's could lead to a long-term decline in foraging habitat (Section 4.3.1) for certain species. Effects of the No Action Alternative reported by previous EAs: No adverse effects on benthic habitat are anticipated (USACE 2000a, 2000b, 2006a, 2006b). No impact on fisheries will result (USACE 2000b, 2000d [Rev. 2005], 2001). There would be no impact on shellfish (USACE 2000b). No impact on fisheries (USACE 2000b).

**Tentatively Selected Plan.** A potential exists for the introduction of black rat (*Rattus rattus*), also known as the roof rat or fruit rat, on Egmont Key or other islands during dredging or placement. Rats were first observed on Egmont Key during the summer of 2006, coinciding with a beach renourishment project at the north end of the island. A large dredging vessel was anchored adjacent to the island for several weeks and the rats may have been introduced at this time. Rat foraging activities can impact ground nesting birds, sea turtle nests and hatchlings, and small trees and shrubs (USFWS 2009c). The USFWS conducted a successful rat eradication program on Egmont Key in 2009, and future projects that involve placement at Egmont Key will implement the following protection measures:

- Baiting and trapping of rats will occur on the dredge beginning two weeks prior to project commencement, and it will continue through the completion of activities at Egmont Key;
- Any equipment placed on the island or operated within half a mile of the island will be inspected by a licensed exterminator before it is allowed to be mobilized to Egmont Key; and
- Rat guards (conical plastic or metal plate guards) will be installed on any mooring lines installed to the island or nearshore to provide a barrier to rats traveling on the rope from the dredge/barges/boats.

#### 4.3.1 Migratory Birds

**No Action Alternative.** No short term adverse effects on fish and wildlife will occur. In considering the long term, the flooding of DMMA's during dredged material disposal operations provides foraging for nesting birds. Discontinuing the use of the DMMA's could lead to a long term decline in foraging habitat for migratory bird species.

**Tentatively Selected Plan.** To ensure that migratory birds are not adversely affected by construction activities, the Migratory Bird Protection Plan (MBPP) would be implemented for sites that are utilized during bird nesting season. This Plan would also be implemented for any dike raising activities that occur at the DMMA's, preventing adverse impacts to migratory birds. With the implementation of these measures and the conditions of the FDEP Permit, the USACE concludes that no adverse effect on migratory birds, including the bald eagle, would occur.

Effects of the TSP reported by previous EAs: No impacts with the use of the ODMS disposal area, Whiskey Stump Key (USACE 1996, 2000a, 2004), DMMA 2-D (USACE 2009), MacDill Hole (USACE 2001, 2000d [Rev. 2005]), Port Sutton Terminal (USACE 2000d [Rev. 2005]), Mullet Key (USACE 2006a), Hookers Point and Garrison Channel (USACE 2000b) disposal areas. Moderate adverse impact on nesting at DMMA 2-D, DMMA 3-D, Sunken Island, Egmont Key, and Harbor Isle Lake disposal areas during April 1 to August 31 (USACE 1996, 1999a, 2000a, 2006a, 2000c, 2000d [Rev. 2005], 2001, 2004). No adverse impact if work is conducted outside this window (USACE 2004). No direct adverse impacts with the implementation of standard migratory bird protection measures (USACE 2010). If work cannot be accomplished within the avoidance window, a monitor is employed to identify and segregate nesting areas from construction activities (USACE 2004). Moderate long-term benefit would result from the revitalization of nesting habitat (USACE 1996, 2004, 2009) and creation of bird nesting and foraging habitat (USACE 2000a, 2000c, 2010). There could be an adverse impact on migratory bird nesting in the Egmont Key beach placement area (USACE 2004).

#### **4.3.2 Bald Eagle**

**No Action Alternative.** No adverse effects to the bald eagle will occur.

**Tentatively Selected Plan.** No adverse effects to the bald eagle will occur.

#### **4.3.3 Marine Mammals**

**No Action Alternative.** No adverse effects on non-listed marine mammals will occur.

**Tentatively Selected Plan.** No adverse effects on non-listed marine mammals will occur.

In the April 25, 2005 notice in the Federal Register (70FR 21174) for the issuance of an IHA for Small Takes of Marine Mammals Incidental to Specified Activities; Port of Miami Construction Project (Phase II), NMFS

stated: *According to the Corps, bottlenose dolphins and other marine mammals have not been documented as being directly affected by dredging activities and therefore the Corps does not anticipate any incidental harassment of bottlenose dolphins by dredging.*

#### **4.3.4 Benthos**

**No Action Alternative.** No adverse effects on benthic habitats will occur.

**Tentatively Selected Plan.** Effects of the TSP have been reported by previous EAs: No adverse effects on benthic habitat anticipated (USACE 2000a, 2000b, 2006a, 2006b); short-term impacts include covering and smothering of benthic organisms at disposal site (USACE 2001, 2006b), and minor long-term reduction of benthos at dredging site (USACE 2000b, 2006b, 2001); reduction or elimination of bottom habitat acreage and loss of benthic organisms may occur (USACE 2000a). The use of the ODMDS disposal area will result in a temporary loss of the benthic organisms that have colonized the site, followed by re-colonization (USACE 2000a).

Benthic communities will be covered with dredged material at beneficial use sites. However, this is likely to be a short-term effect, and benthic communities will recover at the site. Because depths will be altered by the placement of dredged material, and because of the potential for restored beneficial use sites to support aquatic vegetation, it is possible that the structure of the benthic community could be altered.

No hardbottom areas would be affected.

#### **4.3.5 Fishery Resources**

**No Action Alternative.** No adverse effects on fishery resources will occur.

**Tentatively Selected Plan.** There will be a long-term loss of recreational fishing by filling some of the dredged holes. The TBEP recommended not filling the following dredged holes because of the potential loss of important recreational fisheries:

- Bay Island Hole
- Cypress Point Hole
- Gandy Channel North Hole
- MacDill AFB Runway Extension Hole
- Shore Acres Hole
- St. Petersburg/Clearwater Airport Hole
- Whiskey Stump Key Holes 1 and 2

However, long-term benefit will be realized to Bay fisheries from the establishment of natural bay bottom by filling dredged holes and the potential for creating more productive life-cycle habitat (USACE 2006b). Other effects noted in previous EAs include an incremental loss of cold-water refugia and edge effect and long-term benefit by creating shallow-water habitat for juvenile fish at the MacDill Hole (USACE 2001), and a short-term loss of fish that will occur during placement within Harbor Isle Lake (USACE 2001).

#### 4.4 THREATENED AND ENDANGERED SPECIES

**No Action Alternative.** No adverse effects on threatened and endangered species would occur.

Effects of the No Action Alternative reported by previous EAs include: no adverse impact on manatees (USACE 1996, 1999a, 2000b, 2004, 2006b, 2010); no impacts on sea turtles (USACE 1999a, 2004, 2006b, 2009); no adverse impacts on migratory birds (USACE 1996, 1999a, 2000b, 2000d [Rev. 2005], 2004, 2006b, 2009). Long-term decline in piping plover critical habitat and sea turtle nesting habitat at Egmont Key due to continued erosion (USACE 2010).

**Tentatively Selected Plan.** With the implementation of procedures to protect manatees and sea turtles, the project is not likely to adversely affect the continued existence of any threatened or endangered species.

The Tampa Harbor Federal Navigation Project is covered by the GRBO (2003; amended 2005 and 2007) which states that:

*Of the above-listed threatened and endangered species of sea turtles, whales, and sturgeon potentially present in the action area, NOAA Fisheries believes that only loggerhead, green, hawksbill, and Kemp's ridley sea turtles, and Gulf sturgeon, are vulnerable to being taken as a result of the use of hopper dredges to maintain, or deepen and widen navigation channels and harbors, or to dredge sand mining areas for beach nourishment in the U.S. Gulf of Mexico. Hopper dredging activities also have the potential to destroy or adversely affect Gulf sturgeon critical habitat.*

However, there is no Gulf sturgeon critical habitat in the project area.

The 2003 GRBO also states that:

*Sperm whales (*Physeter macrocephalus*) occur in the Gulf of Mexico but are rare in inshore waters. Other endangered whales, including North*

*Atlantic right whales (Eubalaena glacialis) and humpback whales (Megaptera novaeangliae); have been observed occasionally in the Gulf of Mexico. The individuals observed have likely been inexperienced juveniles straying from the normal range of these stocks. NOAA Fisheries believes there are no resident stocks of these species in the Gulf of Mexico, and these species are not likely to be adversely affected by projects in the Gulf. NOAA Fisheries believes that blue, fin, or sei whales will not be adversely affected by hopper dredging operations; the possibility of dredge collisions is remote since these are deepwater species unlikely to be found near hopper dredging sites. There has never been a report of a whale taken by a hopper dredge. Based on the unlikelihood of their presence, feeding habits, and very low likelihood of hopper dredge interaction, the above-mentioned cetaceans are not considered further in this Opinion.*

According to the 2003 GRBO, smalltooth sawfish are not likely to be affected by dredging activities due to their affinity for shallow, estuarine systems.

#### **4.4.1 Sea Turtles**

The proposed project could potentially directly and indirectly affect sea turtles in the following ways (USACE):

- Dredging activities that utilize a hopper dredge may affect sea turtles; preventative measures will be taken, such as use of draghead deflectors and monitoring to reduce the potential for impacts (USACE 2004). Placement activities on nesting beaches may affect sea turtles. Mitigation measures are provided in Section 5.0;
- Both stockpiled pipe on the beach and the pipeline route running parallel to the shoreline may impede nesting sea turtles from accessing more suitable nesting sites;
- The operation of heavy equipment on the beach may impact nesting females and incubating nests;
- Associated lighting impacts from the nighttime operations and the increased beach profile elevation may deter nesting females from coming ashore and disorient emerging hatchlings;
- Burial of existing nests may occur if nests are missed by monitoring efforts;
- Escarpment formations and resulting impediments to nesting females as well as potential losses to the beach equilibration process;
- Reduced nest success as a result of authorized relocation efforts;
- Sediment density (compaction), shear resistance (hardness), sediment moisture content, beach slope, sediment color, sediment grain size, sediment grain shape, and sediment grain mineral content can be altered potentially affecting the nesting and incubating environment;

- Hard sediment can prevent a female turtle from digging a nest or result in a poorly constructed nest cavity;
- Changes in sediment properties and color could alter the temperature of the beach and incubating nests, thus influencing sex ratios; and
- Hard structures (groins, breakwaters, etc.) may prevent access to suitable nesting sites, directly and indirectly interfere with the nesting process, impede and/or trap nesting females and hatchlings resulting in increased energy expenditure, concentrate predators, and alter longshore sediment transport and down-drift erosion.

With respect to effects of hopper dredging on sea turtles, the GRBO states:

*. . . it is NOAA Fisheries' biological opinion that the COE's hopper dredging activities, as proposed and described in the Proposed Action section of this Opinion, are not likely to jeopardize the continued existence of any listed species. . .*

The 1991 South Atlantic Regional Biological Opinion (SARBO; amended in 1995 and 1997; NMFS 1991) states:

*Clamshell dredges are the least likely to adversely affect sea turtles because they are stationary and impact very small areas at a given time. Any sea turtle injured or killed by a clamshell dredge would have to be directly beneath the bucket. The chances of such an occurrence are extremely low, although the take of a live turtle by a clamshell dredge has been documented at Canaveral. On the basis of the best available information, NMFS has determined that dredging with a clamshell dredge is unlikely to result in the take of sea turtles. . . . Pipeline dredges are relatively stationary and only influence small areas at a given time. For a turtle to be taken with a pipeline dredge, it would have to approach the cutterhead and be caught in the suction. This type of behavior would appear unlikely, but may be possible. Presently, NMFS has determined that pipeline dredges are unlikely to adversely affect sea turtles. . . . the special purpose split-hull hopper dredge and sidecast dredges are used in a limited basis in the southeast. These dredges are not believed harmful to sea turtles because of the small size of dragheads (roughly 2' by 2'). For the present consultation, NMFS has determined that these dredges are unlikely to adversely affect sea turtles.*

*Of the three major dredge types, only the hopper dredge has been implicated in the mortality of endangered and threatened species. Thus, this biological opinion concentrates on the adverse impacts of hopper dredging in the southeastern United States.*

The Tampa Harbor Federal Navigation Project is covered by the GRBO (2003) which states that:

*Leatherback sea turtles will not be considered further in this Opinion based on the unlikelihood of their presence nearshore and their non-benthic feeding habits which combine to produce a very low likelihood of hopper dredge entrainment.*

The USACE plans to minimize impacts to nesting sea turtles in the project area by implementing steps that are now common practice including, but not limited to:

- design modifications;
- contingency plans;
- risk assessments;
- sediment quality monitoring;
- compaction tests;
- tilling;
- leveling escarpments in the fill; and
- monitoring for nests, etc.

Despite the implementation of placement windows, use of compatible sediment, and other necessary precautions to the maximum extent practicable, a chance of affecting loggerhead and green turtles remains. Therefore, the USACE determined that the project may affect but is not likely to adversely affect loggerhead and green turtles.

Effects of the TSP reported by previous EAs: No impacts on sea turtles will result if protection conditions are adhered to (USACE 1996). Turtle nesting has not been documented on DMMA 2-D or 3-D disposal areas; placement of dredged material on these areas proposes no adverse or beneficial effects (USACE 2004). There could be an impact on sea turtles in the area if a hopper dredge is used for the work; this impact will be minimized with the use of the deflector dragheads, monitoring of equipment, and inflow screens as necessary (USACE 2004, 2006a, 2006b, 2009, 2010). Sea turtle nesting could be adversely impacted during placement of dredged material along the Egmont Key (USACE 2004) and Mullet Key (USACE 2006a) beach placement areas. Impacts to nesting will be mitigated by monitoring and relocation, and compaction and escarpment monitoring (USACE 2004). If a hopper dredge is used, sea turtles could be affected by lethal or injurious impingement by the draghead; hopper dredges are required to be equipped with draghead deflectors and inflows and outflows monitored to reduce the potential for impacts (USACE 2004). Long-term benefit to nesting habitat through the



placement of material in the nearshore region of Egmont Key (USACE 2010) and Mullet Key (USACE 2006a).

#### **4.4.2 Florida Manatee**

Most manatees observed in the Tampa Bay area are found at locations where water temperatures are more stable year round (USFWS 2001). Manatees are especially known to congregate around areas of seagrasses. During winter, they congregate in warm water outfalls associated with manufacturing and power generation.

To insure the protection of manatees, the standard state and Federal manatee protection conditions would be implemented during construction. In addition, the project will comply with the Protected Species conditions outlined in the FDEP Permit. With implementation of these conditions, the USACE has determined that the project is not likely to adversely affect the manatee.

Effects of the TSP reported by previous EAs: No adverse impacts to manatees would occur if the DMMA 2-D, DMMA 3-D, or ODMDS (USACE 2000a) disposal areas are used. No impacts on manatees are expected to occur if state and Federal manatee protection conditions are adhered to (USACE 1996, 2001, 2004, 2006a, 2000b). In addition, a special dedicated manatee monitor will be used on clamshell operations (USACE 2004). Manatees are not likely to be found in the vicinity of Cuts A and B of the Harbor and are not likely to be affected (USACE 2004). Manatees are not likely to be found in the vicinity of the harbor and are not likely to be affected (USACE 2004). Potential adverse impact on manatees with dredging and placement at Egmont Key, DMMA 2-D, DMMA 3-D, Bird/Sunken Island, ODMDS, Port Sutton Terminal, and MacKay Bay Hole will be mitigated by the implementation of standard manatee protection conditions (USACE 2000a, 2000d [Rev. 2005], 2009, 2010). Clamshell dredges would require special monitoring requirements and be limited to warm weather operations. If blasting is required, a blasting protection plan will be implemented with a no blast window of November 1 through March 31 (USACE 2000c, 2000d [Rev. 2005]).

#### **4.4.3 Piping Plover**

The piping plover uses the Tampa Bay area for wintering grounds. Habitats used by piping plover during the winter include beaches; mud, sand, and algal flats; and washover passes. If dredged material is placed at Egmont Key or Mullet Key (Ft. DeSoto), a possibility for affecting the piping plover exists. However, the USACE requires contractors to adhere to the provisions of the *Protection Specifications for Contracts, Migratory Bird Protection*.

Therefore, the USACE has determined that the placement of material at Egmont Key or Mullet Key may affect, but is not likely to adversely affect the piping plover. Of the areas considered for the placement of dredged material, only Egmont Key and a portion of Mullet Key are designated as critical habitat for piping plovers. Placement of material at these two sites may affect, but is not likely to adversely affect, piping plover critical habitat. For placement at other sites, the project would not affect the piping plover.

#### **4.5 WILDLIFE REFUGES, SANCTUARIES, AND MANAGEMENT AREAS**

**No Action Alternative.** Continued erosion at Egmont Key would result in the loss of national wildlife refuge and state park lands.

**Tentatively Selected Plan.** No adverse effects on wildlife refuges, sanctuaries, and management areas will occur. Placement of sand at Egmont Key and Fort De Soto Beach would have beneficial effects by protecting resources by offsetting coastal erosion.

#### **4.6 ESSENTIAL FISH HABITAT**

Section 3.5 describes the *existing conditions* of the Essential Fish Habitat (EFH). This section describes the individual and cumulative impacts of the No Action Alternative and the Tentatively Selected Plan. This NEPA document will satisfy the coordination requirement for EFH under the Magnuson-Stevens Fisheries Act (Section 6.13).

**No Action Alternative.** No adverse effects on essential fish habitat would occur.

Effects of the No Action Alternative reported by previous EAs: No impact (USACE 2006a, 2009). Frequent short-term reductions in water quality due to turbidity from boats disturbing bottom depths at decreased depths due to shoaled material (USACE 2010).

**Tentatively Selected Plan.** The TSP would temporarily impact nearshore benthic habitat, fishes, and invertebrates in the dredge and placement areas, as well as result in temporary reductions of water quality due to turbidity. After dredging and placement, the water quality would quickly return to pre-dredging conditions, benthic communities would repopulate, and fishes and motile invertebrates would return to the area. These effects are considered to be minor and would not result in an overall adverse impact to essential fish habitat.

Effects of the TSP reported by previous EAs: Temporary displacement of fishes and infaunal communities in the dredged areas (USACE 2009, 2010); temporary impacts to nearshore benthic habitat (USACE 2006a); and temporary short-term reduction of water quality due to increased turbidity during construction (USACE 2009, 2010).

#### **4.7 WATER QUALITY**

**No Action Alternative.** No adverse effects on water quality would occur.

Effects of the No Action Alternative reported in previous EAs included: a determination of no adverse impacts to water quality (USACE 1996, 2000b). Local intermittent increases in turbidity resulting from the propeller wash of larger ships resuspending bottom sediments (USACE 2000a, 2000c, 2000d [Rev. 2005], 2004, 2006a, 2009, 2010). Because of a continued lack of circulation in the holes, stratification may occur in some areas (USACE, 2006b).

**Tentatively Selected Plan.** No long term adverse impact on water quality is expected to occur as a result of the Tentatively Selected Plan.

Dredging and disposal operations will create minor, temporary reduction of water quality in the vicinity of the construction by increased turbidities. Elevated turbidity levels would occur within the mixing zone in dredging areas and in the return water from the disposal site. Turbidities directly due to dredging are expected to return to ambient levels within a short time period.

Placement of material in man-made dredged holes in the bay bottom would result in a long-term improvement in water quality from reduction of oxygen-poor stratified water.

Water quality certification will be obtained prior to the commencement of any activities associated with this EA.

Effects of the TSP reported in previous EAs: Dredging operations would produce temporary changes in water quality (USACE 2004). Moderate short-term increases in turbidity from the dredging operation (USACE 1996, 2000a, 2000b, 2000c, 2004, 2000d [Rev. 2005], 2006a, 2006b, 2009, 2010). Visible water surface plumes in the immediate area of dredging. Temporary minor elevations in turbidity levels from the return water from the disposal site (USACE 1999a, 2000a, 2000b, 2000c, 2004). Short-term increases in turbidity levels at the Sunken Island, Whiskey Stump Key, DMMA 2-D disposal sites (USACE 1996, 2000d [Rev. 2005]); will require turbidity screens to minimize impacts (USACE 1996). No impact from disposal area

return water from DMMA 3-D disposal (USACE 1996). Moderate long-term benefit to water quality from the elimination of oxygen-poor water quality in man-made dredged hole in the Bay bottom (USACE 1996), MacDill Hole, and Harbor Isle Lake (USACE 2001). Long-term capping of the MacKay Bay dredged hole if this placement area is used (USACE 2006b). Improved water quality in channel for aquatic life (USACE 2000b). Water quality production of seagrass implemented at edge of seagrasses with Whiskey Key seagrass restoration (USACE 2000a).

#### **4.8 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE**

**No Action Alternative.** No HTRW issues would be encountered at the Ybor Turning Basin and Port Sutton (USACE 1999). Although ordnance was found at Mullet Key (Fort De Soto), the No Action Alternative would not cause the disturbance of these items; therefore, no effects would result.

**Tentatively Selected Plan.** No HTRW issues would be encountered at the Ybor Turning Basin and Port Sutton (USACE 1999). The locations of concern at Mullet Key are not within the area along the beach at which dredged material would be placed; therefore, no ordnance would be disturbed. The TSP would not affect or be affected by HTRW.

#### **4.9 NOISE**

**No Action Alternative.** No additional noise would result.

Effects of the No Action Alternative reported by previous EAs: No impact (USACE 2004, 2006a, 2009, 2010).

**Tentatively Selected Plan.** Temporary minor increases in noise would occur during the dredging and dredged material disposal in the vicinity of the construction.

Harbors and waterways where dredging could occur currently experience elevated background noise associated with navigation activities. Dredging and disposal operations near populated or other noise-sensitive locations may result in increased levels of noise. Some of the dredging and disposal sites are located in remote locations and the noise would attenuate. Local noise ordinances would be implemented to reduce equipment noise. Best management practices that may be used to reduce noise produced by equipment include:

- Conducting work during daytime hours;
- Using standard equipment with noise control devices (e.g., mufflers) that meet manufacturers' specifications;

- Using *quiet* equipment (i.e., equipment designed with noise control elements);
- Installing portable barriers to shield compressors and other small stationary equipment where necessary;
- Installing sound barriers for pile-driving activity, where practicable, by using an acoustic curtain or blanket around the point of impact;
- Directing equipment exhaust stacks and vents away from buildings, when feasible;
- Identify any noise-sensitive receptors, such as residential areas, churches, schools, recreation areas, etc., that might be disturbed by construction noise and notify them in advance of upcoming work; and
- Respond immediately to complaints raised by nearby residents.

Following dredging and disposal operations, noise levels would revert to existing levels.

Effects of the TSP reported in previous EAs: Temporary increases in noise levels at the dredging (USACE 2009) and discharge sites (USACE 2004, 2009), potentially affecting recreational boaters (USACE 2009, 2010) and recreational area at Mullet Key (USACE 2006a). Impacts would be mitigated by the implementation of local noise ordinances (USACE 2004). Impacts would be short-term and would not reach levels harmful to either man or wildlife (USACE 2004). Relatively no impact from dredging in the harbor due to background noise levels (USACE 2004). No impact at ODMDS due to lack of human habitation (USACE 2004). Minor short-term impact at dredged holes (USACE 2006b).

#### 4.10 AESTHETIC RESOURCES

**No Action Alternative.** No adverse impacts to the aesthetic value of the region would occur with the No Action Alternative.

Effects of the No Action Alternative reported by previous EAs: No adverse impacts (USACE 1996, 1999a, 2000b, 2004, 2006a, 2006b).

**Tentatively Selected Plan.** Temporary air emissions, water turbidity, and increased noise can be expected during project construction. During construction, equipment used for dredging would be visible, resulting in a temporary reduction in the aesthetic value offshore during construction. Impacts to aesthetics depend on the locations of the dredging and disposal areas. Aesthetic values are less likely to be impacted in remote or highly industrialized dredging and disposal areas. Temporary construction

conditions would not adversely affect the existing aesthetics of the Tampa Harbor area.

Effects of the TSP reported in previous EAs: No impact to aesthetics within dredge hole disposal areas. Minor air pollution, water turbidity, and noise pollution increases during construction (USACE 2006b). Temporary construction activities will not adversely affect existing aesthetics of Tampa Harbor (USACE 2004). Aesthetic resources of Tampa Harbor could be minimally impacted (USACE 2000b, 2000c, 2000d [Rev. 2005], 2004) or no impact (USACE 2000a) by ODMDS disposal. Minimal temporary adverse impacts from dredging operation (USACE 1996). Minor short-term impact from the presence and operation of construction equipment in a residential area and Grande Bayou waterway and in a commercial port and open water area near a military runway (USACE 2001). Major short-term impact from presence and operation of equipment at the dredging and disposal site at Mullet Key (USACE 2006a). Minor short-term turbidity plume in the Port and in the surf zone at Mullet Key (USACE 2006a). Minor short-term decrease in aesthetics to recreational fishing and boating that use the shoreline at Bird Island, DMMA 2-D, Alafia River and the wetland recreation area south of the Alafia River channel (USACE 2000a, 2000c, 2000d [Rev. 2005]), near Whiskey Key (USACE 2000a), upland placement on the Port Sutton channel, and the MacKay Bay hole (USACE 2000c). Minor short-term impacts during construction and post-construction from raising the disposal area dike at DMMA-2D until vegetation becomes established (USACE 1999a).

#### **4.11 RECREATIONAL RESOURCES**

**No Action Alternative.** No short term adverse effects to recreational resources would occur with the No Action Alternative. Long term effects would include the gradual reduction in channel dimensions resulting in restrictions on cruise ship access.

Effects of the No Action Alternative reported in previous EAs: No impact (USACE 1996, 1999a, 2000a, 2001, 2006a, 2006b). Minor long-term reduced recreational potential (USACE 2006a, 2009). Minor long-term adverse impact on cruise ship operation (USACE 2000b). Low level of recreational opportunities from the few cruise ships and charter boats using the facility (USACE 2004). Minor long-term reduced recreational potential from erosion of the beach at Egmont Key (USACE 2010).

**Tentatively Selected Plan.** No significant adverse effect on recreation is expected. Boating and fishing in areas in proximity to dredging and disposal operations may be affected, but sufficient alternative sites in Tampa Bay are available for these activities. Placement of material in dredged holes may

cause a temporary, minor impact on recreational resources. However, use of the MacDill Air Force Base Runway Dredge Hole will not affect recreation because this is a safety/restricted area (USACE 2006b). According to the 2004 Egmont Key EA (USACE 2004), *Recreational activities at the disposal areas (DMMA 2-D and 3-D) are limited to bird watching. The project would have a short-term impact on this use. Upon completion of the project, levels of utilization would return to normal.* Access to DMMA 2-D and 3-D is restricted to authorized personnel; however, bird watching activities would have to be done from personal watercraft.

Effects of the TSP reported in previous EAs: Long-term minor loss of fishing habitat with use of holes except McKay Bay and use of the MacDill Air Force Base Runway Dredge Hole would not affect recreation because this is a safety/restricted area (USACE 2006b). Medium long-term impact from the increased recreational opportunities of the Port (USACE 2006a, 2009, 2010). Minor adverse impact on recreation along the Mullet Key project area during placement activities (USACE 2006a). Increased recreational opportunities along the newly created beach on Egmont Key (USACE 2004) and Mullet Key (USACE 2006a). No recreational activities would be affected by the dredging or disposal operations (USACE 1999a, 2004). Increased navigable capacity of this harbor would provide for major recreational benefits derived from cruise ships using the port (USACE 2004). Recreational activities at the DMMA 2-D and 3-D are limited to bird watching. The project would have a short-term impact on this use. Upon completion, levels of use would return to normal (USACE 2004). Possible disruption of or minimal temporary adverse impacts to fishing and boating traffic due to the presence of dredging equipment (USACE 1996, 2000a, 2000c, 2000d [Rev. 2005], 2001). No impact (USACE 2000a), or possible disruption of fishing and boating traffic due to the presence of dredging equipment at ODMS disposal site (USACE 2000c). Increased nursery habitat and protection for small fish with the wetland creation adjacent to DMMA 2-D and Bird/Sunken Island expansion (USACE 2000c).

#### 4.12 SOCIOECONOMICS

**No Action Alternative.** Based on the continued use of the Port of Tampa by deep draft vessels, it is evident that if maintenance dredging of the channel does not continue, there would be a deleterious effect on the local and regional economy because the navigation channels would not have the draft to accommodate much of the waterborne commerce.

Effects of the No Action Alternative reported in previous EAs: Minor to moderate long-term adverse impact on the economy of the area from the reduced port capabilities (USACE 1996, 1999a, 2000a, 2000b, 2000c, 2000d



[Rev. 2005], 2006a, 2006b, 2009, 2010). Negative economic stimulus due to the reduced navigability of the channel and harbor (USACE 2004).

**Tentatively Selected Plan.** The regional social and economic benefits that are based on navigation associated with the Federal project would continue

Effects of the TSP reported in previous EAs: No impact if dredged holes are used for material placement (USACE 2006b). Minor short-term stimulus from sale of goods and service during construction. Moderate long-term benefit to the local economy from the increased port capabilities and the increased usage by larger or more fully loaded vessels with decreased traffic delays (USACE 1996, 1999a, 2000a, 2000b, 2000c, 2000d [Rev. 2005], 2001, 2004, 2006b, 2009, 2010). Use of the existing DMMA 2-D and 3-D disposal areas eliminates additional cost that would be incurred from site preparation and new construction (USACE 2004).

#### 4.13 NAVIGATION AND PUBLIC SAFETY

**No Action Alternative.** The No Action Alternative would result in shoaling and shallowing of the channel. Deep draft navigation would be affected initially, and light loading would become necessary. As shoaling continues, the navigability of the channel would decrease. Because vessels would tend to use the center of the channel, shoaling at the sides would result in a narrowing of the channel, which would affect public safety by increasing the potential for collisions.

Effects of the No Action Alternative reported in previous EAs: No adverse impact on safety (USACE 2006b). Long-term adverse impact on safety (USACE 1999a, 2000a, 2000b, 2000c, 2000d [Rev. 2005], 2006a) and efficient ship handling capabilities in this area of the Port (USACE 2000b, 2004). Major adverse impact on navigable (tonnage) capacity (vessels entering the harbor area); reduced navigation from reduced channel depths and shoaling (USACE 2004, 2009, 2010).

**Tentatively Selected Plan.** The TSP would result in some temporary disruption of normal vessel traffic in the ship channel due to the presence and operation of the dredged material transport and disposal equipment. This temporary effect is considered only a minor inconvenience to navigation. If dredged material is placed in the holes adjacent to navigation channels (Venetian Isles, Snug Harbor, Shore Acres), a short-term disruption to boating activities would likely occur.

Effects of the TSP reported by previous EAs: No benefit to safety on dredge hole disposal areas except minor benefit to swimmers with use of Northshore Beach and to waders with use of Whiskey Stump Key dredged hole (USACE

2006b). No impact to navigation from Whiskey Stump Key seagrass restoration or DMMA 2-D wetland creation (USACE 2000a). Moderate to major long-term benefit to navigation (USACE 1996, 1999a, 2000a, 2000b, 2006a, 2001, 2004, 2009, 2010). More efficient cargo handling from increased vessel size (USACE 2000a, 2000c, 2000d [Rev. 2005]). Long-term, increased safety for navigation (USACE 2000c, 2000d [Rev. 2005], 2004). Short-term minor decrease in aesthetics to recreational fishing (USACE 2000c, 2000d [Rev. 2005]). Temporary disruption of normal vessel traffic in the channel (USACE 1996, 2004) and recreational traffic from dredging equipment (USACE 1996). Use of the ODMS disposal area would result in a short-term increased traffic flow during transit to and from the site (USACE 2000c).

#### 4.14 CULTURAL RESOURCES

**No Action Alternative.** The No Action Alternative would not affect cultural resources along the Federal project or any disposal areas except Egmont and Mullet Keys. Without the placement of dredged material along Egmont and Mullet Keys, erosion would continue to occur, and additional historic properties would be lost.

Effects of the No Action Alternative reported in previous EAs: No adverse impacts (USACE 1996, 1999a, 2000a, 2000b, 2000c, 2000d [Rev. 2005], 2001, 2004, 2006a, 2006b, 2009, 2010). Continued erosion conditions will affect Egmont Key (USACE 2010).

**Tentatively Selected Plan.** A cultural resource survey was conducted as part of this project. A report entitled, *Cultural Resource Assessment Survey (CRAS) for Operation and Maintenance Dredging of Tampa Harbor*, identified 25 anomalies of interest within the channel and associated disposal areas. In addition, the study re-identified various features known to exist off shore of Egmont Key. All anomalies will either be avoided or buffered during maintenance operations unless further investigated. If maintenance operations are required in the area of any of the anomalies, additional cultural resources studies will be performed. The USACE is consulting with the SHPO and appropriate federally recognized tribes pursuant to Section 106 of the National Historic Preservation Act (NHPA). It is the intention of the Corps to use this cultural resource survey for the basis of future determinations of affects associated with the NHPA for future maintenance operations. The Corps is committed to avoiding, minimizing, or mitigating for the effects of this project. Finally, placing dredged material at DMMAs 2-D and 3-D would have no adverse effect on cultural resources.

By letter of August 16, 2004 (DHR No. 2004-7106), the SHPO noted “cultural resources of Egmont Key are being adversely affected by erosive storm surges

and high tides.” Erosional conditions on the island have created a situation whereby various resource components are situated along the shoreline or within the nearshore environment. This creates an adverse conditions associated with the physical work associated with sand placement along the shoreline. Therefore, it is the opinion of this office that the current project has the potential to adversely affect resources currently located on or adjacent to the island. Because of the fragile state of some of the materials on the island and in the adjacent water, construction activities associated with dredge disposal have the potential to create adverse effects.

By letter of May 14, 2010 (DHR File No. 2010-02100), the SHPO recommended that a professional cultural resources monitor be present at Egmont Key to ensure that actions would not adversely affect historic properties (see Appendix E). Monitoring will continue as part of the proposed plan to mitigate the potential for adverse effects to the island. This recommendation was reiterated on July 13, 2010 (DHR File No. 2010-2424). Through this process placement of materials in the nearshore environment along Egmont Key and Mullet Key would be beneficial for maintaining cultural resources of the island and would provide buffering actions to the forces currently eroding the island. By letter of September 14, 2006, the SHPO stated, “...the placement of dredged material along the western and southern shoreline (of Mullet Key) will retard erosion and protect the historic Ft. De Soto.” James *et al.* (2006) suggested, “the archaeological integrity of Egmont Key’s cultural resources would be enhanced by the placement of sediment overburden and would likely have no adverse effect on the sites” (pg. 151).

Effects of the TSP reported in previous EAs: No adverse effects are anticipated for the use of disposal areas at Whiskey Stump (USACE 1996, 2000a), DMMA 2-D (USACE 2000a, 2000b, 2000c, 2000d [Rev. 2005], 2004, 2009), DMMA 3-D (USACE 1996, 2004), Sunken Island (USACE 1996), Bird Island (USACE 2000a), Hookers Point (USACE 2000b), Garrison Channel (USACE 2000b), ODMDS (USACE 2000a, 2000c), holes (USACE 2006b), Harbor Isle Lake and MacDill Hole (USACE 2001), or raising the dike (USACE 1999a). The DMMA 2-D and DMMA 3-D disposal areas are manmade features created within the last 50 years (USACE 2004). Unknown impacts, site has not been surveyed for DMMA 2-D and Bird Island (USACE 2000c, 2000d [Rev. 2005]). Potential effect to an unidentified target (USACE 2000b). Unknown effects to placement of dredged material in Garrison Channel (USACE 2000b). A potentially significant historic property is located near the mouth of the Alafia River and may be affected (USACE 2000a). Major short-term benefit to stabilize the historic coastal batteries along Mullet Key if this placement area was used (USACE 2006a). No adverse effect with placement on Egmont Key (USACE 2010). Placement of

dredged sand on Egmont Key would benefit the long-term protection of a historic gun battery located on the western side of the island (USACE 2004). Protection of Whiskey Stump Key from erosion if this disposal area is used (USACE 2006b).

Consultation with the SHPO and with appropriate federally-recognized tribes associated with Section 106 of the National Historic Preservation Act is ongoing. However, in a letter dated 8 August 2011, the SHPO concurred with the projects Finding of No Significant Impact (DHR project # 2011-03068). Consultation with the SHPO will be completed prior to the commencement of any activities associated with this EA.

#### **4.15 ENERGY REQUIREMENTS AND CONSERVATION**

**No Action Alternative.** The No Action Alternative will have no energy requirements.

**Tentatively Selected Plan.** The TSP will involve the use of fuel to power dredges, pumps, and associated machinery in conjunction with the maintenance of the Federal channel and disposal of dredged material.

#### **4.16 NATURAL OR DEPLETABLE RESOURCES**

**No Action Alternative.** The No Action Alternative will not result in the loss of any natural or depletable resources.

**Tentatively Selected Plan.** No direct effects of the TSP on natural/depletable resources will occur. However, indirect effects include the use of fuel for construction and operations (petroleum depletion), machinery wear and tear (metal ore depletion), and similar effects. However, these effects are considered to be of minor consequence.

#### **4.17 CUMULATIVE EFFECTS**

Cumulative effects are defined in 40 CFR 1508.7 as those effects that result from:

*...the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

Cumulative environmental effects for the proposed project were assessed in accordance with guidance provided by the President's Council on Environmental Quality (CEQ).

#### **4.17.1 Methodology**

A six-step process was followed to assess cumulative effects on resources affected by the Tampa Bay Federal Navigation Project. The first step was to identify which resources to consider in the analysis. All impacts on affected resources can be called cumulative. However, according to CEQ guidance, *“the role of the analyst is to narrow the focus of the cumulative effects analysis to important issues of national, regional, or local significance”* (CEQ 1997, p. 12). In addition to this *relevancy* criterion, only those resources expected to be directly or indirectly affected by the project as well as by other actions within the same geographic scope and time frame were chosen for the analysis. Based on these criteria, the following resources were identified as target resources for the cumulative effects analysis: threatened/endangered species, marine habitats, and cultural resources.

The next steps of the cumulative effects analysis included:

- Defining the study area for each resource.
- Describing the historical context and existing condition of each resource. Descriptions are summarized from more detailed descriptions in Section 3.0 of this report.
- Summarizing the direct and indirect effects of each alternative on each identified resource. Environmental effects of each alternative are presented in more detail in Chapter 4.0 of this EA.
- Identifying the accumulated effects on each resource from the proposed action and other actions.
- Summarizing the magnitude of the cumulative effects of the projects and actions on the affected resources.

The information derived from these steps of the cumulative effect assessment is presented below for each resource.

#### **4.17.2 Threatened and Endangered Species**

**Resource Study Area:** The study area for assessing cumulative effects on threatened and endangered species in this EA includes Tampa Bay and that portion of the Tampa Harbor Federal Navigation Project that extends into the Gulf of Mexico.

**Historic Context and Current Health:** The Federally endangered Florida manatee is found in Tampa Bay. Surveys show that over 900 manatees

inhabit the west coast of Florida and as many as 190 manatees use Tampa Bay, which has several Federal and state manatee protection areas, including areas around several power plants, where manatees congregate near warm water discharges during winter. Threats to manatees include destruction and degradation of their coastal and freshwater habitat, watercraft-related strikes, entanglement in fishing lines and crab pot lines, exposure to Critical Habitat within the Tampa Bay area includes the Little Manatee River downstream from the U.S. Highway 301 Bridge in Hillsborough County and the Manatee River downstream from the Lake Manatee Dam in Manatee County.

Loggerhead, green, Kemp's ridley, and hawksbill sea turtles occur in and around Tampa Bay. The leatherback turtle is also reported to occur in offshore waters. The turtle most frequently encountered in the Tampa Bay area is the loggerhead, which is the only sea turtle that nests in the area. The loggerhead is federally listed as threatened, but is proposed for listing as endangered; the other sea turtle species are currently listed as endangered.

**Summary of Direct and Indirect Effects:** To ensure the protection of manatees, the standard state and Federal manatee protection conditions would be implemented during construction and operation activities. In addition, the project will comply with the Protected Species conditions outlined in the FDEP Permit. Therefore, the Tampa Harbor Federal Navigation Project is not expected to affect the Florida manatee.

As detailed in Section 4.4.1, the proposed project has a potential to directly and indirectly affect loggerhead and green turtles. The use of Egmont Key as the placement site for beach quality dredged material would help to retain beaches, thereby sustaining loggerhead nesting habitat. Despite the implementation of placement windows, use of compatible sediment, and other necessary precautions to the maximum extent practicable, a chance of affecting loggerhead and green turtles remains. However, the project would not have any effect on the continued existence of the species. Therefore, the USACE determined that the project may affect but is not likely to adversely affect loggerhead and green turtles.

**Other Reasonably Foreseeable Effects:** Long-term maintenance of the navigation channel would result in effects as described in this EA.

**Results of the Cumulative Effects Analysis:** There appear to be no adverse incremental effects on protected species resulting from the dredging of the channel and the disposal of material dredged from the channel. Therefore, the proposed action would not contribute to cumulative adverse effects.

### 4.17.3 Marine Habitats

**Resource Study Area:** The study area for assessing cumulative effects on threatened and endangered species in this EA includes Tampa Bay and that portion of the Tampa Harbor Federal Project that extends into the Gulf of Mexico.

**Historical Context and Current Condition:** Of the various marine habitats in Tampa Bay, the habitat with the greatest potential for being affected is seagrass/SAV. Seagrass beds in the Tampa Bay area have declined over the past 70 years primarily due to major shoreline modifications; however, with recent improvements in water quality, there has been some improvement.

**Summary of Direct and Indirect Effects:** The beneficial use of dredged material to convert dredged hole to shallow habitat would enhance the development of seagrass/SAV habitat.

**Other Reasonably Foreseeable Effects:** Anticipated improvements in water quality are likely to decrease turbidity and enhance the expansion of seagrass/SAV habitat.

**Results of the Cumulative Effects Analysis:** There appear to be no adverse incremental effects on marine habitats resulting from the dredging of the channel and the disposal of material dredged from the channel. Therefore, the proposed action would not contribute to cumulative adverse effects.

### 4.17.4 Cultural Resources

**Resource Study Area:** The study area for assessing cumulative effects on cultural resources in this EA includes Tampa Bay and that portion of the Tampa Harbor Federal Navigation Project that extends into the Gulf of Mexico.

**Historical Context and Current Condition:** This information is detailed in Section 1.5.

**Summary of Direct and Indirect Effects:** Maintenance dredging of the Federal project would not affect cultural resources. Identified anomalies will be avoided or buffered during maintenance operations. If operations are required near an anomaly, additional investigations will be conducted to determine the nature of the anomaly. Likewise, placing dredged material at DMMA 2-D and 3-D would have no adverse effect on cultural resources. It is anticipated that the placement of materials in the nearshore environment



along Egmont Key and Mullet Key would be beneficial for maintaining cultural resources of the island and would buffer the forces currently eroding the island. Potential adverse effects will be avoided through monitoring.

**Other Reasonably Foreseeable Effects:** There is a recurring need for channel maintenance. Placement of material along Egmont Key and Mullet Key is expected to continue, thereby reducing the likelihood that further coastal erosion would destroy historic structures. Monitoring is required prior to and during disposal operations so that current sites conditions can be understood and a proper monitoring plan created that assist in the avoidance of any adverse effects.

**Results of the Cumulative Effects Analysis:** Because the proposed project is not likely to adversely affect cultural resources, there would be no incremental effects of the project that would contribute to adverse cumulative impacts on cultural resources.

#### **4.17.5 Conclusion**

The proposed project would have no net adverse effects on marine communities, protected species, or cultural resources. The proposed project would not provide any known incremental result that would contribute to adverse cumulative impacts of biological or cultural resources.

#### **4.18 UNAVOIDABLE ADVERSE ENVIRONMENTAL EFFECTS**

**No Action Alternative.** The No Action Alternative will result in the continued erosion of Egmont Key and Fort De Soto Beach.

**Tentatively Selected Plan.** The TSP will generate turbidity at both the dredging and disposal sites. The excavation of the material will eliminate benthic organisms within the dredging cut and cover any benthic organisms potentially present at the disposal site. In addition, there will be a short-term disruption to recreational and commercial navigation and fishing in the Federal navigational channel in the Tampa Harbor and on Egmont Key from the presence and operation of the dredged materials transport and disposal operations.

#### **4.19 IRREVERSIBLE AND IRRETRIEVABLE RESOURCE COMMITMENTS**

A long-term commitment has been made concerning the designation of the upland disposal area, and the use and maintenance of the navigation channel.

## **5.0 ENVIRONMENTAL COMMITMENTS**

The USACE commits to avoiding, minimizing, or mitigating for adverse effects during construction activities by including the following commitments in the contract specifications. Mitigation and monitoring has been derived through consultation and coordination with Federal and state agencies.

### **5.1 PROTECTION OF FISH AND WILDLIFE RESOURCES**

The Contractor shall keep construction activities under surveillance, management, and control to minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed in the Contractor's Environmental Protection Plan prior to the beginning of construction operation.

### **5.2 ENDANGERED SPECIES PROTECTION**

According to the 2003 GRBO, only loggerhead, green, hawksbill, and Kemp's ridley sea turtles, and Gulf sturgeon are vulnerable to being taken by the use of hopper dredges to maintain, or deepen and widen, navigation channels and harbors. NOAA Fisheries determined in the 2003 GRBO that smalltooth sawfish are not likely to be affected by the activities assessed in this EA. The USACE has determined that any sand placement on beaches for the proposed project may affect nesting sea turtles. Disposal of dredged material in all other areas may affect, but is not likely to adversely affect nesting sea turtles (see Section 4.3.1). The USACE has also determined that the proposed project may affect, but is not likely to adversely affect the Florida manatee. The USACE has further determined that the proposed project is unlikely to adversely affect the piping plover. At Egmont Key the nearshore sand placement and pipeline placement will not adversely modify piping plover designated critical habitat.

The USACE plans to minimize impacts to nesting sea turtles in the project area by implementing steps that are now common practice including, but not limited to (USACE 2007):

- design modifications;
- contingency plans;
- risk assessments;
- sediment quality monitoring;
- compaction tests;
- tilling;
- leveling escarpments in the fill; and

- monitoring for nests, etc.

Despite the implementation of placement windows, use of compatible sediment, and other necessary precautions to the maximum extent practicable, a chance of affecting loggerhead and green turtles remains. However, the project will not have any effect on the continued existence of these species. Therefore, the USACE determined that the project may affect but is not likely to adversely affect loggerheads and green turtles.

The NMFS GRBO satisfies the requirements under the ESA for species under the jurisdiction of NOAA for O&M activities in Tampa Bay. For species under the jurisdiction of the USFWS, the USACE will use the Statewide Programmatic Biological Opinion (SPBO) where appropriate. For O&M activities that are not included in the SPBO, the USACE will consult with the USFWS on a project-specific basis.

### **5.3 WATER QUALITY**

The USACE Contractor will prevent oil, fuel, or other hazardous substances from entering the air or water. This will be accomplished by design and procedural controls. All wastes and refuse generated by project construction would be removed and properly disposed. The USACE contractor will implement a spill contingency plan for hazardous, toxic, or petroleum material for the borrow area. The USACE will secure a Section 401 Water Quality Certification prior to construction.

### **5.4 CULTURAL RESOURCES**

All identified potentially significant anomalies will be avoided during dredging operations until a final identification of the anomaly is made. A buffer will be established by the Corps in consultation with the SHPO and appropriate federally recognized tribes. A dredge with GPS-positioning equipment would be implemented. An unexpected finds clause would be implemented. An archeological monitor will be required to be present during dredge disposal operations at Egmont Key to ensure the protection of significant resources on the island. Coordination will continue with SHPO and the appropriate federally recognized tribes. In a letter dated 8 August 2011, the SHPO concurred with the projects Finding of No Significant Impact (DHR project # 2011-03068; see Appendix E). Consultation with the SHPO will be completed prior to the commencement of any activities associated with this EA.

## **5.5 OFFSHORE CHANCE FINDS CLAUSE**

In the event that the dredge operators discover any archaeological resource while conducting dredging operations, dredge operations will be halted immediately within the area. If investigations determine that the resource is significant, state and Federal agencies would determine how best to protect it.



## **6.0 COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

### **6.1 NATIONAL ENVIRONMENTAL POLICY ACT OF 1969**

Environmental information on the project has been compiled, and this EA has been prepared. The Draft EA was available for public comment from July 6, 2011 through August 6, 2011. Comments received from this process are summarized in Section 7.0. The project is in compliance with the National Environmental Policy Act.

### **6.2 ENDANGERED SPECIES ACT OF 1973**

This project has been coordinated with the National Marine Fisheries Service through the Gulf Regional Biological Opinion dated November 19, 2003, as amended on June 24, 2005 and January 9, 2007. For species under the jurisdiction of the USFWS, the USACE will use the Statewide Programmatic Biological Opinion (SPBO) for placement activities at Egmont Key or Mullet Key (Fort De Soto). For activities that are not included in the SPBO, the USACE will consult with the USFWS on a project-specific basis prior to the commencement of activities assessed in this EA. Protected species in the project area are listed in Table 12. This project will be fully coordinated under the Endangered Species Act and is in full compliance with the Act.

### **6.3 FISH AND WILDLIFE COORDINATION ACT OF 1958**

Each activity constructed pursuant to this NEPA document will be coordinated with the U.S. Fish and Wildlife Service in accordance with the Fish and Wildlife Coordination Act (FWCA) prior to construction. This project is in full compliance with this Act.

### **6.4 NATIONAL HISTORIC PRESERVATION ACT OF 1966 (INTER ALIA)**

Consultation with the Florida State Historic Preservation Officer (SHPO) is ongoing in accordance with the National Historic Preservation Act of 1966, as amended, and as part of the requirements and consultation processes contained within the NHPA implementing regulations of 36 CFR 800, this project is also in compliance with the Archeological Resources Protection Act (96-95), Native American Graves Protection Act (PL 101-601), American Indian Religious Freedom Act (PL 95-341), Executive Orders (E.O) 11593, 13007, & 13175 and the Presidential Memo of 1994 on Government to Government Relations. The current project was briefed to the Miccosukee Tribe of Indians of Florida and the Seminole Tribe of Florida as part of the district's annual face-to-face meetings on cultural resources. On 25 January

2011, representatives from the Miccosukee Tribe, Mr. Fred Dayhoff (NAGPRA and Section 106 Representative) and Mr. Steve Terry (Land Resource Manager), were briefed on cultural resources and the project. On 26 January 2011, a representative from the Seminole Tribe, Willard Steele, THPO, was briefed on the study being conducted. No comments were received at that time during either meeting. The Seminole Tribe provided comments in response to the Notice of Availability of the Draft EA, which are included in Appendix E and summarized in Section 7.0.

In a letter dated 8 August 2011, Florida SHPO concurred with the USACE Finding of No Significant Impact (see Appendix E). Additional consultation with the SHPO and appropriate federally recognized tribes is ongoing as part of the Section 106 process for the archaeological survey conducted as part of this study. Consultation will be completed with the SHPO prior to the commencement of any activities assessed in this EA. The project will not adversely affect historic properties included in or eligible for inclusion in the National Register of Historic places. The project is in compliance with each of these Federal laws.

## **6.5 CLEAN WATER ACT OF 1972**

Sec. 401: The USACE secured a Section 401 Water Quality Certification for the project through ongoing coordination with the Florida Department of Environmental Protection and through the Permit/Authorization No. 0157891-009-DF for the Tampa Harbor Comprehensive Maintenance Dredging Project.

Sec 404: A Section 404(b)(1) evaluation has been completed for the project and is appended to this EA (Appendix B).

## **6.6 CLEAN AIR ACT OF 1972**

Sec. 176: No permanent sources of air emissions are part of the Tentatively Selected Plan alternative or the No Action Alternative. No air quality permits will be required for this project.

Sec. 309: The draft version of this EA serves as coordination with USEPA, the public, and other agencies. Therefore, this project would comply with the Clean Air Act.

## **6.7 COASTAL ZONE MANAGEMENT ACT OF 1972**

A Federal consistency determination in accordance with 15 C.F.R. 930 Subpart C is included in this report as Appendix A. The State has provided their final determination for the activities identified by FDEP Permit No.



0157891-009-DF (Appendix D). USACE will pursue water quality certification from the State prior to construction for activities not described and permitted as part of FDEP Permit No. 0157891-009-DF, and the resulting permit will include the State's final determination under the Coastal Zone Management Act of 1972.

#### **6.8 FARMLAND PROTECTION POLICY ACT OF 1981**

No prime or unique farmland will be impacted by implementation of this project. This act is not applicable.

#### **6.9 WILD AND SCENIC RIVER ACT OF 1968**

No designated wild and scenic river reaches will be affected by project related activities. This act is not applicable.

#### **6.10 MARINE MAMMAL PROTECTION ACT OF 1972**

To ensure the protection of any manatees present in the project area, incorporation of safeguards used to protect manatees will be implemented during dredging and disposal. In addition, a special dedicated manatee monitor will be assigned to watch for manatee conflicts if dredging is conducted with a clamshell dredge. Bottlenose dolphins may also be present in the area. Based on consultation with NMFS for IHA issuance on previous dredging projects, the USACE has determined that dolphins have not been documented as being directly affected by dredging activities, although there may be temporary indirect effects due to noise and increased turbidity. These effects would not rise to the level of harassment as defined by the Marine Mammal Protection Act of 1972 (MMPA), and are not considered to be "take" as defined by the Act. Therefore, this project is in compliance with the MMPA.

#### **6.11 ESTUARY PROTECTION ACT OF 1968**

Tampa Bay is a designated "Estuary of National Importance" under this act. The project is in compliance with the Act.

#### **6.12 FEDERAL WATER PROJECT RECREATION ACT**

There is no cost-shared recreation proposed for this project. The Act does not apply.

### **6.13 MAGNUSON-STEVENSON FISHERY CONSERVATION AND MANAGEMENT ACT OF 1976, AS AMENDED**

The Draft EA was coordinated with NMFS through the Notice of Availability on July 6, 2011. NMFS provided comments on August 23, 2011, stating that they do not object to the Department of the Army's authorization of this activity (see Appendix E). Therefore, this project is in compliance with this Act.

### **6.14 COASTAL BARRIER RESOURCES ACT AND COASTAL BARRIER IMPROVEMENT ACT OF 1990**

The Coastal Barrier Resources Act (CBRA) and the Coastal Barrier Improvement Act of 1990 (CBRIA) limit federally subsidized development within the CBRA Units to limit the loss of human life by discouraging development in high risk areas, to reduce wasteful expenditures of Federal resources, and to protect the natural resources associated with coastal barriers. CBRIA provides development goals for undeveloped coastal property held in public ownership, including wildlife refuges, parks, and other lands set aside for conservation (OPAs). These public lands are excluded from most of the CBRA restrictions, although they are prohibited from receiving Federal Flood Insurance for new structures.

Federal monies can be spent within the CBRS for certain activities, including (1) projects for the study, management, protection, and enhancement of fish and wildlife resources and habitats; (2) establishment of navigation aids; (3) projects funded under the Land and Water Conservation Fund Act of 1965; (4) scientific research; (5) assistance for emergency actions essential to saving lives and the protection of property and the public health and safety, if preferred pursuant to the Disaster Relief Emergency Assistance Act and the National Flood Insurance Act and are necessary to alleviate the emergency; (6) maintenance, repair, or reconstruction, but not expansion, of publically owned or publically operated roads, structures, or facilities; (7) nonstructural projects for shoreline stabilization that are designed to mimic, enhance, or restore a natural stabilization system; (8) any use or facility necessary for the exploration, extraction, or transportation of energy resources; (9) maintenance or construction of improvements of existing federal navigation channels, including the disposal of dredge materials related to such projects; and (10) military activities essential to national security.

There are a number of CBRA and CBRIA units in the project area (see Table 18 and Figure 31). The proposed project does not include the construction of structures that would require Federal Flood Insurance in any areas designated as "otherwise protected areas" pursuant to the CBRIA; therefore, Federal expenditures for the proposed project should not be restricted in

these areas. The activities proposed in the remainder of the CBRA units in the project area are consistent with the intent of these Acts. The project is in compliance with these Acts.

**Table 18. List of Coastal Barrier Resource Units and their associated acreages found in the project area.**

<b>Unit ID</b>	<b>Name</b>	<b>Unit Type</b>	<b>Acreage</b>
P23P	Longboat Key	Otherwise Protected Area	606.8
P23	Longboat Key	CBRS Unit	2,459.8
FL-73P	DeSoto	Otherwise Protected Area	191.8
FL-80P	Passage Key	Otherwise Protected Area	1,130.3
FL-78	Rattlesnake Key	CBRS Unit	5,093.4
FL-81	Egmont Key	CBRS Unit	903.1
FL-81P	Egmont Key	Otherwise Protected Area	1,181.6
FL-82	Bishop Harbor	CBRS Unit	4,405.9
P24P	The Reefs	Otherwise Protected Area	8,963.9
P24	The Reefs	CBRS Unit	3,019.7
FL-83	Cockroach Bay	CBRS Unit	4,667.1

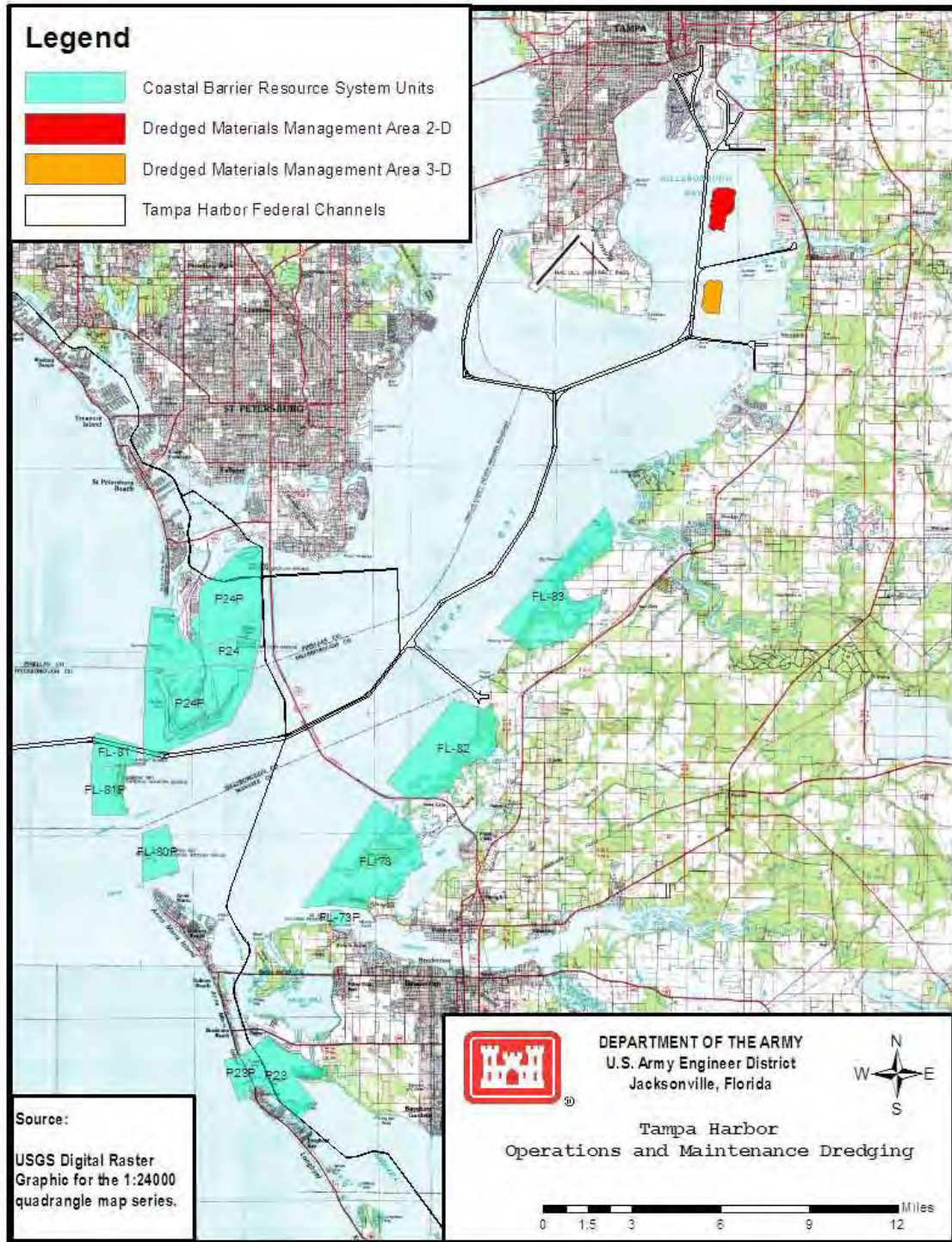


Figure 31. Coastal Barrier Resource Units in the project area. Areas ending with the letter "P" are "otherwise protected areas" designated under the CBRIA.

### **6.15 RIVERS AND HARBORS ACT OF 1899**

The proposed work will not obstruct navigable waters of the United States. The project is in compliance with this Act.

### **6.16 ANADROMOUS FISH CONSERVATION ACT**

Anadromous fish species are not likely to be affected. The project has been coordinated with both NMFS and the USFWS (see Appendix E), and is in compliance with this Act.

### **6.17 MIGRATORY BIRD TREATY ACT AND MIGRATORY BIRD CONSERVATION ACT**

A concise and extensive monitoring program (Migratory Bird Protection Plan) is in place to prevent adverse impacts to migratory birds in the area. The project is in compliance with these Acts.

### **6.18 MARINE PROTECTION, RESEARCH, AND SANCTUARIES ACT**

The term *dumping* as defined in the Act [33 U.S.C. 1402(f)] does not apply to the disposal of material for beach nourishment or to the placement of material for a purpose other than disposal (i.e., placement of rock material as an artificial reef or the construction of artificial reefs as mitigation). Material placed in the ODMDS would not unreasonably degrade or endanger human health or the marine environment. Therefore, the project is in compliance with this Act.

### **6.19 E.O. 11990, PROTECTION OF WETLANDS**

No wetlands will be affected by project activities. This project is in compliance with the goals of this Executive Order.

### **6.20 E.O. 11988, FLOOD PLAIN MANAGEMENT**

No activities associated with the Tentatively Selected Plan Alternative will take place within a floodplain; therefore, this project is in compliance with the goals of this Executive Order.

### **6.21 E.O. 12898, ENVIRONMENTAL JUSTICE**

The project will not result in adverse human health or environmental effects, nor would it affect subsistence consumption of fish or wildlife. The project is in compliance.

## **6.22 E.O. 13089, CORAL REEF PROTECTION**

There are no coral reefs within the project area; therefore this E.O. does not apply.

## **6.23 E.O. 13112, INVASIVE SPECIES**

The project will have no effect on invasive species. This E.O. is not applicable.

## **6.24 E.O. 13186, MIGRATORY BIRDS**

This Executive Order requires, among other things, a Memorandum of Understanding (MOU) between the Federal Agency and the USFWS concerning migratory birds. Neither the Department of Defense MOU nor the Corps' Draft MOU clearly address migratory birds on lands not owned or controlled by the Corps. For many Corps civil works projects, the real estate interests are provided by the non-Federal sponsor. Control and ownership of the project lands remain with a non-Federal interest. Measures to avoid the destruction of migratory birds and their eggs or hatchlings are described in a section above on the Migratory Bird Treaty Act. The Corps will include our standard migratory bird protection requirements in the project plans and specifications and will require the contractor to abide by those requirements.

## 7.0 PUBLIC/AGENCY COORDINATION

The Draft EA was coordinated with the following agencies: U.S. Fish and Wildlife Service, National Marine Fisheries Service, U.S. Environmental Protection Agency, Florida State Clearinghouse, Florida State Historic Preservation Officer, Florida Fish and Wildlife Conservation Commission, and the Florida Department of Environmental Protection. The Draft EA was made available to the public on July 6, 2010. Comments received are summarized below, and copies of the correspondence are included in Appendix E. A mailing list of the distribution of the Draft EA is included in Appendix F.

### **MacDill Air Force Base**

*Comment:* MacDill Air Force Base (AFB) supports filling the two dredged holes around Gadsden Point to increase suitable habitat for seagrasses in the Bay and to protect against erosion of the adjacent shoreline. In addition, MacDill AFB is not opposed to filling the MacDill Runway Dredge Hole.

The Draft EA notes that marine access around MacDill AFB is restricted. To clarify, the buffer extends 1,000 feet from the shoreline. Any construction work within the marine exclusion zone would need to be coordinated with the MacDill AFB Marine Patrol, and anyone entering the zone must go through the background check process.

*Response:* USACE thanks MacDill Air Force Base for their comments, which have been noted.

### **Seminole Tribe of Florida, Tribal Historic Preservation Office**

*Comment:* Due to the fact that the project area is within the geographic area considered by the Seminole Tribe of Florida to be ancestral, aboriginal, or ceded (NHPA 1966, Section b1, and 36 CFR, Section 800.2) and has a potential to adversely affect unrecorded submerged cultural resources, the STOF-THPO would like to request and review a Phase I archaeological survey for the following project.

*Response:* A copy of the requested survey was sent to the Seminole Tribe on August 15, 2011 for their review and comments. No additional comments have been received.





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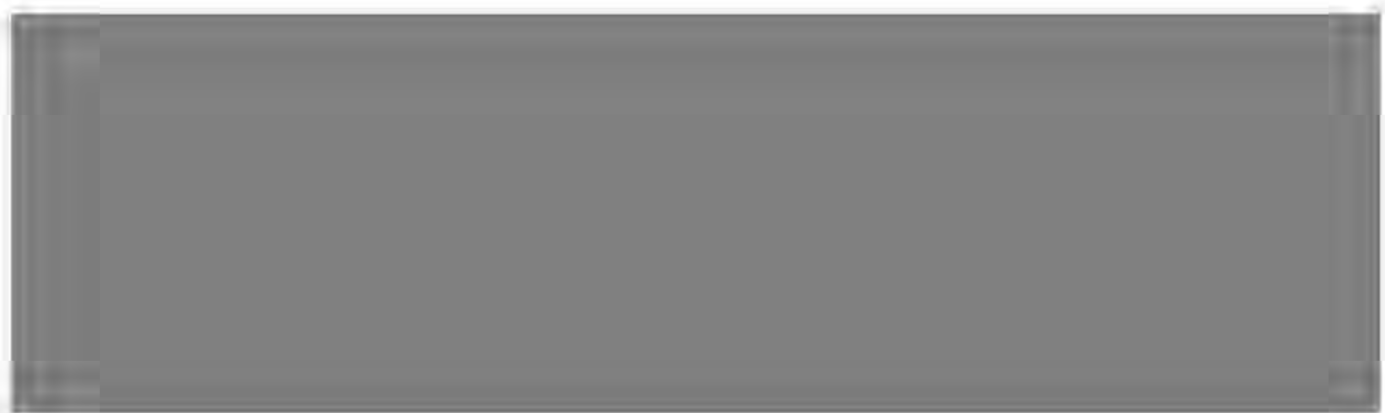
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**FLORIDA COASTAL ZONE MANAGEMENT PROGRAM  
FEDERAL CONSISTENCY EVALUATION PROCEDURES**

**OPERATIONS AND MAINTENANCE DREDGING  
TAMPA HARBOR FEDERAL NAVIGATION PROJECT  
HILLSBOROUGH AND PINELLAS COUNTIES, FLORIDA**

1. Chapter 161, Beach and Shore Preservation. The intent of the coastal construction permit program established by this chapter is to regulate construction projects located seaward of the line of mean high water and which might have an effect on natural shoreline processes.

Response: The proposed plans and information will be submitted to the state in compliance with this chapter.

2. Chapters 163(part II), 186, and 187, County, Municipal, State and Regional Planning. These chapters establish the Local Comprehensive Plans, the Strategic Regional Policy Plans, and the State Comprehensive Plan (SCP). The SCP sets goals that articulate a strategic vision of the State's future. Its purpose is to define in a broad sense, goals, and policies that provide decision-makers directions for the future and provide long-range guidance for an orderly social, economic and physical growth.

Response: The proposed project has been coordinated with various Federal, state and local agencies during the planning process. The project meets the primary goal of the State Comprehensive Plan.

3. Chapter 252, Disaster Preparation, Response and Mitigation. This chapter creates a state emergency management agency, with the authority to provide for the common defense; to protect the public peace, health and safety; and to preserve the lives and property of the people of Florida.

Response: The proposed project involves the placing of beach compatible material onto an eroding beach as a protective means for residents, development and infrastructure located along the Gulf shoreline within Hillsborough County. Therefore, this project would be consistent with the efforts of Division of Emergency Management.

4. Chapter 253, State Lands. This chapter governs the management of submerged state lands and resources within state lands. This includes archeological and historical resources; water resources; fish and wildlife resources; beaches and dunes; submerged grass beds and other benthic communities; swamps, marshes and other wetlands; mineral resources; unique natural features; submerged lands; spoil islands; and artificial reefs.

Response: The proposed placement of dredged material would create increased recreational beach and potential sea turtle nesting habitat, as well as potential bird nesting habitat. No seagrass beds are located within the area proposed to receive fill. The proposed project would comply with the intent of this chapter.

5. Chapters 253, 259, 260, and 375, Land Acquisition. This chapter authorizes the state to acquire land to protect environmentally sensitive areas.

Response: Since the affected property already is in public ownership, this chapter does not apply.

6. Chapter 258, State Parks and Aquatic Preserves. This chapter authorizes the state to manage state parks and preserves. Consistency with this statute would include consideration of projects that would directly or indirectly adversely impact park property, natural resources, park programs, management or operations.

Response: The proposed project would not adversely affect any state parks or aquatic preserves; it would increase lands in Egmont State Park. The project is consistent with this chapter.

7. Chapter 267, Historic Preservation. This chapter establishes the procedures for implementing the Florida Historic Resources Act responsibilities.

Response: The proposed actions have been previously coordinated with the State Historic Preservation Officer (SHPO) and are consistent with this chapter.

8. Chapter 288, Economic Development and Tourism. This chapter directs the state to provide guidance and promotion of beneficial development through encouraging economic diversification and promoting tourism.

Response: The proposed plan will ensure the continued ease of navigation for Tampa Harbor; this will encourage economic development and tourism. The proposed beach nourishment aspect of the plan would provide more space for recreation and the protection of recreational facilities along the receiving beach. This would be compatible with tourism for this area and therefore, is consistent with the goals of this chapter.

9. Chapters 334 and 339, Transportation. This chapter authorizes the planning and development of a safe balanced and efficient transportation system.

Response: The proposed plan will ensure the continued ease of navigation for Tampa Harbor; this will ensure the continued transportation of goods to and from the ports in the project area. This would be compatible with transportation for this area and therefore, is consistent with the goals of this chapter.

10. Chapter 370, Saltwater Living Resources. This chapter directs the state to preserve, manage and protect the marine, crustacean, shell and anadromous fishery resources in state waters; to protect and enhance the marine and estuarine environment; to regulate fishermen and vessels of the state engaged in the taking of such resources within or without state waters; to issue licenses for the taking and processing products of fisheries; to secure and maintain statistical records of the catch of each such species; and, to conduct scientific, economic, and other studies and research.

Response: The proposed placements may represent a temporary short-term impact to infaunal invertebrates by burying these organisms. However, these organisms are highly adapted to the periodic burial by sand in the intertidal zone. These organisms are highly fecund and are expected to return to pre-construction levels within 6 months to one year after construction. Placement activities would not be performed during the main part of the sea turtle nesting season. It is not expected that sea turtles would be significantly impacted by this project. Marine crustacean, shell, and andromous fishery resources will be temporarily impacted. Temporary and permanent impacts will occur within the marine and estuarine environment. These impacts will be mitigated. Based on the overall impacts of the project, the project is consistent with the goals of this chapter.

11. Chapter 372, Living Land and Freshwater Resources. This chapter establishes the Game and Freshwater Fish Commission and directs it to manage freshwater aquatic life and wild animal life and their habitat to perpetuate a diversity of species with densities and distributions which provide sustained ecological, recreational, scientific, educational, aesthetic, and economic benefits.

Response: The project will have no effect on freshwater aquatic life or wild animal life.

12. Chapter 373, Water Resources. This chapter provides the authority to regulate the withdrawal, diversion, storage, and consumption of water.

Response: This project does not involve water resources as described by this chapter.

13. Chapter 376, Pollutant Spill Prevention and Control. This chapter regulates the transfer, storage, and transportation of pollutants and the cleanup of pollutant discharges.

Response: The contract specifications will prohibit the contractor from dumping oil, fuel, or hazardous wastes in the work area and will require that the contractor adopt safe and sanitary measures for the disposal of solid wastes. A spill prevention plan will be required. The proposed action is consistent with the intent of this chapter.

14. Chapter 377, Oil and Gas Exploration and Production. This chapter authorizes the regulation of all phases of exploration, drilling, and production of oil, gas, and other petroleum products.

Response: This project does not involve the exploration, drilling or production of gas, oil or petroleum product and therefore, this chapter does not apply.

15. Chapter 380, Environmental Land and Water Management. This chapter establishes criteria and procedures to assure that local land development decisions consider the regional impact nature of proposed large-scale development. This chapter also deals with the Area of Critical State Concern program and the Coastal Infrastructure Policy.

Response: The proposed project will not have any regional impact on resources in the area. Therefore, the project is consistent with the goals of this chapter.

16. Chapters 381 (selected subsections on on-site sewage treatment and disposal systems) and 388 (Mosquito/Arthropod Control). Chapter 388 provides for a comprehensive approach for abatement or suppression of mosquitoes and other pest arthropods within the state.

Response: The proposed action will not further the propagation of mosquitoes or other pest arthropods. The proposed action will be consistent with the goals of this chapter.

17. Chapter 403, Environmental Control. This chapter authorizes the regulation of pollution of the air and waters of the state by the Florida Department of Environmental Regulation (now a part of the Florida Department of Environmental Protection).

Response: Water Quality Certification will be sought from the state prior to dredging and placement operations. The appropriate state permits will be obtained for this project. The project complies with the intent of this chapter.

18. Chapter 582, Soil and Water Conservation. This chapter establishes policy for the conservation of the state soil and water through the Department of Agriculture. Land use policies will be evaluated in terms of their tendency to cause or contribute to soil erosion or to conserve, develop, and utilize soil and water resources both onsite or in adjoining properties affected by the project. Particular attention will be given to projects on or near agricultural lands.

Response: The proposed project is not located near or on agricultural lands; therefore, this chapter does not apply.

# Appendix B

## SECTION 404 (B)(1) EVALUATION





## SECTION 404(b) EVALUATION

### OPERATIONS AND MAINTENANCE DREDGING TAMPA HARBOR FEDERAL NAVIGATION PROJECT HILLSBOROUGH AND PINELLAS COUNTIES, FLORIDA

#### 1. Project Description

1.1. Location The project area is located in Hillsborough and Pinellas Counties on the west coast of Florida, near the central portion of the Florida peninsula. The sites evaluated in this document include the nearshore and offshore areas of Egmont Key, Tampa Bay, Hillsborough Bay, Alafia River, and Hillsborough River.

1.2. General Description The proposed work provides for the continued maintenance dredging of Tampa Harbor and the disposal of the resulting dredged material. The placement sites include an ocean dredged material disposal site (ODMDS), dredged material management areas (DMMA) 2-D and 3-D, and a number of beneficial use sites. The Florida Department of Environmental Protection (FDEP) issued a consolidated Environmental Resource Permit (ERP) and Sovereign Submerged Lands (SSL) Authorization in 2006 (see Appendix D) for the ODMDS, the DMMA, and the following beneficial use sites: portions of Egmont Key, Fort De Soto Beach on Mullet Key, Sunken/Bird Island, Gandy Channel North dredged hole, Northshore Beach dredged hole, MacDill Hole, McKay Bay, and Whiskey Stump Key Holes 1 and 2. The following beneficial use sites were also assessed, but would require additional authorization prior to use:

1. St. Petersburg Clearwater Airport East Dredge Hole
2. Rocky Point Dredge Hole
3. Big Island Cut Dredge Hole
4. Cypress Point Dredge Hole
5. Howard Frankland West Dredge Hole
6. Snug Harbor West (2 Dredge Holes)
7. Northeast St. Petersburg Pit 1
8. Venetian Isles South Dredge Hole
9. Shore Acres Dredge Hole
10. Gadsden Point (2 Dredge Holes)
11. Skyway Causeway South Dredge Hole
12. Longshore Bar

Any and all possible beneficial uses of dredged material will be taken advantage of whenever economically feasible.

1.3. Authority and Purpose Specific authorization information is found in Table 1, and general authorities relating to beneficial uses of dredged material are as follows:

Section 204 of the Water Resources Development Act of 1992, as amended. Section 204 gives the Secretary of the Army the authority to enter into cooperative projects with non-Federal sponsors to use dredged material from new or existing Federal projects to protect, restore, or create aquatic and ecologically related habitats, including wetlands. The environmental, economic, and social benefits, monetary and non-monetary, must justify the costs, and the project must not result in environmental degradation. The cost sharing (25 percent non-Federal, 75 percent Federal) would be applied to the incremental cost above the least cost method of dredged material disposal consistent with engineering and environmental criteria.

**Table 1. Project Authorizations**

Date	Work Authorized	Document
<b>TAMPA BAY</b>		
3 Mar 1899	Channel 27 feet deep by 300-500 feet wide from Gulf of Mexico to Port Tampa	Specified in Act & H. Doc. 52/55/3
3 Mar 1905	Channel depth of 26 feet with sufficient width	Specified in Act
<b>TAMPA AND HILLSBOROUGH BAYS</b>		
25 Jun 1910	Depth of 24 feet in Hillsborough Bays	H. Doc. 634/61/2
8 Aug 1917	Channels 27 feet deep by 200-500 feet wide from Gulf of Mexico to and in Hillsborough Bay, and basins at mouth of Hillsborough River and Ybor Estuary.	H. Doc. 1345/64/1
<b>HILLSBOROUGH RIVER</b>		
3 Mar 1899	Channel 12 feet deep by 200 feet wide to within 100 feet of Lafayette St. Bridge (maintenance only)	H. Doc. 545/55/2 & A.R. for 1898 p. 1357
<b>TAMPA HARBOR</b>		
22 Sep 1922	Consolidation of above projects	Specified in Act
3 Jul 1930	Egmont Channel 29 feet deep and Sparkman Channel 300 feet wide.	H. Doc. 100/70/1
30 Aug 1935	Egmont Bar Channel 32 feet deep by 600 feet wide; Mullet Key Cut 30 feet deep by 400 feet deep; other project channels in Tampa Harbor, except in Hillsborough River, 30 feet deep by 300 feet wide and basin at Port Tampa 550 feet by 2,000 feet.	S. Doc. 22/72/1
20 Jun 1938	Widen bend between Sparkman Channel and Cut D, Hillsborough Bay Channel by 250 feet; Ybor Channel 400 feet wide; and extend Hillsborough River basin easterly 300 feet.	S. Doc. 164/75/3
20 Jun 1938	Breakwater at Peter O. Knight Field.	S. Comm. Print 76/1
2 Mar 1945	Sparkman and Ybor Channels 400 and 500 feet wide; extend Ybor basin westerly 250 feet, and Hillsborough River basin easterly 150 feet in lieu of 300 feet.	S. Doc. 183/78/2
2 Mar 1945	Channel 9 feet deep by 100 feet wide in Hillsborough River and removal of obstructions to Florida Ave. Bridge.	H. Doc.119/77/1
2 Mar 1945	Channel 25 feet deep by 150 feet wide and basin in Alafia River	S. Doc.16/77/1

7 May 1950	Egmont Channel 36 feet deep; Mullet Key Cut 34 feet deep by 500 feet wide; Tampa Bay, Hillsborough Bay, Port Tampa Channels 34 feet deep by 400 feet wide; Port Tampa turning basin 34 feet deep by 750 feet by 2,000 feet wide; Sparkman Channel and Ybor turning basin 34 feet deep; and channel 30 feet deep by 200 feet wide to and including turning basin 700 feet by 1,200 feet in Alafia River.	H. Doc. 258/81/1
3 Sep 1954	Removal of obstructions in Hillsborough River from Florida Ave. Bridge to City Water Works Dam (maintenance to be assumed by local interests).	H. Doc. 567/81/2
23 Oct 1962	Channel and turning basin at Port Sutton 30 feet deep; Ybor Channel 34 feet deep and 400 feet wide.	H. Doc. 529/87/2
31 Dec 1970	Egmont Bar Channel 46 feet deep by 700 feet wide; Mullet Key Cut Channel 44 feet deep by 600 feet wide; Tampa Bay Channel 44 feet deep by 500 feet wide to junction of Hillsborough Bay and Port Tampa Channels; Hillsborough Bay Channel 44 feet deep by 500 feet wide to junction with Port Sutton entrance channel, thence 42 feet deep by 400 feet wide; Ybor Channel 40 feet deep by 300 feet wide; Port Tampa Channel 42 feet deep by 400 feet wide from junction with Hillsborough and Tampa Bay Channels to Port Tampa turning basin; Port Tampa turning basin.	H. Doc. 91-401/91/2
31 Dec 1970	42 feet deep, 2,000 feet long and 900 feet wide; Port Sutton entrance channel 44 feet deep by 400 feet wide; Port Sutton 44 feet deep with turning diameter of 1,200 feet; enlargement of turning basin at the entrance of Ybor Channel and deepening to 42 feet; East Bay entrance channel 44 feet deep by 400 feet and 500 feet wide about 2,000 feet North from Port Sutton turning basin; East Bay turning basin 44 feet deep with 1,200 feet turning diameter; East Bay approach channel 44 feet deep by 300 feet about 2,500 feet North from the East Bay turning basin; and maintenance of Port Sutton terminal channel 44 feet deep by 200 feet wide for a distance of 4,000 feet. Bottom 1 foot of all project segments in "inactive" category.	H. Doc. 91-401/91/2
17 Nov 1986	Maintenance of local channel and turning basin to a depth of 34 feet in Tampa East Bay.	Public Law 99-662
17 Nov 1986	Widening of Port Sutton Turning Basin an additional 105 feet to the fender line along Pendola Point.	Public Law 99-662
17 Nov 1988	Port Sutton Channel deepening to 43 feet over length of 3,700 feet.	Public Law 100-676
28 Nov 1990	Maintenance of the Alafia Channel at a depth of 34 feet if the non-Federal sponsor dredges the channel to such depth, except that the non-Federal sponsor shall reimburse the United States for the incremental costs incurred by the Secretary in maintaining the channel at a depth greater than 30 feet.	Public Law 101-640

23 July 1997	“Resolved by the Committee on Transportation and Infrastructure of the United States House of Representatives, That the Secretary of the Army review the report of the Chief of Engineers on the Tampa Harbor, Florida, published as House Document 491, 91 <sup>st</sup> Congress, Second Session and other pertinent reports, with a view of determining if the authorized project should be modified in any way at this time, with particular reference to a deep draft anchorage.”	H.R. Congressional Resolution 2533, 105 <sup>th</sup> Congress
17 Aug 1999	The project for navigation, Tampa Harbor-Big Bend Channel, Florida consisting of an entrance channel extending east from the main ship channel, a turning basin, an east channel, and an inner channel at a depth of 41 feet. The authorization includes raising the dikes on placement area 3D in order to accommodate the construction material and an additional dike raising to accommodate maintenance material.	Public Law 106-53
11 Dec 2000	Port Sutton, Florida - a channel extending east from Port Sutton Turning Basin over a length of 3,700 feet with a width of 290 feet and a depth of 42 feet.	Public Law 106-541
21 Dec 2000	Alafia River, Florida-Widening the channel by 50 feet to the south (total width of 250 feet) and deepening the channel to a project depth of 42 feet MLLW. Enlarging the turning basin to provide a 1,200-foot diameter area at the channel depth of 42 feet MLLW. Placement within the designated ODMDS site, with some material going into beneficial use areas as the least cost placement option. These include the expansion of Bird Island, creation of tidal wetland habitat adjacent to Disposal Area 2D, and shore protection along the northern bank of Bird Island.	Public Law 106-554
7 Nov 2003	Congressional interest in Tampa harbor confirmed by the statement: “That the Secretary of the Army, acting through the Chief of Engineers, is directed to use funds appropriated for the navigation project, Tampa Harbor, Florida, to carry out, as part of the project, construction of passing lanes in an area approximately 3.5 miles long, centered on Tampa Bay Cut B, if the Secretary determines that such construction is technically sound, environmentally acceptable, and cost effective.”	Energy and Water Act 2003, 108 <sup>th</sup> Congress, Report 108-357
8 Nov 2007	Tampa Harbor Cut B, FL – “In general, modifies the authorized project and authorizes the Secretary to construct passing lanes in an area approximately 3.5 miles long and centered on Tampa Harbor Cut B if found necessary for vessel safety.”	Public Law 110-114, H.R. 1495

Section 206 of the Water Resources Development Act of 1996. Section 206 authorizes the Secretary of the Army to carry out aquatic ecosystem restoration projects that will improve the quality of the environment, are in the public interest, and are cost-effective. Individual projects are limited to \$5 million in Federal cost. Non-Federal interests must contribute 35 percent of the cost of construction and 100 percent of the cost of operation, maintenance, replacement, and rehabilitation.

Section 1135 of the Water Resources Development Act of 1986, as amended. The Corps of Engineers has the authority to make modifications to the structures and operations of water resources projects constructed by the Corps of Engineers to improve the quality of the environment. The primary goal of these projects is ecosystem restoration with an emphasis on projects benefiting fish and wildlife. To qualify under this program, projects must be justified—that is, the benefits resulting from constructing the project, both monetary and non-monetary, must justify the cost of the project. The project also must be consistent with the authorized purposes of the project being modified, environmentally acceptable, and complete within itself. Each separate project is limited to a total cost of not more than \$5 million, including studies, plans and specifications, and construction.

#### 1.4. General Description of Dredged or Fill Material

1.4.1. General Characteristics of Material The material dredged out of the navigation channel varies by cut location (Table 2).

**Table 2. General Characteristics of Material to be Dredged by Cut**

<b>Dredge Cut</b>	<b>Material Type</b>	<b>Dredge Cut</b>	<b>Material Type</b>
Mullet Key	Sandy	K	Silty
Egmont 1	Sandy	Gadsden	Sandy
Egmont 2	Sandy	A (HB)	Sandy
A	Sandy	Big Bend	Sandy
B	Sandy	C (HB)	Sandy
C	Sandy	Alafia	Sandy
D	Sandy	D (HB)	Silty
E	Sandy/Silty	Port Sutton	Silty
F	Sandy/Silty	East Bay	Silty
G	Silty	Sparkman	Silty
J	Silty	Ybor	Silty
J2	Silty	Seddon	Silty

1.4.2. Quantity of Material An average of approximately 750,000 cubic yards is dredged annually.

1.4.3. Source of Material A navigation channel’s sediment-carrying capacity decreases when the velocity of its water slows. Sediment drops out and settles on the channel bottom. In addition, as waves generated by wind or by vessel passage reach the shoreline, the shoreline material erodes and falls to the channel bottom,

or is suspended within the water and deposited downstream. Other factors such as heavy rainstorms or hurricanes may cause additional sediment to enter the channel. Periodic dredging is required to remove accumulated sediments and thus maintain the channel at its authorized depth for navigation purposes.

1.5. Description of the Proposed Discharge Sites

- 1.5.1. Location Fill material would be placed in both Hillsborough and Pinellas Counties, FL. Most of these locations have been previously placed upon, including the ODMDS, Egmont Key, and DMMA 2D and 3D. Some of the beneficial use dredge holes have previously received fill as well.
- 1.5.2. Size The size of the operations area will vary by location (Table 3).
- 1.5.3. Type of Site The sites for disposal include offshore and upland disposal as well as beneficial use into dredge holes (Table 3).
- 1.5.4. Type of Habitat The disposal area habitats vary by location (Table 3).

**Table 3. Description of Proposed Discharge Sites**

<b>Placement/ Disposal Site</b>	<b>Size of Site</b>	<b>Type of Site</b>	<b>Habitat Type</b>
ODMDS	N/A	Offshore	Deep water environment
Egmont Key	1,432,000 cy	Beach	Sandy beach
Mullet Key (Ft. De Soto)	Unknown	Beach	Sandy beach
DMMA 2D	9,300,000 cy	Upland	Primarily scrub-shrub
DMMA 3D	1,569,000 cy	Upland	Primarily scrub-shrub
Longshore Bar	950 feet long	Bay Bottom	Subtidal
Bird/Sunken Island	Unknown	Eroded Island	Eroded beach
Gandy Channel North	842,000 cy	Dredge Hole	Subtidal borrow area
MacDill AFB Runway	426,000 cy	Dredge Hole	Subtidal borrow area
McKay Bay	891,000 cy	Dredge Hole	Subtidal borrow area
North Shore Beach	441,000 cy	Dredge Hole	Subtidal borrow area
Whiskey Stump Key 1	207,000 cy	Dredge Hole	Subtidal borrow area
Whiskey Stump Key 2	245,000 cy	Dredge Hole	Subtidal borrow area
Big Island Cut	46.3 ac	Dredge Hole	Subtidal borrow area
Cypress Point	63.6 ac	Dredge Hole	Subtidal borrow area
Gadsden Point (2 holes)	10.6 ac total	Dredge Hole	Subtidal borrow area
Howard Frankland W	104.7 ac	Dredge Hole	Subtidal borrow area
NE St. Petersburg Pit 1	9.5 ac	Dredge Hole	Subtidal borrow area
Rocky Point	15.8 ac	Dredge Hole	Subtidal borrow area
Shore Acres	5.1 ac	Dredge Hole	Subtidal borrow area
Skyway Causeway S	13.7 ac	Dredge Hole	Subtidal borrow area
Snug Harbor (2 holes)	4.4 ac	Dredge Hole	Subtidal borrow area
St. Pete-Clearwater Airport East	21 ac	Dredge Hole	Subtidal borrow area
Venetian Isles South	3.2 ac	Dredge Hole	Subtidal borrow area



1.5.5. Timing and Duration of Discharge Dredging and disposal duration is expected to be between 10 and 14 months, depending on the size and need of scheduled projects within Hillsborough and Pinellas Counties.

1.6. Description of Disposal Method Material would be excavated from the borrow area with a hopper, bucket, or clamshell dredge. Once the material is pumped to the disposal area, grading would be performed using land moving equipment to achieve the desired design profile.

## 2. Factual Determination

### 2.1. Physical Substrate Determination

2.1.1. Substrate Elevation and Slope Top elevations of the constructed areas would be consistent with past projects.

2.1.2. Sediment Type The sediments are predominantly fine quartz sand with varying amounts of shell fragments to silt; this varies by dredge cut (Table 2).

2.1.3. Dredged/Fill Material Movement The fill material would be subject to movement by waves in the ODMDS, Egmont Key beach placement, and at the dredge holes. Movement of material in each area would vary with local wave regimes.

2.1.4. Physical Effects on Benthos The fill material would bury some benthic organisms. Most organisms in this high wave energy environment are adapted for existence in areas of considerable substrate movement. Re-colonization would occur in most cases within one year following operations. Benthic organisms associated with nearshore hardground areas that are covered would be lost.

### 2.2. Water Circulation, Fluctuation, and Salinity Determinations

2.2.1. Water Fill placement would not have any long-term effect on water characteristics.

2.2.2. Current Patterns, Flow, and Water Circulation Currents in the project area are both tidal and longshore. Net movement of water along the shoreline can be either northerly or southerly, depending on location. Placement of fill along the beach would have no impact on the currents.

2.2.3. Normal Water Level Fluctuations Tides in the project area are mixed semi-diurnal. The mean range of tides is 2.6 ft (0.8 m) and the spring range is 3.0 ft (0.9 m). Wind set-up (piling up of water on the shoreline) has significantly more effect on seasonal and long-term water fluctuations than astronomical tides. The project would have no impact.

2.2.4. Salinity Gradients The project would not affect salinity gradients in the area.

### 3. Suspended Particulate/Turbidity Determinations

#### 3.1. Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Site (Table 4)

**Table 4. Expected Changes in Turbidity**

Disposal Site Type	Suspended Particulate/Turbidity Determinations
Offshore (ODMDS)	There would be a temporary increase in turbidity levels in the immediate area of dredged material placement during placement operations. This elevated turbidity level would be temporary and is not expected to be serious; this location is in Federal waters.
Beach (Egmont Key, Mullet Key, Bird/Sunken Island)	There would be a temporary increase in turbidity levels seaward of the project area during dredged material placement operations. Because the immediate nearshore area is already a high energy area and subject to naturally occurring elevated turbidity, increases due to the project would not be out of the ordinary. This elevated turbidity level would be temporary and is not expected to be serious, as the state standards for turbidity would not be exceeded.
Upland (DMMA 2D & 3D)	There may be a temporary slight increase in turbidity levels in receiving waters as the material dewater and drains through the weirs. This elevated turbidity level would be temporary and is not expected to be serious, as the state standards for turbidity would not be exceeded.
Dredge Holes	There would be a temporary increase in turbidity levels in the project area during operations. This elevated turbidity level would be temporary and is not expected to be serious, as the state standards for turbidity would not be exceeded.

#### 3.2. Effects on Chemical and Physical Properties of the Water Column

- 3.2.1. Light Penetration The placement of fill material would reduce light transmissions in the littoral zone due to elevated levels of suspended particulates. This adverse impact is expected to be temporary and short-term in nature because of the density of the fill material.
- 3.2.2. Dissolved Oxygen No anoxic layers of sediment would be exposed by dredging due to the low level of organic material in the dredged material.
- 3.2.3. Toxic Metals and Organics Toxic materials would not be introduced into the water column due to the clean nature of the dredged material.
- 3.2.4. Pathogens No pathogenic material is expected to be involved with the project.
- 3.2.5. Aesthetics (Table 5)
- 3.2.6.

**Table 5. Aesthetics**

<b>Disposal Site Type</b>	<b>Aesthetics</b>
Offshore (ODMDS)	Aesthetics would not be affected.
Beach (Egmont Key, Mullet Key, Bird/Sunken Island)	Aesthetic quality would be temporarily reduced during the beach restoration period, but there would be a long-term increase in the aesthetic quality of the project area once the eroded beach is restored.
Upland (DMMA 2D & 3D)	Aesthetics would not be affected as these disposal sites are in highly industrial areas; an additional ship would be present in the channel.
Dredge Holes	Aesthetic quality would be temporarily reduced during the filling activities, but there would be a long-term increase in the aesthetic quality of the project area once the area is restored.

### 3.3. Effects on Biota

3.3.1. Primary Production, Photosynthesis Elevated turbidity levels and shading from resuspended fill may have some minor adverse impact on photosynthesis and primary production in the immediate project areas. It is anticipated that this would be a temporary and short-term phenomenon.

3.3.2. Suspension/Filter Feeders Fill material resuspended into the water column may contribute to the clogging of feeding mechanisms of filter-feeders. This is expected to be a short-term condition. Rapid repopulation by these organisms is expected because of their high fecundity and turnover rates.

3.3.3. Sight Feeders Elevated turbidity levels could have short-term adverse impacts on these organisms. However, these organisms are highly motile and are able to relocate into more favorable areas.

3.4. Contaminant Determinations Deposited fill material is similar to the existing material in the surrounding areas and would not introduce, relocate, or increase contaminants in the nearshore waters.

### 3.5. Aquatic Ecosystem and Organism Determinations

3.5.1. Effects on Plankton Decreased light transmission caused by suspended fill material may have a temporary adverse impact on plankton. However, this is expected to be short-term and insignificant. Elevated turbidity levels would be a temporary condition and planktonic organisms may be removed from the project area via tides and currents.

3.5.2. Effects on Benthos Those benthic species not able to migrate from the project area would be covered by the fill material. Repopulation of benthic communities should occur within a few months once operations have ceased because of their high fecundity and turnover rate.

- 3.5.3. Effects on Nekton Direct impacts to motile organisms would be insignificant because of their ability to avoid adverse conditions.
- 3.5.4. Effects on Aquatic Food Web Beach nourishment activities are anticipated to have a temporary and likely insignificant impact on structures and associated organisms seaward of the project area. Non-motile organisms are quickly able to repopulate affected intertidal zones; no long-term adverse impacts to higher trophic level organisms are expected. No overall effect on the food web is anticipated.
- 3.5.5. Effects on Special Aquatic Sites
- 3.5.5.1. Sanctuaries and Refuges The Egmont Key placement area is within the Egmont Key National Wildlife Refuge/ Egmont Key State Park. The project will not adversely affect the state park; it will have temporary effects during operations, but will enhance and expand the park in the long term. In addition, the two Whiskey Stump Key dredge holes (1 and 2) are in the Whiskey Stump Key Sanctuary, but no adverse effects on the Sanctuary are anticipated.
- 3.5.5.2. Wetlands There are no wetlands in or adjacent to the project area.
- 3.5.5.3. Mud Flats There are no mud flats in or adjacent to the project area.
- 3.5.5.4. Vegetated Shallows No submerged aquatic vegetation exists in the project area. Seagrass beds are adjacent to the dredge hole project areas, and measures will be taken to meet turbidity standards and avoid adversely affecting the seagrasses.
- 3.5.5.5. Coral Reefs There are no coral reefs in or immediately adjacent to the project area.
- 3.5.5.6. Riffle and Pool Complexes There are no riffle and pool complexes in or adjacent to the project area.
- 3.5.6. Threatened and Endangered Species In accordance with Section 7 of the Endangered Species Act, the U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) have previously concurred that implementation of the proposed project would not adversely affect threatened or endangered species under their purview. Standard safeguards would be implemented during operations to assure no adverse impacts from the project.
- 3.5.7. Other Wildlife Placement of dredged material is not expected to have a long-term adverse impact on wading birds or terrestrial foraging animals. These organisms are highly motile and actively seek favorable environmental conditions for foraging and resting. In addition, the Audubon Society monitors nesting birds of

interest on DMMA 2D and 3D during nesting seasons, restricting access and placement of material when eggs and hatchlings are present.

- 3.5.8. Actions to Minimize Impacts All practical safeguards would be taken during operations to preserve and enhance aesthetic, recreational, and economic values in the project area. Any needed compensatory mitigation would be included in the project.

### 3.6. Proposed Disposal Site Determinations

- 3.6.1. Mixing Zone Determination The fill material would not cause unacceptable changes in the mixing zone specified in the Water Quality Certificate in relation to: depth, current velocity and direction, variability, degree of turbulence, stratification or ambient concentrations of constituents.
- 3.6.2. Determination of Compliance with Applicable Water Quality Standards Class III state water quality standards would not be violated outside the established mixing zone.
- 3.6.3. Potential Effects on Human Use Characteristic
- 3.6.3.1. Municipal and Private Water Supply No municipal or private water supplies would be impacted by the implementation of the project.
- 3.6.3.2. Recreational and Commercial Fisheries Finfish are highly motile animals and are well equipped to seek favorable environmental conditions elsewhere. Ichthyofauna around the operations areas would relocate to more favorable habitat. As long as the offshore hardbottom structures are not permanently buried, no adverse impact to pelagic organisms is expected.
- 3.6.3.3. Water Related Recreation At both Egmont Key and the dredge holes, the placement of fill would generate a temporary inconvenience for people using the beaches and fishing holes for recreational purposes. Once operations are complete in an area, water related recreation would be preserved as well as enhanced by the creation of additional beach area and fish habitat.
- 3.6.3.4. Aesthetics A temporary decrease in aesthetics would occur with the presence of equipment needed for carrying out the operations. However, the aesthetics would have considerably improved with the completion of the project.
- 3.6.3.5. Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves The Egmont Key placement area is within Egmont Key National Wildlife Refuge/ Egmont Key State Park. The project will not adversely affect the state park; it will have temporary effects during operations, but will enhance and expand the park in the long run.

- 3.7. Determination of Cumulative Effects on the Aquatic Ecosystem The proposed discharge of material would have no adverse impacts that would result in degradation of the natural, cultural, or recreational resources of the project area. The project would have no incremental impacts that, when considered with past, present, and reasonably foreseeable future projects, would result in major cumulative impairment of water resources or interfere with the productivity and water quality of the existing aquatic ecosystem.
- 3.8. Determination of Secondary Effects on the Aquatic Ecosystem No secondary effects are anticipated.

4. Findings of Compliance or Non-Compliance With the Restrictions on Discharge

- 4.1. No significant adaptation of the Section 404(b)(1) Guidelines were made relative to this Evaluation.
- 4.2. No practicable alternatives to the proposed discharge sites exist which would have less adverse impact on the aquatic ecosystem.
- 4.3. The discharge of dredged material to be dispersed will not cause or contribute to violation of any applicable State water quality standards for Class III waters.
- 4.4. The project is in compliance with applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act.
- 4.5. The project is in compliance with Endangered Species Act of 1973.
- 4.6. Several designated sanctuaries exist within the boundaries of the project area; the project is in compliance with specified protection measures for marine sanctuaries designated by the Marine Protection, Research, and Sanctuaries Act of 1972.
- 4.7. The project will not degrade the Waters of the United States. The placement of fill material will not result in any significant adverse effects on: human health and welfare, municipal and private water supplies, recreation and commercial fisheries, plankton, fish, shellfish, wildlife, special aquatic sites; life stages of aquatic life and other wildlife dependent on aquatic ecosystems; aquatic ecosystem diversity, productivity and stability; or recreational, aesthetic, and economic values.
- 4.8. The composition of the dredged material would not contribute organics or pollutants to the aquatic environment. The earthmoving equipment is not expected to operate in the water (below mean low water) to minimize the potential adverse impact of hydrocarbon release into the water. All responsible precautions will be taken to prevent hazardous materials discharge from any and all activity or equipment.
- 4.9. On the basis of the guidelines, the proposed disposal sites for the discharge of dredged material is specified as complying with the requirements of these guidelines, with the inclusion of appropriate and practical conditions to minimize pollution.









**HISTORICAL CONTEXT  
RELATIVE TO THE AFFECTED ENVIRONMENT  
FOR SUBMERGED HISTORIC AND PREHISTORIC CULTURAL RESOURCES  
WITHIN TAMPA HARBOR**

***INTRODUCTION***

Positioned midway down Florida's peninsular Gulf Coast, Tampa Bay has throughout history offered mariners a safe haven and a waypoint between Cuba, Key West, Pensacola, Mobile, and New Orleans. And while the maritime history and the potential for submerged historic sites in the form of shipwrecks are a primary focus of the investigation, it must be stated that Tampa Bay has one of, if not the highest potential for submerged prehistoric sites in Eastern North America. Because of this fact, the historic context for the project must include discussions on the prehistory of the area relative to the potential for encountering submerged prehistoric cultural resources sites in the project area.

***PALEOENVIRONMENTAL SETTING***

Changes in climate in turn alter the vegetative and faunal landscape of an environment. In response to this, humans are required to alter their adaptive strategies. Changes in environment often result in changes in subsistence, seasonal migration, foraging patterns, hunting patterns, and resource procurement. During the most recent glacial period, the Wisconsin Glaciation (28,000 B.C. to 11,500 B.C.), Florida was cooler and drier. Prior to this period, the sea level of Florida would have been 7 m (22 ft) above current levels, which would have effectively inundated all of south Florida. As glaciation continued throughout this period, more of the available water on the planet was frozen into ice sheets, exposing land around coastlines. At this time, it is hypothesized that Florida would have had a maximum of 100-m decline in sea level (Milliman and Emery 1968). Due to the exposed coastline available at this time of lowered sea level, it is likely that humans occupied areas that are now submerged including the project area.

During the Late Pleistocene and Early Holocene periods, Florida maintained a warm climate. The arctic ice sheets allowed cooler drier temperatures in the summer, while blocking arctic air masses from reaching further south in the winter (Widmer 1988). Florida is hypothesized to have been very arid and composed of shifting sand dunes covered by scrub and prairie vegetation during this time. Surface water during the Late Pleistocene and Early Holocene was scarce, and available mostly from sinkholes and springs. Coastal areas during this time would have been high-energy beaches, potentially bordered by barrier islands and mangrove forests, and the marine environment would typically have been hypersaline, indicating that productivity was lower than today (Widmer 1988).

By the Middle Holocene (5500 B.C.), the sea level had risen enough to change the hydrology of Florida (Gleason et al. 1984). By this time, larger water sources were available on the surface and more readily accessible by human populations at this time (Milanich 1994). By 3000 B.C., the environment and climate had reached modern conditions. It was during this time that broad-leaved mesic forests began to develop, indicating an increase in rainfall. Mesic forest development was followed by the development of pine and mixed forest, cypress swamps, and bayheads which characterize Florida's modern climate.

***PREHISTORIC CONTEXT***

The earliest occupants in Florida are referred to as Paleoindians and were hunter-gatherers who often specialized in the hunting of large fauna. Changes in faunal resources due to environmental change necessitated new hunting techniques, lithic technologies, and settlement patterns. The Archaic groups that followed are generally thought to be more generalized hunter-gatherers. Late Archaic peoples were the first to manufacture a crude, fiber-tempered ceramic known as Orange pottery. Most of the evidence for late Archaic settlement in the area comes from coastal shell middens. However, a growing body of evidence supports the occupation of interior swamp margins during this period (Milanich 1994). The Archaic groups were followed by Woodland populations who manufactured ceramics and are characterized by increasing sedentism. **Table 1** summarizes a general prehistoric and historic chronology of Florida.

**Table 1. General Prehistoric through Historic Cultural Sequence for Florida.**

<b>STAGE</b>	<b>PERIOD</b>	<b>GENERAL DATES</b>
Paleoindian		12,000-8500 B.C.
	Transitional	8500-8000 B.C.
Archaic	Early	8000-5000 B.C.
	Middle	5000-3000 B.C.
	Late	3000-500 B.C.
Woodland	Early	500 B.C.- A.D. 300
	Middle	A.D. 300-450
	Late	A.D. 450-1500
	Late/Protohistoric	A.D. 1500-1700
Colonial	First Spanish	A.D. 1528-1763
	British	A.D. 1763-1781
	Second Spanish	A.D. 1781-1821
Early American	Territorial-Civil War	A.D. 1821-1865

***PALEOINDIAN, ARCHAIC AND WOODLAND STAGES***

Paleoindians were the first native inhabitants of Florida and are estimated to have entered the area approximately 10,000 B.C. In the southeastern United States, the Paleoindian stage lasted from approximately 10,000 to 7500 B.C. The environment of Florida at that time was markedly different from the modern environment. Consequently, Paleoindian settlement and subsistence strategies are quite different from those used by later aboriginal inhabitants of Florida.

Characteristics of the Paleoindian stage include a nomadic settlement pattern, subsistence that included large-game mammals in addition to small-game hunting and gathering, and an absence of pottery. Paleoindian archaeological sites are generally defined solely on the basis of recovered lithic remains. The recovery of organic materials from paleo-components in waterlogged Paleoindian sites in Florida such as the Page/Ladson and the Little Salt Springs sites have greatly increased our understanding of this period; however, these sites are not very common and many questions remain about the Paleoindians.

Some of the earliest evidence for human occupation in south Florida comes from two sites in Sarasota County: Little Salt Springs and Warm Mineral Springs. These sites can be interpreted as sporadic hunting and gathering sites. The main area of human occupation would likely have occurred along what is now a submerged coastline (Griffin 1988), including the current project area. The climate during this time, however, was vastly different than today. Too dry to even support scrub oak, the inland areas of south Florida may have been “an area of high winds and shifting dunes, uninviting to human habitation” (Griffin 1988:129).

The environment in Florida during the Paleoindian stage was so different because of lowered sea levels and a more arid climate. Pollen and charcoal samples recovered in cores taken from the bottoms of Lake Sheeler near Gainesville and Lake Tulane near Avon Park provide information on the environment during the Paleoindian stage (Watts and Hansen 1988). During the period between 13,000 and 10,000 B.C., the dominant natural community was mesic broad-leafed forest. Water levels were as much as 26 meters below present, which would have meant exposed land surfaces for the current project area. Warm summers and cool winters characterized the climate, and the frequency of natural fire was low. A significant result of lower sea levels was an increased landmass, about twice the size of present day Florida. According to Milanich (1994:38) “about half of the land exposed 12,000 years ago is now inundated continental shelf.”

The archaeological evidence suggests that Paleoindian cultures subsisted on both large and small game mammals. In addition to food, these animals were used for their furs and for tools. So far, there is little evidence of extensive reliance on coastal resources; however, coastal areas from the Paleoindian stage would now be submerged. Reflecting this statement, there have been Paleoindian artifacts recovered from oyster shell deposits along old river channels now submerged within Tampa Bay. Unfortunately, it is difficult to demonstrate that these represent culturally deposited middens given that the artifacts were found within private dredging spoil piles rather than controlled underwater archaeological excavation (Goodyear 1999; Goodyear

and Warren 1972; Warren 1964). It is likely that Paleoindians utilized plant foods extensively as well. Meltzer (1988; Meltzer and Smith 1986) argues for a generalized foraging subsistence strategy among Paleoindians within unglaciated Eastern North America. His argument is based on ecology and ethnographic analogies in addition to comparison of Paleoindian tool kits and site distribution between major regions of North America.

The Archaic stage occurred from about 7500 to 500 B.C. and is associated with the Holocene geologic epoch. After the demise of some types of Pleistocene fauna, human subsistence strategies became more diverse and included new plant, animal, and aquatic species. These changes are seen in the way stone tools changed through time. Smaller side-notched spear points or knives replaced the large multifunctional lanceolate-shaped spear points used during the Paleoindian stage. These smaller tools were designed to be thrown or launched with a spear thrower (atlatl), or hafted to a handle and used as a knife.

The Early Archaic (7500 to 5000 B.C.) represented a continuation of the Paleoindian occupation of Florida and occurred during a time of rising sea levels, a gradual warming trend with less arid conditions, and the spread of oak hardwood forests and hammocks. Subsistence and settlement patterns also became more diversified during the Early Archaic. The shift in how people lived is reflected in the location of archaeological sites from this time period across the landscape. In general terms, subsistence and settlement patterns became more diversified during the Early Archaic, perhaps as a result of a shift in climate.

Paleoindian and Early Archaic artifacts are sometimes recovered in association with each other; however, overall Early Archaic settlement patterns appear to be more widespread than those of the Paleoindian stage. This expansion in settlement patterns is probably due in part to the warming trend and increase in precipitation that occurred at the close of the Pleistocene. Early Archaic people also began to use coastal and riverine environments more heavily. However, as Milanich (1994) points out, our lack of knowledge about the full range of Early Archaic tools (lithic and bone) stems from the scarcity of artifact collections from professionally excavated sites.

As populations grew and the climate continued to become more like modern conditions, Archaic groups began to become more diversified. They slowly moved into previously unoccupied environmental niches and began producing stone tools that tended to be stemmed rather than notched. This diversification is seen in the types of stone tools produced, the exploitation of shellfish resources, and in the increase of archaeological sites that date to this time period. Archaeologists refer to this period as the Middle Archaic period (5500-3000 B.C.). Late Archaic peoples were the first to manufacture a crude, fiber-tempered ceramic known as Orange pottery. Most of the evidence for Late Archaic settlement in the area comes from coastal shell middens.

The Archaic groups were followed by Woodland populations who manufactured ceramics and are characterized by increasing sedentism.

**POTENTIAL FOR SUBMERGED PREHISTORIC SITES**

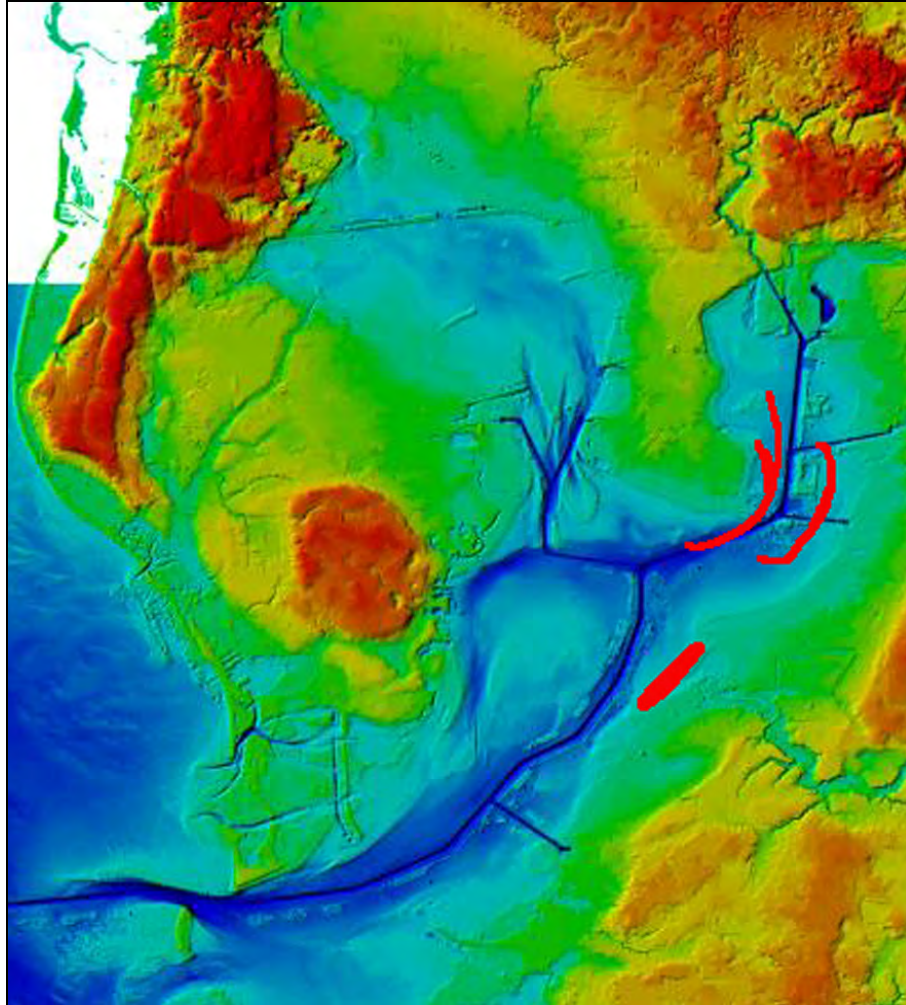
Tampa Bay has one of if not the highest potential for submerged prehistoric sites in Eastern North America based on three factors. First, artifacts have already been dredged up from several locations in the bay. Second, the frequency of early sites (early being Paleoindian through Middle Archaic) in the nearby area indicates high nearby populations. Third, reconstruction of sea level rise shows that the entire bay was a terrestrial landscape until about 4,000 radiocarbon years ago.

While there are no submerged actual prehistoric sites recorded in Tampa Bay, there are numerous examples of diagnostic artifacts found in dredge spoil from materials dug up in the bay (i.e., shell middens) and used for road and other construction fill. However, there is little control on the location of the dredges when the artifacts were encountered in the past. The findings of artifacts from oyster shell concentrations dredged from Tampa Bay for fill reaches as far back as the 1950s and 60s. Dredging was then taking place off Gadsden Point (now McDill AFB). Containing artifacts, beds of oyster were very thick (20 – 30 feet), but the stratigraphic details of the beds are unknown. Other areas in the bay have also been dredged and Table 2 presents five examples of dredging locations that contained artifacts (Figure 1 illustrates the dredge locations and location of deposited dredge material from which artifacts were recovered). Unfortunately, none of these examples is associated with locational control of the dredge. Other references for similar occurrences include Stright 1990 and 1995. The theory behind the dredging discoveries was that Paleoindian and Early Archaic shell middens were being impacted.

**Table 2. Examples of Dredge Material from Tampa Bay Containing Prehistoric Artifacts.**

Location of Materials	Description	Diagnostic artifacts	Citation
Various	Commercial dredging of oyster shell beds Upper Tampa Bay Gadsden Point revealed abundant artifacts - locations of dredges have been roughly identified.	Artifacts diagnostic of Paleoindian and Early Archaic presence, and Mid-Archaic through Late Archaic items	Goodyear et al. 1983; Goodyear and Warren 1972 Warren, 1964
Apollo Beach	Materials dredged up for commercial purposes	Middle Archaic (Culbreath) points. Fiber tempered ceramics, sand tempered ceramics	Warren, 1968a

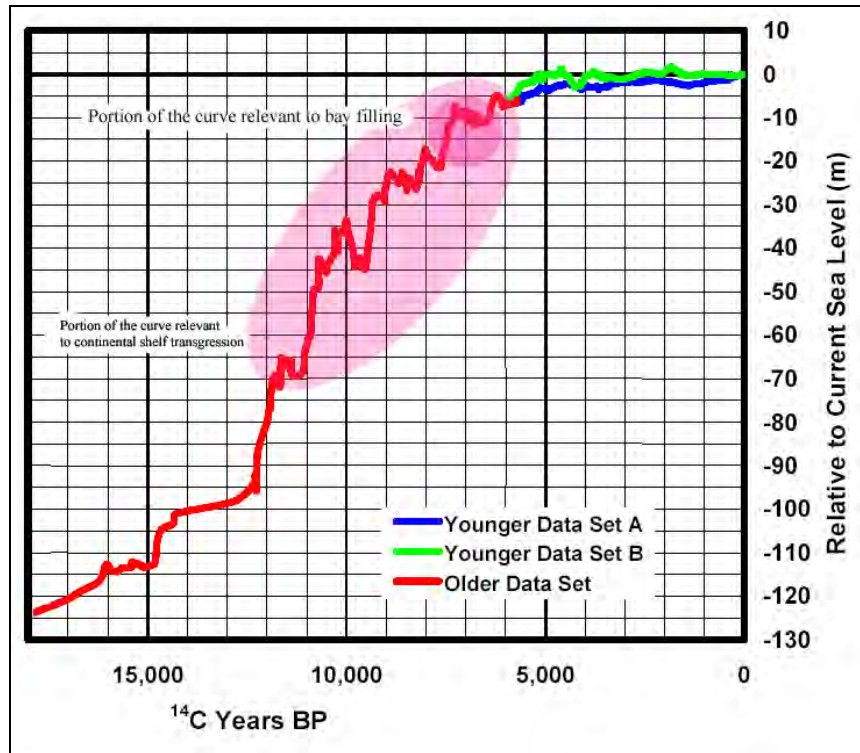
Turtlecrawl Point	Materials Dredged while making artificial peninsula, materials in spoil	Greenbriar and Bolen diagnostics. Unifacial tools, Dalton adze, Debitage (core reduction and tool manufacture). Also Middle Archaic Morrow Mountain and Newnan points found	Goodyear et al. 1980
Terra Ceia Bay	Materials dredged to be used for beach construction, artifacts eroded from the dredge spoil	Dalton and Greenbriar diagnostics, turtle back scraper lithic tools, and ceramics found. Also extinct faunal remains.	Warren and Bullen, 1965
Caladesi Causeway	Materials dredged for roadway fill, artifacts in dredge spoil	Suwannee and possible Bolen points	Warren, 1968b



**Figure 1. General dredge material locations (in red) from which prehistoric artifacts have been recovered (as presented in Goodyear et al. 1983).**

In addition to artifacts in dredge material, another consideration for site potential in Tampa Bay is that sea levels were considerably lower during the late Pleistocene, and they rose for the most part during the early and middle Holocene. At those times, sea levels were considerably lower, and a freshwater, riverine, paleo-environment must have pertained until well into the Holocene. As illustrated in Figures 2 and 3 (see also Table 3), the bay should have been river valley until about 6500 radiocarbon years before present (rcybp) according to the most recent and detailed sea level curve for the Gulf of Mexico (Basille and Donoghue 2004).



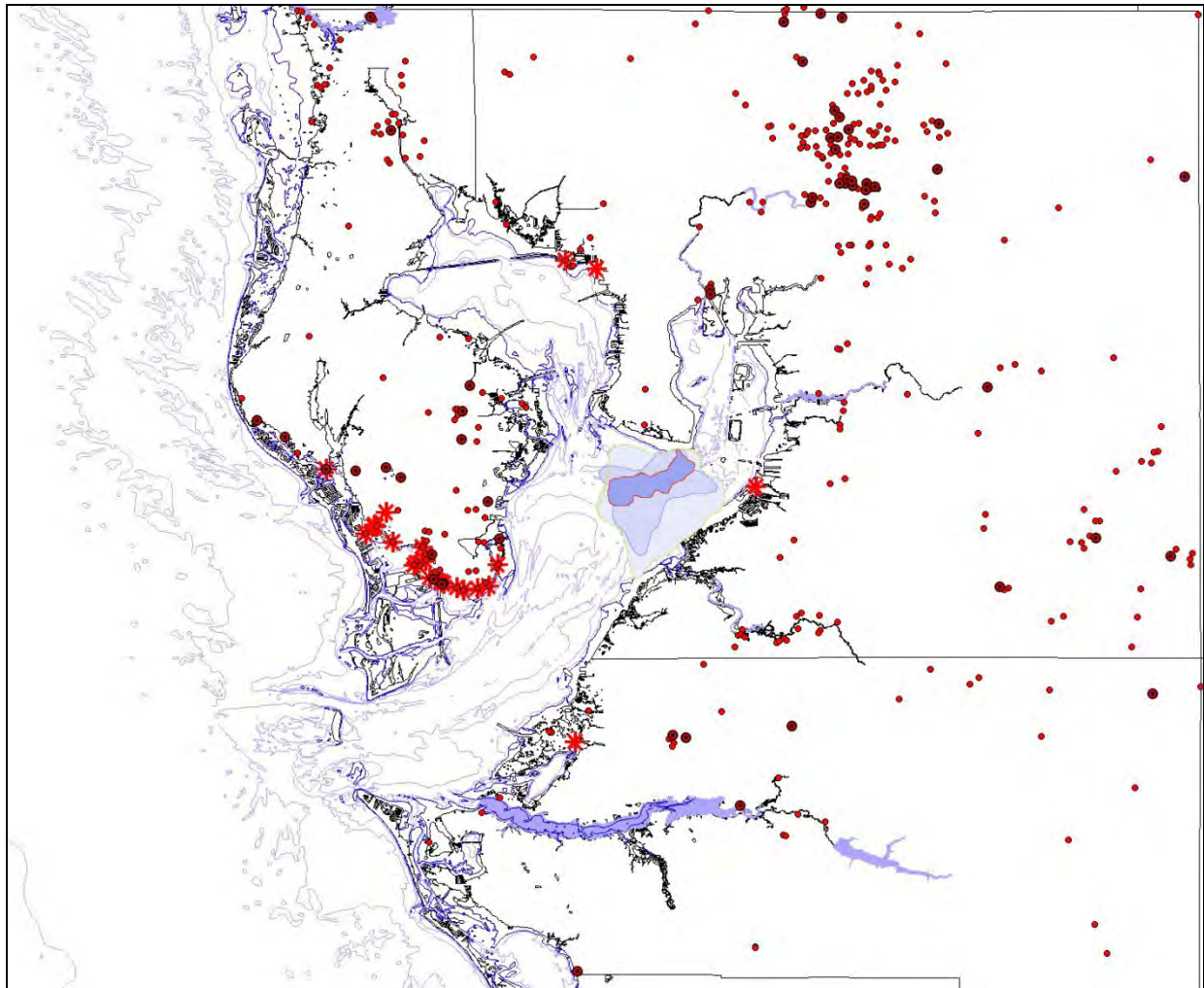


**Figure 2. Sea level reconstruction for the Gulf of Mexico by seven point averaging of a compilation of published radiocarbon estimates ((Bassille and Donoghue 2004). Horizontal axis is in radiocarbon years before present.**

**Table 3. Description of Sea Level Rise Chronology Using Punctuated Model of Sea Level Rise for the Later Holocene Record (Based on Basille and Donoghue).**

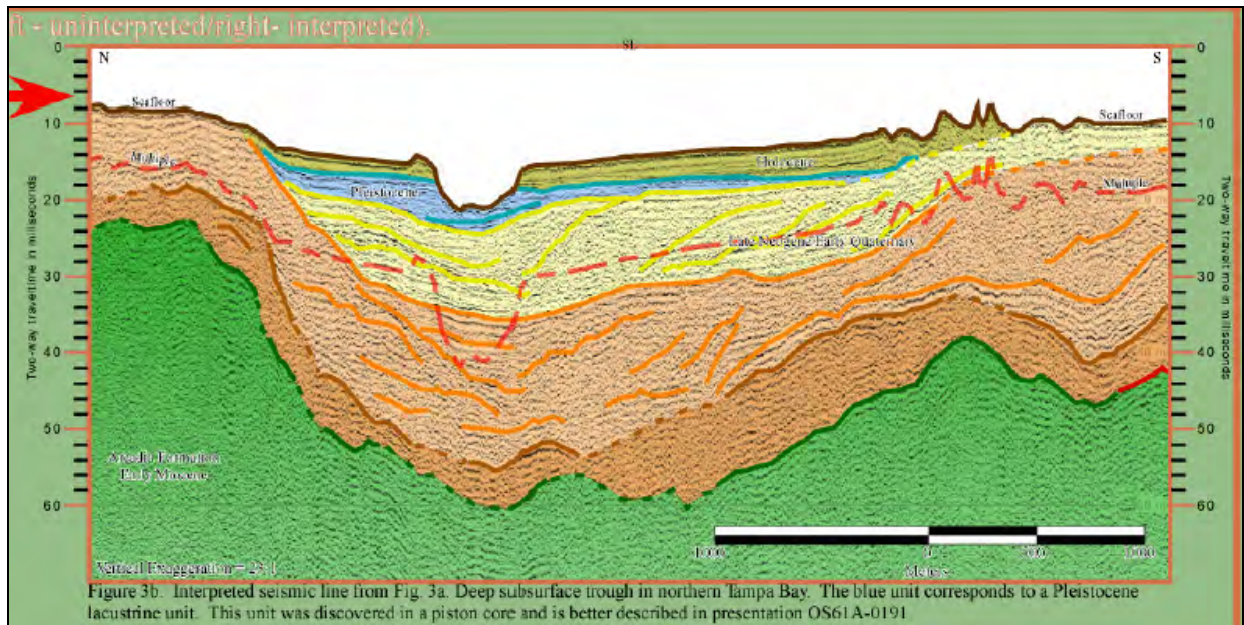
<b>Time Period (rcybp)</b>	<b>Description of Sea Levels per Basille and Donoghue 2004</b>
Late Glacial Maximum 18,000 to 14,000	120 to 130 meters maximum to about 70 meters, probably before arrival of people, full exposure of the continental shelf
Younger Dryas 11,000 to 10,000	Rises from 70 meters to 40 meters by Early Archaic times
Beginning of MWP IB after 10,000	40 meters below present levels and rising
Beginning 8000	20 meters below present levels

7500 and 6500 oscillations Middle to Late Holocene oscillations equivalent to Altithermal time	Fluctuates between 5 and 15 feet below present levels
5200 to 4600 sea level approximate current level	Equivalent to today
4600 – 3800 lower than present level	Possible 800 year regression



**Figure 3. Known early sites distributions around Tampa. Dark blue patch in northern Tampa Bay indicates the boundaries of Lake Edgar (Suthard 2005).**

Additional data that supports the presence of intact submerged prehistoric sites in Tampa Bay is the preservation of late Pleistocene sediments, a rarity in Florida profiles. This is shown by seismic data published on the web by Suthard et al. 2002. Illustrated in Figure 4, the track of the profile was taken east-westerly just south of Gadsden Point-McDill Air Force Base, the view is looking north. The blue bed is preserved late Pleistocene deposits, the brown on top are Holocene sediments.



**Figure 4. Subbottom profile track of Tampa Bay showing preserved late Pleistocene deposits (as presented in Suthard et al. 2002).**

Further data that supports the potential for submerged prehistoric sites in Tampa Bay, and one that has particular relevance to our current project results, is the presence of a specific type of chert, known as Type 5 chert or “bay bottom chert.” Associated almost exclusively with Paleoindian and Early Archaic, this chert is light gray to tan in color and tends to contain foraminifera fossils and peloids and breccia fragments as inclusions. This material received its name due to frequent finds of Bolen and Suwannee Paleoindian points on fills derived from inundated portions of Tampa Bay. Fills and beaches at the southern tip of Pinellas Peninsula have yielded large quantities of tools made from this material, suggesting nearby sources within the now drowned bay (Goodyear et al. 1983). Interestingly, a recent remote sensing survey in the bay (discussed below), has identified a large submerged outcrop of this material just to the south of Gadsden Point. These suspected sources would have been available during the Paleoindian period when sea levels were lower. Until now, the only other known source of this particular chert is at the head of Old Tampa Bay in the Rocky Creek area.

First explored by a Spanish expedition commanded by Panfilo de Narvaez in 1528 and briefly visited some ten years later by Hernando de Soto, Tampa Bay was initially named Espiritu Santu (Holy Spirit). While best known for his activities on Florida's East Coast, including the founding of St. Augustine, Don Pedro Menendez de Aviles, guided by Hernando de Escalante, explored the gulf coast of Florida in the 1560s. Credited as the discoverer of the Hillsborough River, Menendez made peaceful contacts with the local Indians. Undisturbed for some two hundred years, in 1757 an expedition was sent by the King of Spain to find sources of shipbuilding timber and spent a month charting Tampa and Hillsborough Bays.

From 1763 to 1783, Florida was under English control. During this period place names in the Tampa Bay area were anglicized, and the river that had been named “El Rio de San Julian y Arriaga” was renamed in honor of the Earl of Hillsborough (Mormino and Pizzo 1983). Despite several surveys of Tampa Bay completed by the Spanish and English in the eighteenth century, with positive reports of conditions and the potential strategic importance of the bay, no permanent European settlement was established at Tampa Bay until the early-nineteenth century (Holmes 1983).

At the end of the French and Indian War (referred to as the Seven Years War in Europe), the Spanish exchanged Florida for Havana, which had been captured by the British, as part of the Treaty of Paris. Between 1764 and 1781, the Scottish surveyor George Gauld was assigned by the British Admiralty to chart the waters of the Gulf Coast off British West Florida, an area that extended from New Orleans to the Apalachicola River. Gauld noted that numerous Spanish fishing vessels were operating in the area. In 1783, Florida reverted to Spanish control after the defeat of the British in the American Revolution. Joseph Antonio de Evia, a Spanish naval officer, began in 1785 to explore the rivers and estuaries of Florida, Alabama, Mississippi, Louisiana, Texas, and Mexico, a task he completed in September 1786. His accurate and detailed charts and descriptions of the Gulf, including Tampa Bay, were the best by any navigator of the eighteenth century, serving as the basis of subsequent charts drawn by the Hydrographic Service of Spain.

In the early 1800s, Hillsborough Bay was used seasonally by Cuban fishermen. After the First Seminole War in 1818, General Andrew Jackson sent Captain James Gadsden to the gulf coast of Florida to examine possible locations for fortification. He produced a glowing report on Tampa Bay. In 1824, the United States government and the U.S. Army founded Fort Brooke near where the Hillsborough River empties into the bay. The city of Tampa grew up around Fort Brooke. During this period, Tampa was mostly a military outpost, with the nearest town being 300 miles away by water, but the opening of a trading store in 1828 marked the beginning of the growth of Tampa as a civilian city.



“The Tampa of early days [1840s] was not a fishing village, as has often been stated. It was a trading center, supplying the back country with ‘city goods,’ which were exchanged for cotton, tobacco, hides, chickens, eggs, honey, sweet potatoes, beeswax and other country produce. Many of the farm products thus acquired by the village tradesmen were shipped by schooner to Havana, Key West, and New Orleans. Those pioneers who lived away from the bay on farms and plantations came in great numbers to barter corn for fish. One hundred mullet were exchanged for a bushel of corn because it was easier and quicker for the Tampa villagers to catch a hundred mullet than to raise a bushel of corn. The trading farm-folk camped along the shores of the bay and smoked their fish before returning to their homes in the woods” (Pizzo 1968:12). “During the winter months schooners from Cuban [sic] and New England swarmed the bay for Spanish mackerel, groupers and snappers. More than 50,000 fish per day were shipped on these vessels. Tampa was incorporated in 1855.

In 1858 the town suffered through a yellow fever epidemic, in which at least 25 percent of the population of Tampa fell ill. In 1859, Fort Brooke was decommissioned, which dealt yet another severe blow to the local economy. Following the end of the Third Seminole War, the Seminoles were not a threat to the community, and the U.S. Army no longer needed the fort (Brown 2000).

In 1860 Tampa was still a very small town. It owed its continued existence to its role as the primary trading post on the Gulf coast of Florida, an area that was still a frontier at that time. In the 1860s, Tampa residents, including James McKay, began to export cattle from the interior of the state for sale in Cuba, Alabama, and England. The shipping operations were headquartered on the Interbay Peninsula where there was a spring-fed lake to provide water for the cattle. A fence was built across the entire peninsula to keep thousands of cattle somewhat contained, and docks were built at Ballast Point for loading ships. Cattle shipping became even more important to Tampa's economy when the town's main industrial operation, a sawmill owned by McKay, burned.

During the Civil War, Ballast Point was the location of a skirmish between Union troops and Confederate blockade-runners. In October 1862, Union troops attacked and burned Captain James McKay's ships while they were anchored on the Hillsborough River. Federal gunboats bombarded Tampa from a location near Big Grassy Key (now Davis Islands). Confederate troops pursued Union troops on foot and overtook them as they were preparing to board their ships at Ballast Point. The Confederates charged the Union troops who were trying to get to the rescue boats, while Union ships returned fire. There was no clear winner of this encounter, and there were casualties on both sides (Mormino and Pizzo 1983).

The majority of Tampa's growth in the 1870s was focused north and northeast of the town, where settlers from northern states planted orange groves. The mid 1870s was one of the first boom times for Tampa, with people moving to the area from outside of Florida or even the South

(Brown 2000). Henry B. Plant, a northern businessman who developed the Plant System of railroads, hotels, and steamships throughout central Florida and along the Gulf coast, sought a West Coast harbor and looked towards Tampa. The city was growing quickly and had one of the more promising ports on Florida's Gulf coast (Mormino and Pizzo 1983). Plant began to advertise Tampa as a tourist and commercial center. He built the Tampa Bay Hotel, including a racetrack and casino for the entertainment of guests, on the western banks of the Hillsborough River. With the availability of hotels, rail service, and steamship transportation, the area grew rapidly. This increase in ship activity and commerce prompted the need for a deeper channel. In the 1800s ships heading into Hillsborough Bay dropped the heavy material used to stabilize their vessels, also known as ballast, at a shallow part of the shoreline that became known as Ballast Point. Large ships entering the bay typically anchored at Ballast Point and ferried passengers and freight to the river wharf (Port Tampa City Women's Club 1972; Tampa Bay History Center 2002).

The citizens of Tampa had requested a deeper harbor from the government as early as 1871. On June 14, 1880, Congress passed the Harbor and River Act, allowing for creation of a 9-foot deep by 150-foot wide channel the length of the bay, from the Hillsborough River to Tampa Bay. The Act also authorized the widening and deepening of the Old Tampa Bay channel to 19 ft. adjacent to Port Tampa. Both projects were completed by 1890. Henry Plant began plans to bring his railroad to the deep-water harbor in Old Tampa Bay and development of the area soon followed (Port Tampa City Women's Club 1972:4). Illustrated in **Figure 5**, Plant erected a freight station, a passenger station, railroad yards, repair shops, piers and housing for railroad workers at the docks (Lydon and Rampello 1994).

Port Tampa received 205 ships that brought 136,000 tons of goods in 1891. The charter for Port Tampa City was granted in 1893. Several cigar manufacturers built warehouses and factories in Port Tampa, believing tobacco could be delivered straight from the docks, fresh from Cuba, thereby making it a less expensive product. This brought a large influx of Spanish, Italian, and Cuban workers to the port. A lack of social clubs for their immigrant workers soon made it difficult for the cigar factory owners to keep their employees in Port Tampa (Poyo 1989). These factories soon relocated to Ybor City in Tampa, which already had a thriving cigar industry and active social network.

Even though it was a busy port town serving 2,000 vessels and 40,000 passengers, Port Tampa City remained isolated due to its lack of roads connecting it to Tampa. This changed in 1897 when horse-drawn street trolleys connected Port Tampa to Ballast Point (**Figure 6**). Port Tampa gained national attention in 1898 as the point of embarkation for United States troops departing for Cuba in the Spanish American War. During the War the city of Tampa's population swelled to 14,000, almost doubling its pre-war period size.



Figure 5. Port Tampa Inn and the docks, 1920 (Burgert Brothers, Negative No. R399-V210, reproduced by permission of the Tampa-Hillsborough County Public Library System).

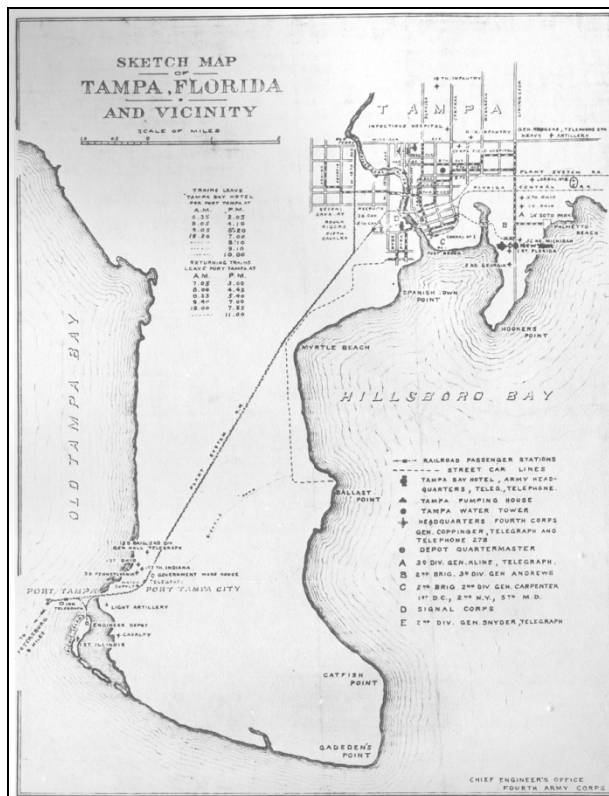


Figure 6. 1898 map of Tampa, Port Tampa, and Spanish-American War-related sites (from Dunn 1972:frontispiece).

After the railroad was built, three large fish companies relocated to Tampa. One was run by Captain John Savarese, a friend of Plant's who had been in the fish business in Savannah (Pizzo 1968:82). "From modest beginnings, Savarese built one of the most important enterprises seen in Tampa up to that time. By 1895 his operations employed as many as 550 men. His fishing fleet consisted of fifteen sailing vessels, 150 small craft and a large steamer, the *Mistletoe*" (Pizzo 1968:82). In the early 1960s, an estimated two million pounds of mullet per year were sold throughout the United States from Hillsborough and Pinellas Counties.

In 1899 the United States Congress agreed to widen the channel at Port Tampa, assuring continued growth of Port Tampa City. The discovery of phosphate in Hillsborough County brought a new industry to town. The vessels were loaded manually by stevedores in early days until wooden elevators were constructed, which increased efficiency.

Although Tampa was the greatest cigar-manufacturing city in the United States and cigars were a mainstay of Tampa's economy; there were other industries and businesses in town. The shipping industry (rail and water) was the second most important industry in Tampa, followed by mining and fertilizer manufacturing. Port Tampa City was the chief phosphate shipping port in the country. Robinson (1928:139) listed products manufactured in Tampa in the 1920s:

Aprons, armatures, awnings, auto tops, asbestos, boats, brooms, brick, beverages, bakeries products, batteries, boxes, canned foods, crates, chemicals, cigars and allied products, concrete products, caskets, conveyors, confections, corsets, cabinet works, coffee, combs, cement, curtains, drugs, dental supplies, dairy products, electrical supplies, fire extinguishers, furniture of about nine varieties, forest products, flooring, flags, fences, fertilizer, gas, heating systems, ice, ice-cream and cones, iron works, insecticides, knit goods, marble products, meats, sheet metal work, mattresses and bedding, macaroni, oil blenders, orange wood novelties, preserves, picture frames, plating (electro), paving brick, paints, roofing material, ships and ship parts, showcases, store fixtures, sanitary supplies, soap, screens, sashes for windows and doors, sweeping compounds, sportsmen's supplies, septic tanks, trunks, tents, trusses, tile and woodwork.

Port Tampa also experienced large amounts of supplies being transported by the railway and onto ships during this time. The phosphate train traveled through downtown Tampa to Port Tampa daily (Port Tampa Women's Club 1972). In the beginning the work was done by hand with wheelbarrows, but electric elevators soon replaced this costly and time-consuming process. At one time there were up to five elevators for loading phosphate at the docks until they were torn down in the 1970s (Grecco 1993).

By the turn of the century, steamboats running under the auspices of companies such as the Independent Line, Tampa Steamship Line, and the Plant Line crisscrossed Tampa Bay on a regular basis (Figure 7). In 1908 a fair war erupted, and the cutthroat competition drove a round



of mergers and consolidation in the steamboat industry that resulted in a few dominant players remaining, including the Plant Line (later the Peninsular & Occidental), and the Favorite Line (officially called the St. Petersburg Transportation Company). In addition to the local routes, there were a number of steamship lines that were based in other cities and ran service, stopped at, or otherwise had facilities at Tampa, including the Mallory Line, which ran between New York and Mobile, the Southern Steamship Company between Tampa and Philadelphia, and the Penn Steamship Line, operating between Tampa and New Orleans, as well as numerous other smaller lines.



**Figure 7. Steam vessels on Tampa Bay ca. early 1900s (reproduced by permission of the Florida Photographic Collection).**

On October 25, 1921, a hurricane swept across Tampa, causing extensive damage across the Interbay Peninsula. During the storm, wind gusts of 100 mph and high water caused damage to the houses and streets of the Port Tampa City and Ballast Point areas. The hurricane also destroyed segments of the seawall along Bayshore Boulevard, the main road used to reach Ballast Point subdivisions. It took the city of Tampa four years to rebuild the seawall (Brown and Brown 1995).

In 1924 the Gandy Bridge was completed, connecting St. Petersburg and Tampa, via the Interbay Peninsula. Prior to this, it took several hours to get from one city to the other via boat,

automobile, or train. The Gandy Bridge, and later the Davis (Courtney Campbell) Causeway, were key elements of the growth of the Tampa Bay area (Adams 1998).

During the 1920s Florida experienced the Boom Times, a period of rapid and inflated growth. The rise of the middle class led to increased sales of real estate, as Florida became easily accessible by railroad and automobile. The population of the state grew rapidly, and tourism skyrocketed. Florida's boom time economy came to an end in the late 1920s before the Great Depression settled in across the nation following the 1929 stock market crash. Property levels had fallen from greatly inflated high levels, several hurricanes had hit the state, and Mediterranean fruit flies had hurt the citrus industry (Tidd 1989). The Depression later devastated the cigar industry, as smokers switched from Tampa's hand-rolled cigars to less expensive cigarettes (Mormino 1983). Port Tampa City experienced a decline in activities when the railroad shops moved away in the 1920s.

The Tampa area was not as big of a factor in American shipbuilding as the Newport News, Virginia or Pascagoula, Mississippi areas. And while a small boom occurred during World War I, a great expansion occurred during WWII, with employment at local yards approaching 50,000 at its peak. After the war, a period of consolidation occurred, and many builders ceased to exist. Some of the larger shipyards during this expansion period included the Tampa Shipbuilding and Engineering Company that during World War II launched more than 100 Liberty ships, destroyers and escorts, including USS *Slater*, USS *Sierra*, and USS *Piedmont*, the Oscar Daniels Co., one of the larger shipbuilders of the early-twentieth century, and McCloskey & Company, a Philadelphia firm that developed a shipyard at Hookers Point in Tampa to build military ships for the WW II effort. The Hookers Point site later became the site of Tampa Shipyards, Inc., which was acquired by the American Ship Building Company in 1972 and is now Tampa Bay Shipbuilding & Repair Company.

Marking the beginnings of modern Tampa, the wartime economy, in large part associated with shipbuilding, ended the Depression and brought a huge influx of federal money to the city (Kerstein 1997). During 1938 U.S. Army Air Corps maneuvers in Florida, pilots had been impressed with the flat, sandy, snake-ridden stretch of land on the southern tip of Tampa's Interbay Peninsula called Catfish Point, liking the flat land and good weather. The new base was named after Col. Leslie MacDill, a popular pilot killed in a test flight near Washington, D.C. The WPA began construction of MacDill Field (as it was known throughout World War II) in 1939, and by May 1940 over 1,000 personnel were stationed there (Scherr 1995).

In Port Tampa, the opening of MacDill Field, adjacent to the south boundary of the city, infused the local economy with much needed money from military personnel. The Florida Power Company established terminals at Port Tampa. The area was abuzz with wartime activity. Industry prospered also. The Hardaway Construction Company established offices in Port Tampa

City and began several projects, including the second span of the Gandy Bridge, the Sunshine Parkway, and the Howard Franklin Bridge. Phosphate was the main export for Port Tampa City, but oil became the leading import by companies such as Gulf, Standard and Shell Oil (Port Tampa Women's Club 1972).

Bananas were also an important import item for Port Tampa and during World War II served as the homeport for United Fruit's banana boat fleet, including the *Howard*, *Juniata*, *Sinola*, *Olancho*, *Choluteca*, *Hibueras*, *Georgeanna*, and four chartered Norwegian steamers (*Crawford Ellis*, *Gansfjord*, *Lysefjord*, and *Idreat*). Of these eleven ships, the *Howard* and *Juniata* had the greatest capacity and together over five years, the two ships imported about 5.5 million banana bunches. By weight, bananas were a little less than one third of total imports at the Port of Tampa in 1949. Tonnage varied from a high of 80,751 tons in 1946 to a low of 44, 941 tons in 1950.

Before the shrimp fleet came to Tampa, they worked out of Fort Myers and St. Augustine. Then a large bed of shrimp was discovered off the Dry Tortugas (later, as the Tortugas beds gave out, the shrimpers moved to Campeche). The shrimp fleet moved to the Port of Tampa from Fort Myers in December 1951 because there was room to grow. By August of 1953, the fleet had 135 trawlers. Two new boatyards (one building trawlers and one fixing them), three hardware stores, and two radio shops catered to the needs of the fleet based on Hooker's Point. Seven packinghouses had opened to process the shrimp: 5,934,980 pounds in 1952, and 10,313,000 pounds in 1953. In 1954, over 11 million pounds of shrimp passed over the docks at Tampa. By 1963, Tampa's Ocean Products, Inc., was the second largest shrimp processing plant in the United States and Tampa was second only to Brownsville, Texas, as a Gulf shrimp port.

Tampa's port was unusual among major ports in that most of its terminals and loading facilities were historically private rather than publicly owned. The trend gradually changed in the mid-twentieth century with the formation of the Tampa Port Authority (TPA) and completion of major construction projects at Hooker's Point and East Bay. As the twentieth century progressed, private firms found it difficult to pay taxes and compete economically with public facilities. Private terminal companies such as Garrison Terminals, Inc., Blocks Terminal, Inc., and Tampa Import & Export Terminal, Inc., supported TPA's mid-1960s efforts to build new and more efficient terminal facilities, preferring to have TPA own the terminal facility with the private companies acting as stevedores. The private companies recognized that Tampa's downtown waterfront was changing from industrial to civic uses and that the Garrison Channel itself was unable to support the needs of modern shipping (*Florida Journal of Commerce [FJC]*, April 1967, 9(4):15-16). One private company, however, was opposed to TPA's East Bay plans. Robert Thomas, President of Port Sutton, did not support TPA's competition with his privately owned port facilities. Thomas had often criticized ACL and other railroad companies for depending on public funding for facility construction (*Florida Journal of Commerce* June 1967, 9(6):6-7).

In 1965, the TPA renamed certain areas at the Port of Tampa. The area of new fill at the southern tip of Hookers Point was named Kreher Terminals. The old municipal docks, once known as the “tobacco docks” and later as the “banana docks,” became the Metroport Terminal. The old naval shipyard on Hooker’s Point was named the George B. Howell Maritime Center (*FJC*, 1965, 7(4):18 “Tampa Port Area Given New Names”).

### ***HARBOR IMPROVEMENTS***

As the city of Tampa grew, numerous improvements to the various channels in Old Tampa, Hillsborough, and Tampa Bays were undertaken. Initial conditions of the bay, which were the main limiting factor as far as the amount of shipping into and out of Tampa was concerned, were fairly shallow. From the Gulf of Mexico to just south of the Interbay Peninsula, a depth 20 feet at Mean Low Water was observed, with 15 feet over the shoals to Port Tampa, 12 feet in Hillsborough Bay to three miles south of Tampa, and five feet to just south of the Lafayette Street Bridge. In the 1850s John Gomez was appointed a pilot for Tampa Bay, to steer schooners from Egmont Key to the wharf at Fort Brooke. “The channel from Ballast Point to the mouth of the river was twisted and shallow, accessible only to vessels drawing not more than ten feet of water” (Pizzo 1968:56). In the 1800s ships heading into Hillsborough Bay dropped the heavy material used to stabilize their vessels, also known as ballast, at a shallow part of the shoreline that became known as Ballast Point. Large ships entering the bay typically anchored at Ballast Point and ferried passengers and freight to the river wharf (Port Tampa City Women’s Club 1972; Tampa Bay History Center 2002).

Increasing population and trade at Tampa resulted in Congress ordering a survey of the bay in 1871. This was accomplished in 1872. The report submitted to Congress by the Chief of Engineers A.A. Humphries stated that the cost to create a 12-foot channel, 200 feet in width, from the Gulf of Mexico to Tampa was estimated to be \$549,621.80. Due to the high cost of the proposed improvements, General Humphries recommended instead the construction of a railroad connector to Passage Point, and the creation of port facilities at that location. In 1879, Congress again ordered a survey of the bay, this time to examine the feasibility of deepening the Hillsborough Bay Channel to 9 feet. The survey examined the bay from Egmont Key to the Tampa Wharves, and recommended improving the existing channel to 9 feet deep by 200 feet wide (150 feet in the bay), and estimated the cost at \$97,002.

The second survey resulted in the passage of the River and Harbor Act of 1880. This act appropriated \$130,000 in various amounts through 1894. By 1888, \$60,000 had been appropriated for improvements to the channel in Hillsborough Bay, and resulted in a channel 150 feet wide in the river, and 60 feet wide in the bay with a depth of seven feet. Amount spent on dredging varied according to the material moved. For example, in 1888, operations undertaken

by Rittenhouse Moore called for a contract price of \$0.44/yard of soft material, and \$5.90/yard for rock. Although work on the Hillsborough River Channel was extending the channel to a depth of 9 feet and a width of 200 feet, the annual report of 1888 instead recommended improving the Port Tampa channel and suspending the work on Hillsborough Bay; for the same cost of increasing the width of the Tampa channel, the Port Tampa channel could be deepened to 20 feet. Accordingly, Congress modified the River and Harbor Act of 1880 in 1888 when Henry Plant began construction of port facilities at Passage Point; work on the Hillsborough Bay channel was to be suspended. Congress appropriated a total of \$50,000 over two years for creation of a channel 20 feet deep to Port Tampa. The work was completed in 1893 by the Alabama Dredging and Jetty Co., who removed 115,029 total yards of fill. The channel through Hillsborough Bay was left at seven feet in depth.

Over the next several years, no action was taken for channel improvements. Numerous wrecks were removed however, including a sponge fishing vessel called *Millie Wales*, owned by Pensacola Fish and Ice Company. The work was performed by Roderick G. Ross in 1895 and the wreck was removed offshore and sunk in deep water. In 1896, nine more wrecks, including bark *Marcelo*, schooner *Adelaide Baker*, bark *Brandon*, schooner *Rosalie*, bark *Anto*, ship *Marie Frederika*, bark *Almora*, steamer *Cochran*, and an old drydock were examined and the cost of removal was estimated at \$27,000. In 1896, the wreck of a lighter was removed by Burton E. Coe at a cost of 271.92. In 1897, Clearwater Harbor was examined for possible improvements, although none were recommended.

The discovery of phosphate deposits in Hillsborough Bay in 1883 created the need for increased shipping capacity. Indeed, by 1892, the total shipping of phosphate from Tampa was more than all other good combined (Grismer 1950:222). Also, Henry Plant controlled Port Tampa, and his South Florida Railroad company controlled the only railroad line from Port Tampa to Tampa. After studying the problem, Colonel Charles J. Allen reported to the Chief of Engineers that the railroad monopoly into Port Tampa was stifling competition. Indeed, it often cost as much to ship cargo the nine miles to Tampa as it did to get it from New York to Port Tampa (Buker 1980:5). In response to increased pressure from Tampa industry, Congress passed the River and Harbor Act of 1899. This Act called for increasing the depth of the Hillsborough Bay channel to a depth of 12 feet from just south of the Lafayette St Bridge to the 12 ft contour in Hillsborough Bay, and increasing the depth from there to the Gulf of Mexico from 20 to 27 feet. Width in the bay was to be 65 feet, with 85 feet in the river. The Act also created a turning basin at the mouth of the Hillsborough River. \$125,000 was appropriated for the work. Also, the Act called for increasing the size of the Port Tampa channel to a depth of 27 feet and a width of 500 feet. Appropriation for the project was \$75,000 and the contract was awarded to Isaac T. Brown of New York.

Soon after the work required by the River and Harbor Act of 1899 was completed, Congress passed the 1903 River and Harbor Act. The act called for deepening the Hillsborough Bay channel to 20 feet, at the same time extending it to the 20-foot contour in Old Tampa Bay (Figure 47). This work was completed in 1909, and combined with a concurrent construction of wharves and harbor facilities, made Tampa a world-class seaport. At the same time, the private firm of Hendry and Knight completed a 20-ft. channel from the turning basin at mouth of Hillsborough River east to the Seaboard Air Line railroad Terminal.

As a result of the increased traffic at the port, more improvements were required. Congress acted, and passed the River and Harbor Act of 1910. This Act required the creation of a 24 ft channel from the Gulf of Mexico to the mouth of the Hillsborough River. It was to be 300 ft in width, increasing to 500 feet at the gulf entrance. The Act also provided for a new channel to Ybor City and an extension of the Hendy and Knight channel. Conditions were included in the Act that induced the city of Tampa to improve harbor facilities concurrently.

The work specified in 1910 had been partially completed when Congress again called for improvement of the channel, this time to a depth of 27 feet from the mouth of the Hillsborough River to the Gulf of Mexico.

Conditions were again included that induced the city of Tampa to improve harbor facilities. The Act was modified in 1917 with the passage of the River and Harbor Act of 1917, providing for a channel width of 300 feet in Tampa Bay, 200 feet in Hillsborough Bay, and the addition of turning basins at the mouth of the Hillsborough and Ybor Rivers.

The River and Harbor Act of 1922 combined Port Tampa, Hillsborough River and Old Tampa Bay projects into single Tampa Bay project. Several improvements were mandated, including deepening the Egmont Bar channel to 29 feet, widening Sparkman Channel to 300 feet (which was started 1933 and finished in 1935), deepening of the Hillsborough Bay and Port Tampa channels to 30 feet (completed October 1934), construction of turning basin at Port Tampa (completed October 1934), and the deepening of Tampa Bay Channel and Mullet Key Cut to 30 feet (completed May 1935).

The River and Harbor Act of 1935 mandated increasing the channel over Egmont bar to 32 ft deep and 600 ft wide, increasing the Mullet Key channel to 30 ft deep and 400 ft wide. All other channels in Tampa Bay were to be increased to 30 feet deep and 300 ft wide. Finally, a 2,000-x-500 foot turning basin at Port Tampa terminal entrance was provided for.

In 1938, Congress passed the River and Harbor Act of 1938. Projects funded by this Act included widening Ybor channel 50 feet on each side, widening of the bend between Sparkman Channel and Cut D in Hillsborough Bay by 250 feet, and extending the turning basin at west end

of Garrison Channel east by 300 ft. Further improvements were funded in 1945 with the passage of that year's River and Harbor Act. Creation of a 25-foot deep and 150 foot wide channel, as well as a turning basin, in the Alafia River were required. The Sparkman Channel was widened to 400 feet between July 1947 and May 1949, and the Ybor channel was widened to 500 feet. In addition, the bend between the Spaceman and Garrison channels was widened by 250 feet.

Projects mandated by the River and Harbor Act of 1950 were all completed by 1960 (USACE 1962, Pt. 1:510-11). These included increasing the Egmont Channel to 36 feet, enlarging Mullet Key, Tampa Bay, Hillsborough Bay, Port Tampa Channels and Port Tampa turning basin to their present depths, increasing Sparkman and Ybor turning basins to 34 feet, increasing the Alafia River channel to 30 feet by 200 feet, and its corresponding turning basin to 700 feet by 1200 feet with a 30 foot depth. During this period the Bob Graham Sunshine Skyway Bridge connecting St. Petersburg with Bradenton was constructed. Opened in 1954, the original bridge was a two-lane steel cantilever bridge with a vertical clearance of 150 feet that replaced a ferry from Point Pinellas to Piney Point. A similar two-lane bridge was built parallel to it in 1969 to make it an Interstate standard four-lane bridge. These were replaced by the current bridge that opened in 1987.

The River and Harbor Act of 1962 called for the creation of Port Sutton, with a 30-foot channel and turning basin (USACE 1970, pt. 1:300). Work on Port Sutton continued with the River and Harbor Act of 1970, increasing the channel to 44 feet deep and 200 feet wide, and the tuning basin to 44 feet deep and 1200 feet in diameter (USACE 1979, Pt. 1:41). Also, the main channels of the bay were to be increased in depth and width. The Tampa Bay Channel was increased to 44 ft deep and 500 feet wide, while the Hillsborough Bay Channel was increased to 44 feet deep and 500 feet wide from Tampa Bay Channel to Port Sutton, and 42 feet to Seddon and Sparkman Channels. Sparkman Channel was increased to 42 feet and Ybor was increased to 40 feet deep and 300 feet wide. The Ybor turning basin was increased to 42 feet in depth and 200 feet in scope. The Big Bend Channel was originally dredged by private interests to provide access between the Main Ship Channel and southeastern Hillsborough County. Dredging began in 1967 to create a channel 34 feet deep and 200 feet wide. Dredged material was disposed of on upland areas. A turning basin and inner channel were completed in 1969. The Big Bend Channel was fully operational in 1970 (USACE 2000). However, the TPA began planning in the late 1970s for maintenance dredging. Disposal islands 2D and 3D had been created between 1978 and 1982 during the federal government's deepening of Tampa Harbor. Plans call for deepening Big Bend Channel, East Channel, and the Inner Channel to 41 feet, widening the entrance to the channel from 200 to 250 feet for about 1.9 miles, and deepening the existing turning basin to 41 feet. An estimated 3.5 million cubic yards of dredge material would be placed on Disposal Island 3D, about one mile from the entrance to the Big Bend Channel (USACE 2000).

In addition to these channel improvements, plans were made to build Port Manatee in the southeast corner of the bay. After several years of political and legal fights Port Manatee and its

access channel opened in September 1970. The first cargo unloaded was from the M/S *Fermland*, a Swedish freighter carrying a load of plywood from Korea for Vancouver Plywood Company, the port's primary tenant at the time. The Belcher Oil Company was building two bulk oil storage tanks and a 1/2-mile pipeline for taking oil from the tanker off-loading area to the Belcher "tank farm" to supply oil for Florida Power Corporation's new Crystal River power plant. Florida Power and Light had just announced plans to build a \$100-million power generating plant just to the south of Port Manatee (*FJC*, Nov 1970, 12(11):11).

### ***PREVIOUS INVESTIGATIONS***

One of the best tools for accurately assessing the potential for submerged cultural resources is to compare the project area with findings and results of previous investigations, including both remote-sensing and cultural resources surveys which have been completed in or near the current project area. Varying in degree of applicability to our research, these studies allow us to identify potentially significant resources, and help in the recognition of specific problems or aspects inherent in the assessment of survey data and in the identification of potential resources.

Perhaps the earliest submerged cultural resources investigation conducted in the Tampa Bay area was a study performed by Espey, Huston & Associates, Inc. (currently PBS&J). In 1988, they conducted a magnetometer survey of a proposed sand borrow site and sand transfer site north of Egmont Shoals for beach renourishment at Indian Rocks, Pinellas County, Florida. Thirty-four anomalies were recommended for additional investigation (Gearhart 1988). These targets were later investigated by Panamerican Consultants, Inc, two of which were identified as historically significant shipwreck sites (Krivor 2005).

In 1998, Dolan Research conducted a remote sensing survey of two offshore sand borrow areas as part of beach replenishment project on Sand Key in Pinellas County. Including both magnetic and side scan survey, this investigation located two targets that met established criteria for the existence of historically significant submerged cultural resources. It was recommended that these two targets be avoided, or if avoidance is not possible, that they receive additional investigation via diver inspection (Cox 1998).

Also in 1998, Mid-Atlantic Technology/Environmental Research conducted a literature search and remote sensing survey of four large borrow areas in the Treasure Key Segment of the Pinellas County Shore Protection Project. Results of the investigation indicated no targets meeting criteria for significant cultural resources (Hall 1998).

Mid-Atlantic Technology/Environmental Research also conducted a literature search and remote sensing survey in 1999 of the Johns Pass navigation Channel, Pinellas County, Florida. Fifteen



magnetic anomalies were recorded but none retained characteristics of potentially significant resources. Additional investigations were not recommended (Hall 1999).

In 1999, Tidewater Atlantic Research conducted a cultural resources remote sensing survey of Alafia, Port Sutton, and Ybor Channels as part of a Jacksonville District COE channel modification project (Watts 1999). Performed along with a historical assessment of Tampa Harbor, this survey located 19 magnetic targets, with 18 in the Alafia River, one in Ybor Channel and none in Port Sutton Channel. Of the 19 targets, only two were considered to represent potentially significant submerged cultural resources, and were thought to be associated with previously identified, NRHP-eligible archaeological sites. It was recommended that additional investigation be undertaken to identify and assess the source of the anomalies.

In 2001, Tidewater Atlantic Research conducted a remote sensing survey of a proposed sand borrow area on the north side of Egmont Channel. The study identified 11 magnetic targets, three of which were considered potentially significant and are associated with previously identified NRHP-eligible submerged cultural resources. It was recommended that the three targets be avoided, or barring that, investigated further (Watts 2001).

In 2001, Mid-Atlantic Technology and Environmental Research, Inc conducted a remote sensing survey for the Jacksonville District U.S. Army Corps of Engineers of three sand borrow areas in the vicinity of Blind Pass and Pass-a-Grille navigation channels in Pinellas County, Florida (Hall 2001). The survey located a total of 16 targets, with seven in Blind Pass and nine in Pass-a-Grille. Of these 16 targets, five in Blind Pass and three in Pass-a-Grille were determined to be potentially significant based on their signature characteristics. These targets were recommended for diver investigation or avoidance.

In another 2001 survey, Mid-Atlantic Technology and Environmental Research, Inc., conducted a literature search and remote sensing survey at the entrance to Port Manatee Harbor (Hall 2001c). A total of 13 magnetic and acoustic targets were recorded during the survey, of which six were recommended for additional investigation. A subsequent study by Tidewater Atlantic Research (Watts 2002) revealed that the six targets, along with two additional targets, were either naturally occurring or associated with non-significant modern debris.

In 2003, Tidewater Atlantic Research conducted a target relocation and diver assessment of 8 magnetic anomalies identified during a previous survey of borrow areas in the vicinity of Egmont and Pass-a-Grill channels (Watts 2003). Of the 8 targets, seven were non-significant modern debris, and one was associated with a known wreck listed on NOAA chart 11412. However, probing detected no articulated vessel remains at that site. Also undertaken was an additional remote sensing survey in the vicinity of Pass-A-Grille channel. This survey located

36 additional anomalies, three of which were considered potentially significant. Diver investigation of these anomalies revealed modern debris as the sources.

Located to the south and east of the current Project Area, the Port Dolphin pipeline survey and reroute survey (Landry et al. 2008, 2008a) did not identify any potentially significant anomalies or sidescan targets opposite the current Project Area, but did identify relict channel features, although the record is not of useable size. Conducted for the Florida Aquarium as a multi-year project employing volunteer divers, the Tampa Shipwreck Surveys of 2007 and 2008 examined areas well away from the current Project Area (Morris et al. 2007, 2008).

Several recent surveys within Tampa Bay are extremely relevant to the current DMMP investigation. One of the most relevant to the current project is the previous remote sensing survey of the Tampa Bay navigation channels and subsequent diver investigations of potentially significant anomalies (Lydecker 2005). Conducted by Panamerican, the project areas included adjacent both sides of Cuts A&B, adjacent both sides of the existing ship channel into the port of St. Petersburg, proposed bypass, three possible deep-water anchorage areas along the main channel, and the proposed new channel due south of the Port Tampa channel (Figure 9). The remote-sensing survey phase recorded a total of 475 magnetometer anomalies and 539 sidescan sonar targets, of which 31 were recommended for assessment and identification by archaeological divers. Of the 31 targets investigated, several fell near the Project Area (Figure 10). Subsequent diver investigations indicated that none represented significant historical resources, and no further investigation of any was recommended. Note that this research was performed without subbottom profiler, as it was conducted before the State of Florida required its use which it does now. Furthermore, the survey only covered outside the top edge of the channel with a footprint somewhat different in size than the current study area. The actual channel, which has the potential to contain significant resources, still requires a comprehensive survey.

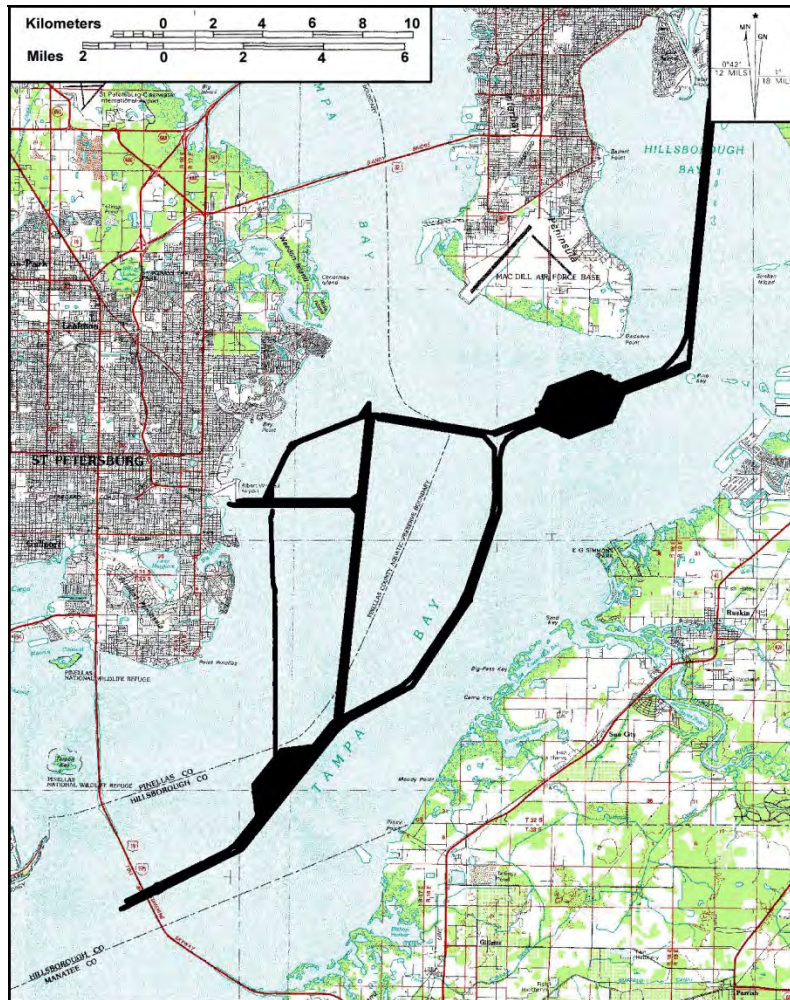
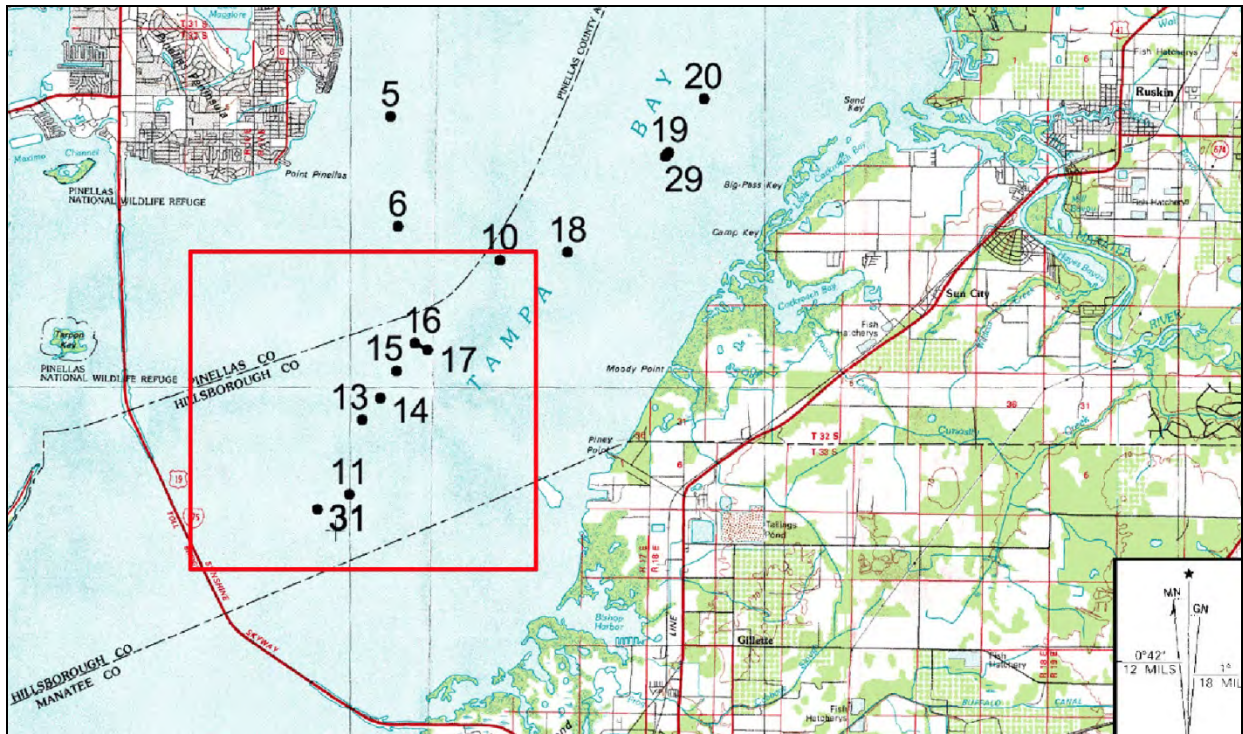


Figure 9. Location of the 2005 survey area (as presented in Lydecker 2005). Note this survey did not employ a subbottom profiler, a current requirement by the State and it only covered outside the top edge of the channel with a footprint somewhat different in size than the current APE.

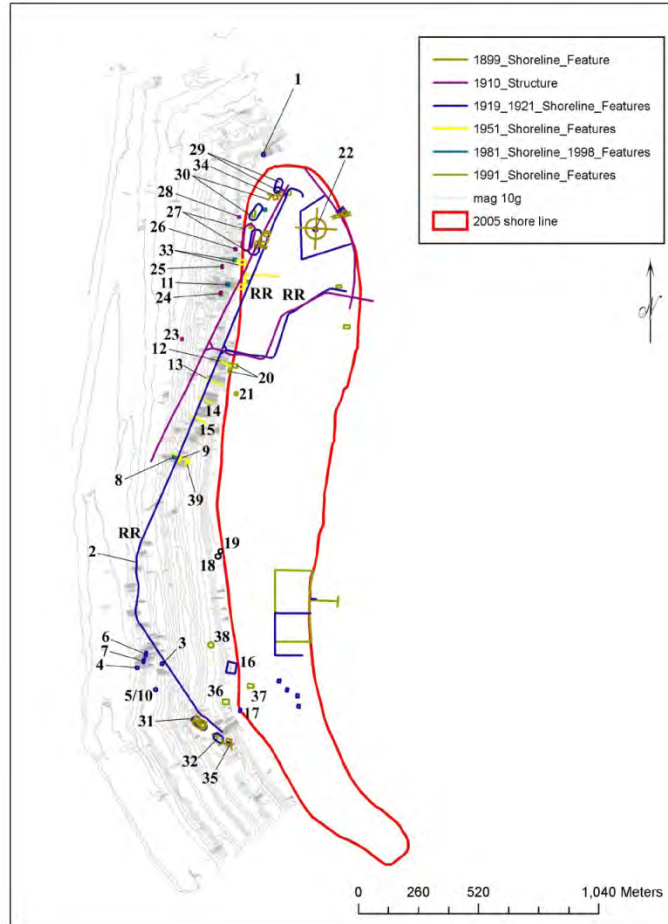


**Figure 10. Location of the dive targets adjacent to the current Project Area (as presented in Lydecker 2005).**

In 2009 a remote sensing survey was conducted adjacent to and outside the top edge of the channel of Cuts A and B in the southern part of the bay for the Jacksonville District by Panamerican and under subcontract to GEC, Inc. of Baton Rouge, La. Employing sidescan, a magnetometer, and a subbottom profiler numerous subbottom features potentially conducive to prehistoric habitation were located and recommended for avoidance or further study (Faught and James 2009). Nine of the targets were subsequently investigated in 2010 and all were found not to be associated with cultural resources (Faught and James 2010).

Also extremely relevant to the current investigation is Panamerican’s 2005 study of Egmont Key, an aspect of the current DMMP. The remote sensing survey recorded numerous anomalies and diver investigations of a number of the targets indicate that many historic features associated with Fort Dade remain in situ offshore from the western shoreline of Egmont Key. The various features identified include numerous concrete foundations (i.e. Fog Bell, ammunition bunkers, rifle range shelters, power plant, rifle range butt), Battery Burchsted, Battery John Page, as well as additional structures associated with historic Fort Dade. Illustrated in Figure 11, these features are considered as contributing components to the National Register listed Egmont Key site (James et al. 2006).





**Figure 11. Magnetic contours overlain onto a current shoreline map along with positions of historic features and structures.**

Relevant to the potential for submerged prehistoric sites near the APE, Panamerican recently conducted an archaeological inspection of three portions of the Gulf Stream/Bartow Lateral pipeline trench excavated in Tampa Bay considered to hold potential for submerged prehistoric remains. Located along and through the northern margins of now submerged Paleolake Edgar and a possible shell mound, all located in the northern part of the bay (Figure 12), the investigation revealed one isolated artifact, a non-diagnostic hammer stone. Located from and along the northern lake margin trench, the hammer stone, as well as items of wood, oyster, and rock, items indicative of impacts with terrestrial or lake-marginal sediments, were observed. It was concluded from these finds that future projects should consider these areas to hold potential for submerged prehistoric archaeological sites (Faught 2008).



**Figure 12. Aerial image showing the route of the Bartow Lateral Pipeline trench in red and the three areas designated for inspection after trenching activities in blue (as presented in Faught 2008).**

In addition, the original project identified an apparent positive relief feature that was considered a possible shell midden. Positive relief features on subbottom records are predictable phenomena given that piles of erosion resistant material of differential character than the surrounding sediments should be perceivable with sound underwater imagery (e.g. subbottom profiler), and therefore they have long drawn submerged prehistoric archaeologists as potentially identifiable features to find in places that have otherwise impossibly similar images to search (Stright 1995).

The need to test whether these features are indeed shell mounds remains to this day with one exception described below, and this need has resulted in a Minerals Management Service (MMS) funded study being conducted at the time of this writing by researchers from LSU geology to core and investigate positive relief, and other geomorphic, settings and investigate their true character. One positive relief feature cored was comprised of shell, but whether the accumulation is cultural or natural of origin remains to be tested (Amanda Evans, Tesla Offshore, Inc. personal communication 9/22/09).

The positive relief feature identified in Tampa Bay by the Bartow Lateral remote sensing operations, and recommended by Panamerican was indeed a portion of shell bed, confirming the identification as a “positive relief” more dense reflector, but diving operations showed that the bed was an remnant portion of a thick bed of marine shell, of earlier than Wisconsinan time (i.e. older than 70,000 years ago, well out of range of any possibility for human presence. This inference is based on the last known submergence of Tampa Bay by the sea which would be during the last (Sangamon) glacial cycle.

Piper Archaeology’s survey of St. Petersburg (Piper 1987) also resulted in data pertinent to this addendum with respect to prehistoric populations in the very local area at times when sea levels were lower and the bay was a wide valley. Piper modeled two clusters of evidence for Paleoindian and Early Archaic people in the peninsula that is St. Petersburg. The first cluster of “Paleo-Indian and early Archaic (sic) sites ... are found along the beaches of the lower peninsula from Maximo Park to Pinellas Point, and in spoil deposited by dredge and fill activities in this area and on Coquina Key” (Piper 1987:37). Piper models that the materials come from “prehistoric sites that are presently located offshore ..... along the original channels of the Hillsborough River and its major tributaries.” (ibid:37). The second cluster is north of the city where Saw Grass Lake points were found in the dune ridges there. The dune ridges are of interest in that strata in dunes are likely places for archaeological materials.

Piper also noted that Middle Archaic sites were most common in their survey and that wetland or bog deposits have produced human remains. In particular, Maximo Moorings, from nearby the project area (PI 1201) produced skeletal material found protruding from a drag line cut in a matrix of dark organic muck. This implies, as the model already states, margins of drainage channels (including slackwater and pond water deposits) are likely locations for archaeological sites.

Also relevant to submerged prehistoric resources within the bay, Panamerican conducted a remote sensing survey for the Tampa Port Authority’s proposed Berth 214/215 and Berth 218 located in the northeastern portion of the bay at Port Sutton. Lacking any potentially significant anomalies or sidescan targets within the survey data, subbottom results indicated paleosurfaces buried under portions of “made-land” (Faught and James 2007). Monitoring recommended by Panamerican of dredge materials identified several lithic artifacts including a diagnostic Marion PPK, middle archaic variety made from fine grain variety Bay Bottom Chert (Faught and Ambrosino 2007). Another remote sensing survey conducted by SEARCH in the immediate vicinity was negative for paleosurfaces (Burns 2007).

## ***SHIPWRECK INVENTORY***

A multitude of European-built or European-style vessels visited the Tampa Bay area during early American history. However, there is little specific information on vessels in use prior to 1870. Little evolution of sailing craft occurred from the time of early colonization to the eighteenth century. Upon the introduction of the schooner in the early eighteenth century, great improvements in ship design began to take place. The large, billowy sails of the age of exploration disappeared, replaced by taller masts and more sails of smaller dimension. Hulls became longer and more hydrodynamic, while the fore and aftercastles disappeared. Rigging became lighter and stronger as better materials were developed. In the nineteenth century, the sizes of vessels increased dramatically, culminating in the huge clipper ships and down-easters of the 19<sup>th</sup> century. Metals replaced wood in the construction of hulls and fittings, while wire replaced hemp in the rigging. Eventually, steam replaced sail altogether, although not until the twentieth century.

Regarding the Tampa area, there were essentially two types of steamboats employed in the area: the western rivers sidewheel and sternwheelers, and the eastern seaboard sidewheeler. The eastern-built, coastal sidewheelers were well represented in the Gulf Coast area, serving as passenger and freight carriers, bay ferries and pleasure cruise boats. Propeller driven short run or excursion steamers also plied the waters of Tampa Bay as did numerous types of fishing vessels, especially the shrimper whose modern descendents still work the local waters.

Though less romanticized than the steamboats which plied the bay and rivers, one of the most prolific class of vessels found on the area waters were the schooners. Lasting through the first half of the twentieth century, eventually driven out by the efficiency and ease of steam, these included large blue-water schooners, coastal schooners, and locally built fishing schooners, and ranged from small vessels with two masts to as many as five or six. These large schooners played a significant role in the local economy as lumber, and lumber products such as staves and shingles were an important commodity in the area. Another type of schooner used in the area was the light drafted coasting schooner. Flat-bottomed with a centerboard, it was designed to operate in the shoal water situations prevalent along the Gulf Coast waters and bays.

Besides the vessels employed to carry the products of the major industries in the Tampa Bay area, there were a number of smaller vessels such as sloops and launches, as well as utility vessels such as dredges and barges which were used in day to day activities throughout the bay. Together with the more dominant vessel types that plied the waters of Tampa Bay, many of them wrecked or were abandoned in the area.

To aid in the determination of the potential for historic shipwrecks within the area and the types of vessels these wrecks represent relative, a review of shipwreck losses is presented, as well as a compilation of shipwrecks which may be located within the project area. Analysis of primary



data, such as Life Saving Service Reports and National Oceanic and Atmospheric Administration (NOAA) AWOIS lists, as well as the studies of ship losses that have been conducted in general and for the Tampa Bay area, demonstrates that numerous vessels have been lost in the area since the early seventeenth century. However, the analysis does not indicate which, if any, vessels lie within or near the survey area.

A review of the Merchant Steam Vessels of the United States 1790-1868, also known as the Lytle-Holdcamper List, originally compiled in 1952 and reprinted in 1975, indicate the potential for vessels to be lost off the present project area. While not concerned with Tampa Bay directly, the volume is concerned with all steam vessels for the period noted. The "List" is a comprehensive register of most steam vessels in the United States and indicates the name, rig, tonnage, year and place built, first home port, and its final disposition. Also included is a list of losses; approximately 3,800 steam-powered vessels are noted as lost. It was this portion of the work that was examined with respect to losses in the project area. This listing is somewhat meager, as it only represents American steam vessels built through the Civil War; foreign registered and sailing vessels are not considered. Additionally, steam vessels would be the most likely to be represented in the remote sensing data due to their iron content. Thus, the list gives the indication that there is the potential to find the remains of early steam-powered vessels.

Local newspapers are often a good source of information concerning vessels lost in the area. A local wrecking event, particularly if it is high visibility or involves loss of life, is considered a newsworthy event for the local media. To this end, local newspapers and periodicals were reviewed, including the *Florida Peninsular*, *Florida Journal of Commerce*, *Port of Tampa Commercial Digest*, *Sunland Tribune*, *Tampa Journal*, *Tampa Tribune*, *Tampa Times*, and the *St. Petersburg Times*.

Previous archaeological remote sensing survey reports typically list vessels lost in the survey area. The reports reviewed as part of this project (see Chapter 3) were consulted in regard to vessels lost.

Northern Maritime Research publishes a database of American vessels lost around the world. The Northern Shipwrecks Database often contains additional wrecks and information beyond what is available in the NOAA source discussed above. This database was searched as part of this project. Other secondary sources, consulted as part of other aspects of this project, such as the historic background, were examined for references to wrecked or derelict vessels.

A list of all reported losses in Tampa Bay and that might be located in or near the project area is presented in Appendix A.

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**APPENDIX A**

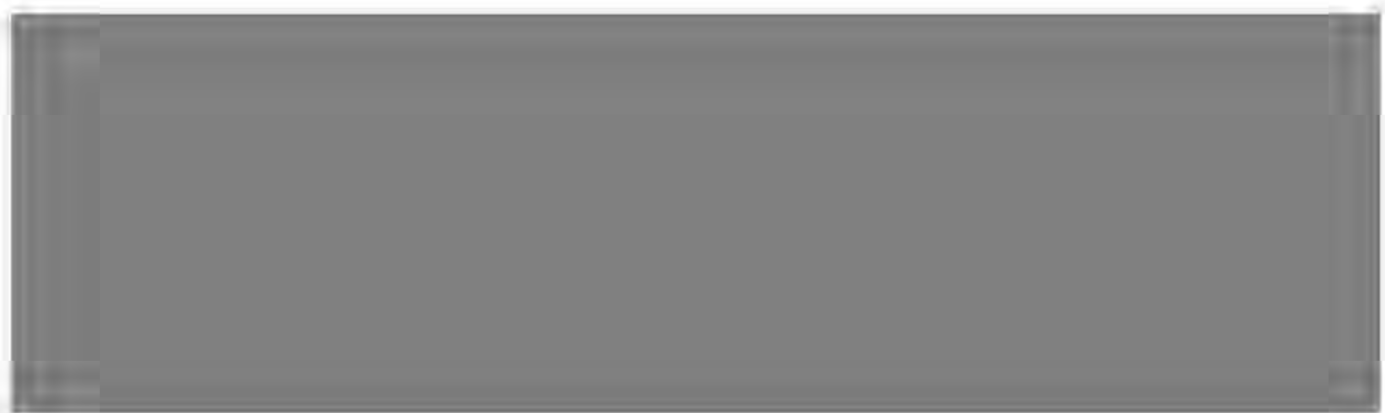
**SHIPWRECK LIST FOR THE PROJECT AREA**

Vessel Name	Vessel Type	Tons	Loss Date	Comment
A.A. Rowe	schooner	45	10/19/06	foundered on sand bar near Egmont Key
Adelaide Baker	schooner			
Almora	bark			
ALSATIA	dunno		1981	removed 1989
Amazone	tanker	1294	1942	torpedoed at 27 23'39"N 80 08" W by U333 F/V ANNA B. SUBMERGED IN 15FT OF WATER WITH 20 FT OF MAST ABOVE WATER; VESSEL EXPECTED TO BE SALVAGED IN NEAR FUTURE/ removed?
ANNA B	fishing vessel		1994	
Antarctic	sloop	61	1877	stranded at Perico Shoal/Tampa Bay
Anto	bark			
ANTONIA ENSEN	cargo		1943	SUNK IN 1943 STILL PRESENT, CARGO, 200 GT,SUNK 10/31/43 BY MARINE CASUALTY
Ardell	schooner	50	1906	Capsized south of Pinellas Point
Bay Queen	sidewheel steamer	298	July 21st, 1921	Hillsborough River
Belle	pilot schooner	23	2/8/1900	shore in fog south end of Egmont Key
Belmont	steel scow schooner Coast Guard bouy	1491	1940	foundered at entrance to Tampa Bay
Blackthorn	tender		1951	scuttled off Tampa after collision
BOORY STAR	unknown		1996	VISIBLE WRECK, 41FT VESSEL
Brandon	bark			
BRETON II	dredge			THE 123-FT DREDGE BRETON II IS SUNK IN ABOUT 10 FT OF WATER
Broward II	dredge	358	7/26/74	Cut C off Gadsden Point
Campeche	fishing vessel	31	3/7/65	stranded Southwest Pass, Egmont Key
Candice	motor vessel		1969	foundered off Clearwater Pass REPORTED BURNED AND SUNK IN TAMPA BAY, WEST OF CUT J CHANNEL ITEM DISPROVED SSS. UPDATED 9/98 MCR
CAPT J	unknown			Sunk by Union vessel Ethan Allen in Clearwater harbour
Carolina	Confederate sloop		1862	
Carolina Kage	schooner	20	1902	stranded at Tampa Bay SUNK IN 3 FT OF WATER ABOUT 1.5 MI. 196 DEG. FROM EGMONT KEY SUBSEQUENTLY REPORTED SUBMERGED
CINDY	tug			
Cindy	tug		1965	wrecked 1.5 miles from Egmont Key light
City of Athens	sternwheel steamer	23	June 4, 1885	Tampa Bay
City of Sarasota	steamer	125	Nov 5th, 1919	foundered near Tampa - HAVE PHOTO
Cochran	steamer			
DANIA	dredge	242	Feb 15th, 1958	REPORTED SUNK IN 23 FT OF WATER east of Cut F
Davy Crockett	schooner	85	July 8th, 1908	Stranded at South Pass constructed 63. burned in Tampa Harbor - Hillsborough River entrance/removed
Dictator	wooden sidewheeler	512	Dec 26, 1884	SUNK 9/26/43 BY MARINE CASUALTY
DOLORES	cargo		1943	
EMPRESS ANN	unknown		1967	WK SUNK IN 1967 STILL REMAINS
Eugene Batty	schooner	19	Jan 30th, 1908	cut leading in to Hillsborough river

Evening Star	schooner		22 Nov 1870	wrecked at Clearwater Harbor (Florida Penninsular 30 Nov 1870 2:4
Exchange	schooner		Jan 13,1836	ashore at Tampa Bay BURNED AND SUNK IN TAMPA BAY WRECK WAS LOCATED BY DIVER LOCATOR i SONAR, WITHIN GIVEN SEARCH RADIUS. LEAST DEPTH WAS 20 FT IN POS.
F/V CAPT J Fanita	fishing vessel steam yacht		unkn	abandoned and sunk at Tampa 20FT WRECK "FAR CRY" IN VISIBLE ABOVE THE WATER 80 FT. FILLETE WAS REP. SUNK IN 1957
FARCRY	unknown		unkn	
FILLETE Flying Fish	unknown schooner		1957 Dec. 1869	wrecked in Tampa Bay wrecked midway between Gadsden Pt and Pt Pinellas, total loss (Florida Penninsular 22 Oct 2:1
Fox Frederick De Bary (later City of Tampa)	schooner		1859	palace steamer of de Bary Transport Line. Burned to waterline at wharf at foot of Laura St. (Florida Penninsular 3 Dec 1883)
G.L. Daboll	steamer schooner			stranded Egmont Key
Gemini	oiler	49	4/17/06	stranded at Egmont Key
Gulfland	tanker	101	12/20/73	burned/grounded off Hobe Sound CARGO, 224 GT; SUNK 2/13/43 BY MARINE CASUALTY
GULFPORT	cargo		1943	
Gwalia	steamer	415	12/4/25	foundered near egmont Key
H.A. Dewitt	schooner		6/16/1891	abandoned Egmont Key torpedoed at 27 33' N 80 03' 08" W by U333
Halsey	tanker	7088	1942	
Henry Stanbury	schooner	59	July 5, 1898	off Gadsden Point
Idonia	schooner		Dec. 1869	wrecked in Tampa Bay
Iola	screw steamer motor yacht ex	72	July 6th, 1912	Burned in Tampa Bay
Iris	schooner	32	Jan 22nd, 1922	Burned in Tampa Bay
Isis	sidewheel steamer	130	Jan 5, 1842	built 1837, burned at Tampa
JACKIE M	unknown		1979	THE JACKIE M REP. SUNK IN 1979
Jimmie	schooner	18	July 10th, 1909	Exploded at Tampa
John Francis	schooner	322	5/29/19	stranded on Egmont Key
John Smart	schooner	17	10/3/1900	wrecked Mullet Key shoal
Josephine	yacht	32	1927	foundered at St. Petersburg
Leslie Ann	fishing vessel	38	1965	foundered of St. Petersburg
Lewis	sidewheel steamer	127	Oct 11, 1903	Tampa
Lily White	schooner	55	Dec 23rd, 1910	burned at Tampa THE WRECK OF THE 72 FOOT F/V LOUANNA LIES SUNK, WITH 15 FT OF THE BOOM SHOWING ABOVE THE WATER. DISPROVED SIDE SCAN SONAR INVESTIGATION near Tampa
LOUANNA	fishing vessel		Dec 10th, 1959	THE 20FT S/V MAGEWIND SUNK IN 1 FT OF WATER
MAGEWIND	survey vessel		1999	SAILBOAT, 40 FT L, SUNK IN ABOUT 1 FT OF WATER/removed
MAGEWIND Marcelo	sailboat bark			

Marie Frederika	ship				reportedly went ashore between Apalachicola and Tampa
Marion	steamer		November 1836		
Mark E. Singleton	oiler	99	8/1/67		burned off Egmont Key
Mary B. Williams/Franklin	motor vessel	25	1913		Burned in Tampa Bay
Mary E.	motor vessel	25	1961		Stranded at John's Pass, Madiera Beach
Mary E. Singleton	steamer - oil fired		1967		burned off Egmont Key
Mary Jane	British schooner		1863		Chased ashore at Clearwater by Union steamer Tahoma
Mildred (ex City of Haverhill)	steamer	343	November , 1914		collided with schooner Brazos seven miles south of Egmont Key
Millie Wales	steamer	85	1885		Burned in Tampa Bay. Sponge fishing vessel owned by Pensacola Fish and Ice Company/removed
Miss Powerama	fishing vessel	64	1962		stranded off Passage Key/Tampa Bay
Miss Powerama		64	1/31/62		stranded at Passage Key
Mylu	motor yacht	27	Aug 29th, 1918		Tampa Bay
No. B-29	steel barge	936	Sept 18th, 1955		foundered in Tampa Bay
Okeechobee	dredge	116	Sept 23rd, 1947		2 miles east of Gadsden cut
Pokanoket	steamer				abandoned in Sparkman Bay ND
Rambler	schooner	29	Dec 15, 1894		Tampa waterfront
Rampart	unknown	38	June 30th, 1961		One mile off Davis Island
Rosa	schooner		Dec. 1869		wrecked in Tampa Bay
Rosalie	schooner				
Sammy Lee	schooner	20	1902		Collided with dock in St. Petersburg
Sandy Belle	fishing vessel	79	1972		foundered 3 miles of Clearwater
SEA GAL	unknown				28 FT VESSEL PREVIOUSLY REPORTED SUNK HULK REMAINS SANDED-IN
SEADUCER	pleasure				18 FT COBIA, SEADUCER REPORTED SUNK IN SW CHANNEL IN ABOUT 28 FT OF WATER
Silver Spray	schooner	24	Aug 16, 1893		Port of Tampa
Spitfire	Confederate schooner		1862		Sunk by Union vessel Ethan Allen in Clearwater harbour
Stranger ex Hilde M.					
Stark	schooner	596	Sept 15th, 1927		burned at Tampa
Sunoco Jr.	motor vessel	29	Sept 23rd, 1925		burned at Tampa
Theodore Weems ex East Side	iron screw steamer	926	Mar 27th, 1915		collided with SS Herodia
Thomas B. Garland	3 masted schooner	348	Oct 27th, 1921		stranded at Tampa
TONGA	sailboat				SAILBOAT TONGA BURNED AND SUNK OFF SNELL ISLAND VESSEL WAS POSSIBLY OWNED BY ERROL FLYNN. LAST OWNER WAS KATHY LEE OF CLEARWATER, FL
U.S.S. Narcissus ex Mary Cook	steam tug	115	Jan 4th, 1866		sank off Egmont Key
unknown	unknown		1535		Juan Munoz found in Tampa Bay 1549. Possible Spanish wreck survivor
unknown	unknown		1567		Potuguese trader found by Spaniards exploring Tampa Bay. Thought to be shipwreck survivor
unknown	drydock				

unknown	lighter			removed 1896-97 by Burton E. Coe for \$271.92
UTOPIA	survey vessel		1995	VISIBLE WRECK OF THE S/V UTOPIA REPORTED
Vaudalia	motor vessel	109	1913	burned at St. Petersburg
W.W. Phipps	tug	13	Oct 11th, 1912	Alafia River
Wallace McDonald	motor yacht	20	Sept 17th, 1928	foundered in Tampa Bay
Watulla	schooner	14	1/4/1891	ashore south edge of Egmont Key
Wave	schooner	67	Nov 3rd, 1908	burned at Tampa
YSD 71	pile driver/derrick	138	1972	foundered off St. Petersburg SUNK IN 1945 STILL PRESENT SANK BEFORE WW II, REPORTED THRU OCGR; LOCATED IN 1950
ZALOPHUS	unknown		<1945	







Jeb Bush  
Governor

# Department of Environmental Protection

Marjory Stoneman Douglas Building  
3900 Commonwealth Boulevard  
Tallahassee, Florida 32399-3000

Colleen M. Castille  
Secretary

## CONSOLIDATED ENVIRONMENTAL RESOURCE PERMIT AND SOVEREIGN SUBMERGED LANDS AUTHORIZATION

### PERMITTEE/AUTHORIZED ENTITY:

U.S. Army Corps of Engineers  
c/o Mr. Richard E. Bonner, P.E.  
P.O. Box 4970  
Jacksonville, Florida  
32232-0019

### PERMIT INFORMATION:

Permit/Authorization No. 0157891-009-DF

Issuance Date: April 7, 2006

Expiration Date: April 7, 2016

Project Name: Tampa Harbor Comprehensive  
Maintenance Dredging Project

Counties: Hillsborough and Pinellas

This environmental resource permit is issued under the authority of Part IV of Chapter 373, Florida Statutes (F.S.), and Title 62, Florida Administrative Code (F.A.C.). The activity is not exempt from the requirement to obtain an environmental resource permit. Pursuant to Operating Agreements executed between the Department and the water management districts, as referenced in Chapter 62-113, F.A.C., the Department is responsible for reviewing and taking final agency action on this activity.

### ACTIVITY DESCRIPTION:

The project is to conduct maintenance dredging of the federally authorized channels within Tampa Harbor and the berths of the Tampa Port Authority. This project consists of approximately 67 miles of existing channels and berthing areas and the previously approved disposal sites. The channels to be maintained include:

- Egmont Bar Channel, Cuts 1-2 (sheets 2-4).
- Mullet Key Channel (sheet 4).
- Tampa Bay Channel, Cuts A, B, C, D, E, F, G, J, J-2, and K (sheets 5-8).
- Gadsden Point Cut (sheets 7 and 9).
- Big Bend Channel (sheet 9).
- Hillsborough Bay Channel, Cuts A, C and D (sheets 9-10).

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- Alafia Channel (sheet 10).
- Port Sutton Channel (Sheet 10).
- East Bay Channel, East Bay Extensions 1 and 2, Lower Sparkman Channel, Upper Sparkman Channel, Sparkman Channel, Ybor Channel and Seddon Channel (sheet 11).

The authorized dredged material disposal areas include:

- Ocean Dredged Material Disposal Site (ODMDS) #4, (sheet 12).
- Egmont Key shoreline and nearshore disposal sites (beneficial use sites) (sheet 13).
- Diked Construction Maintenance Disposal Areas 2D and 3D (sheet 15).
- Upland disposal areas A, B, and C, and Bird Island (sheet 15).
- In-water dredged holes (beneficial use sites).
  - MacDill Runway Extension (sheet 14).
  - McKay Bay (sheet 15).
  - Whiskey Stump Key Holes 1 & 2 (sheet 15).
  - Northshore Beach (sheet 14).
  - Gandy Channel North (sheet 14).

**ACTIVITY LOCATION:**

The activity is located in Hillsborough County (not sovereign submerged lands) and Pinellas County, within Tampa Bay, Hillsborough Bay and the Gulf of Mexico, Class III and Class II Waters, Conditionally-approved Shellfish Harvesting area, Pinellas County Aquatic Preserve, Outstanding Florida Waters.

The Department acknowledges that the maintenance dredging of navigational channels and specified berths falls within one of the federal powers listed in the Submerged Lands Act under 43 U.S.C. 1311(d) or 43 U.S.C. 1314, and, under those provisions, needs no authorization from the Board of Trustees to utilize sovereignty submerged lands. However, under the provisions of the Coastal Zone Management Act (16 U.S.C. 1451-1465), this activity requires Florida's concurrence with a determination of consistency with the sovereignty submerged lands provisions of Florida's approved Coastal Management program prior to federal approval of the proposed activity. The State has determined that the activity is consistent with the sovereignty submerged lands provisions of Florida's approved Coastal Management program.

This permit constitutes a finding of consistency with Florida's Coastal Zone Management Program, as required by Section 307 of the Coastal Zone Management Act. This permit also constitutes certification of compliance with state water quality standards pursuant to Section 401 of the Clean Water Act, 33 U.S.C. 1341.

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This permit constitutes a determination, pursuant to Section 380.0651(3)(e), F.S., that the activity will not adversely impact Outstanding Florida Waters or Class II waters, and will not contribute to boat traffic in a manner that will adversely impact the West Indian manatee.

**As staff to the Board of Trustees, the Department has reviewed the activity described above, and has determined that the disposal activities in Pinellas County qualify for a letter of consent to use sovereign, submerged lands, as long as the work performed is located within the boundaries as described herein and is consistent with the terms and conditions herein. Therefore, consent is hereby granted to the Tampa Port Authority, pursuant to Chapter 253.77, Florida Statutes, to perform the activity on the specified sovereign submerged lands.**

The above named permittee is hereby authorized to construct the work shown on the application and approved drawing, plans, and other documents attached hereto or on file with the Department and made a part hereof. This permit is subject to the limits, conditions, and locations of work shown in the attached drawings, and is also subject to the attached General Conditions and Specific Conditions, which are a binding part of this permit and authorization. The Plans and Specifications are also an enforceable part of this permit. The permittee is advised to read and understand these drawings and conditions prior to commencing the authorized activities, and to ensure the work is conducted in conformance with all the terms, conditions, and drawings. If you are utilizing a contractor, the contractor also should read and understand these drawings and conditions prior to commencing the authorized activities.

**GENERAL CONDITIONS:**

1. This permit, including its general and specific conditions, must be construed in light of the Interagency Cooperative Agreement for Civil Works Projects (ICA) between the Department and the Corps. As recognized in the ICA, the Department has the authority to include reasonable conditions in this permit. All of the conditions in this permit, both general and specific, are enforceable to the extent sovereign immunity has been waived under 33 U.S.C. §§ 1323 and 1344(t). The ICA is incorporated herein by reference.
2. All activities approved shall be implemented as set forth in the drawings incorporated by reference and in compliance with the conditions and requirements of this document. The USACE shall notify the Department in writing of any anticipated changes in:
  - a. operational plans;
  - b. project dimensions, size or location;
  - c. ability to adhere to permit conditions;
  - d. project description included in the permit;
  - e. monitoring plans.

If the Department determines that a modification to the permit is required then the USACE shall apply for and obtain the modification. Department approval of the modification shall be obtained prior to implementing the change, unless the change is determined by the Department to reduce the scope of work from that authorized under the original permit, and will not effect compliance with permit conditions or monitoring requirements.

3. If, for any reason, the USACE does not comply with any condition or limitation specified herein, the USACE shall immediately provide the Department with a written report containing the following information:
  - a. a description of and cause of noncompliance;
  - b. the period of noncompliance, including dates and times;
  - c. impacts resulting or likely to result from the non-compliance;
  - d. steps being taken to correct the non-compliance; and
  - e. the steps being taken to reduce, eliminate, and prevent recurrence of the noncompliance.

Compliance with the provisions of this condition shall not preclude the Department from taking any enforcement action allowed under state law with respect to any non-compliance.

4. The USACE shall obtain any applicable licenses or permits which may be required by federal, state, local or special district laws and regulations. Nothing herein constitutes a waiver or approval of other Department permits or authorizations that may be required for other aspects of the total project.
5. Nothing herein conveys to the USACE or creates in the USACE any property right, any interest in real property, any title to land or water, constitutes State recognition or acknowledgment of title, or constitutes authority for the use of sovereign land of Florida seaward of the mean high-water line or an established erosion control line, unless herein provided, and the necessary title, lease, easement, or other form of consent authorizing the proposed use has been obtained from the State.
6. Any delineation of the extent of a wetland or other surface water submitted as part of the application, including plans or other supporting documentation, shall not be considered specifically approved unless a specific condition of this authorization or a formal determination under Section 373.421(2), F.S., provides otherwise.
7. Nothing herein conveys any entrance upon or activities on property which is not owned or controlled by the USACE or local sponsor, or conveys any vested rights or any exclusive privileges.

8. This document or a copy thereof, complete with all conditions, attachments, modifications, and time extensions shall be kept at the work site on the authorized activity. The USACE shall require the contractor to review this document prior to commencement of the authorized activity.
9. The USACE specifically agrees to allow Department personnel with proper identification, at reasonable times and in compliance with USACE specified safety standards access to the premises where the authorized activity is located or conducted for the purpose of ascertaining compliance with the terms of this document and with the rules of the Department and to have access to and copy any records that must be kept; to inspect the facility, equipment, practices, or operations regulated or required; and to sample or monitor any substances or parameters at any location reasonably necessary to assure compliance. Reasonable time may depend on the nature of the concern being investigated.
10. At least forty-eight (48) hours prior to the commencement of authorized activity, the USACE shall submit to the Department a written notice of commencement of activities indicating the anticipated start date and the anticipated completion date.
11. If historic or archaeological artifacts such as, but not limited to, Indian canoes, arrow heads, pottery or physical remains, are discovered at any time on the project site, the USACE shall immediately stop all activities which disturb the soil and notify the Department and the State Historic Preservation Officer.
12. Within a reasonable time after completion of project construction or a periodic maintenance dredging event, the USACE shall submit to the Department a written statement of completion. This statement shall notify the Department that the work has been completed as authorized and shall include a description of the actual work completed. The Department shall be provided, if requested, a copy of any as-built drawings required of the contractor or survey performed by the USACE.

**SPECIFIC CONDITIONS:**

1. At least 30 days prior to the commencement of each maintenance dredging event to be conducted during the term of this permit, the permittee shall submit to the DEP Bureau of Beaches and Coastal Systems, 3900 Commonwealth Boulevard, Mail Station 300, Tallahassee, Florida 32399-3000 and to the DEP Southwest Office, Submerged Lands and Environmental Resource Program, 3804 Coconut Palm Drive, Tampa, Florida, 33619, a proposed schedule of dredging for the maintenance dredging event.
2. At least 7 days prior to commencement of the dredging authorized by this permit, the permittee shall conduct a pre-construction conference to review the specific conditions



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and monitoring requirements of this permit with the permittee's contractors, Contracting Officer Representative, and Department staff representatives. The permittee shall provide written notification, at least 14 days in advance of the meeting, to the following offices advising of the date, time, and location of the pre-construction conference:

DEP Bureau of Beaches &  
Coastal Systems (BBCS)  
JCP Compliance Officer  
Mail Station 300  
3900 Commonwealth Boulevard  
Tallahassee, FL 32399-3000  
Phone: (850) 414-7716  
Fax: (850) 414-7725

DEP Southwest District Office  
Permitting &  
Compliance/Enforcement  
3804 Coconut Palm Drive  
Tampa, FL 33619-8318  
Phone: (813) 744-6100

Imperiled Species Management  
Section FWC  
620 South Meridian Street  
Tallahassee, FL 32399-1600  
Phone: (850) 922-4330  
Fax: (850) 921-4369

DACS Division of Aquiculture  
Shellfish Harvesting Management  
South Gulf Office  
P. O. Box 189  
Murdock, FL 33938-0189  
Phone: (813) 255-0083

3. Final Plans and Specifications for this permit and subsequent maintenance dredging events under this permit shall be provided to the BBCS before work may begin.
4. At least 90 days prior to commencement of placement of material in the beneficial use sites at Egmont Key or the in-water dredged hole disposal areas, the permittee shall submit for review and approval, a dredged material **QA/QC plan**. The plan shall provide assurance that the material to be placed along the shore, or in the nearshore, of Egmont Key, meets the criteria specified in 62B-41.007, F.A.C, for the placement of dredged material. The plan shall also provide assurance that any material to be placed within the dredged hole (beneficial use) sites is free from elevated levels of metals or other contaminants and the sediment type is suitable to restore bay bottom contours and provide for re-colonization of estuarine habitat and organisms comparable to that of the neighboring bay bottom environments. The QA/QC plan may be submitted in two parts to address the two different material types.
5. The permittee shall submit project design drawings in advance of implementing each beneficial use dredged material disposal option.

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6. If seagrasses are found adjacent to the in-water dredged holes or any dredged material placement site, the permittee shall employ protective measures, such as turbidity curtains, to minimize the potential for adverse impacts to the maximum extent practicable.
7. Within 90 days following completion of each dredging event, a final report shall be submitted to the BBCS and DEP Southwest District Office. This report shall include the following information:
  - a. The location of the dredging and disposal sites used;
  - b. A description of the dredging and disposal methods and equipment used;
  - c. The dates on which construction began and the dates of completion;
  - d. Tables of turbidity data collected at the dredging and upland and nearshore disposal areas, including the location, date, and time for each sample collected, values for background samples, values for compliance samples, and the difference between background and compliance samples. Each table shall include a statement identifying any violations of turbidity standards which occurred during dredging or disposal, the probable causes of the violations, and corrective measures taken to reduce turbidity; and
  - e. The quality and quantity of material dredged and the quality and quantity of material placed in each disposal area.
8. State water quality standards shall be met during dredging, loading, transporting, and discharge of dredge material, as well as the discharge of return water from dredged material containment sites.
9. During all maintenance dredging and disposal operations, turbidity levels shall not exceed the standards and mixing zone limits described in the Monitoring Required section of this permit. The maximum mixing zone allowed shall be a circle with a radius of 150 meters originating from the dredge, barge/scow, or discharge pipe, as appropriate. Turbidity shall be monitored as described in the Monitoring Required section of this permit. Water and dredged material shall not be permitted to overflow or spill out of barges/scows during transport to the disposal areas.
10. The following measures shall be taken by the permittee whenever turbidity levels at the limit of the mixing zone exceed the standards described in the Monitoring Required section, pursuant to Rule 62-302, F.A.C.:
  - a. Immediately cease all work contributing to the water quality violation;
  - b. Modify the work procedures that were responsible for the violation; and
  - c. Notify the Bureau of Beaches and Coastal Systems at (850) 414-7716 and the DEP Southwest District Office at (813) 744-6100 within 24 hours of the time the violation is first detected.

11. During dredging and related activities, any anchoring operations to secure the dredge or equipment shall be conducted within the navigation channel or in areas where there are no seagrass, algal, hardbottom, or coral communities. No direct or secondary impacts are authorized to submerged aquatic vegetation, shellfish beds or hardbottom communities outside of the limits of the federally authorized channels. If any such impacts occur outside of the channel, the permittee shall immediately report the damage to the JCP Compliance Officer and take corrective action to avoid any further damage. Within 30 days of any such damage, the permittee shall propose a remediation/mitigation plan, which shall be implemented upon approval by the Department.

**MONITORING REQUIRED:**

12. Water Quality Sampling/Compliance

**Turbidity - Nephelometric Turbidity Units (NTUs)**

**Frequency**

Background: Equivalent to the corresponding Compliance Site Type.

Compliance Site Type 1 (where the mixing zone does not abut seagrass): Twice daily at least 4 hours apart during all dredging, filling, or disposal operations. If overflow occurs from filling of hopper dredge, disposal barge or scow barge, then monitoring shall occur at least once during each loading event when the turbidity reaches the edge of the mixing zone.

Compliance Site Type 2 (where a shortened mixing zone abuts seagrass): Hourly, when visual observation indicates a turbidity plume extends into areas containing seagrasses. If overflow occurs from filling of hopper dredge, disposal barge or scow barge, then monitoring frequency shall be increased to every 30 minutes during loading and up to 30 minutes after overflow has ceased.

**Location**

Background: At mid-depth, at least 300 meters upcurrent from the dredge, fill, or disposal site discharge point and clearly outside the influence of any turbidity generated by this project or other obvious turbidity plumes.

Compliance Site Type 1- At mid-depth, at the **mixing zone boundary** (150 meters from the edge of the active construction within waters/wetlands or point of discharge into waters/wetlands, but not beyond the edge of the nearest seagrass bed), downcurrent from the dredge or disposal site discharge point, within the densest portion of any visible turbidity plume.

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Compliance Site Type 2- At mid-depth, within the densest portion of any visible turbidity plume, no more than 150 meters downcurrent from the dredge, fill, or disposal site discharge point, or 1 meter within the **edge of seagrass areas** closest to the construction activity (whichever is less).

If at any time turbidity in the Pinellas County Aquatic Preserve or other OFW exceeds 0 NTU's above background levels at the edge of the 150-meter mixing zone, construction activities shall **cease immediately** and not resume until corrective measures have been taken, turbidity has returned to acceptable levels and the Department's JCP Compliance Officer has been notified. Outside of OFWs, if at any time turbidity at the compliance location exceeds 29 NTU's above background at the edge of the 150-meter mixing zone, construction activities shall **cease immediately** and not resume until corrective measures have been taken and turbidity has returned to acceptable levels. Any such occurrence of water quality violation shall be immediately reported to DEP's BBCS in Tallahassee at (850) 414-7716 (att: JCP Compliance Officer) and to the DEP Southwest District Office at (813) 744-6100 within 24 hours of the time the violation is first detected. Turbidity monitoring reports shall be submitted to the BBCS and DEP Southwest District, with reporting requirements as stipulated below.

Water Quality monitoring reports shall be submitted to the BBCS and DEP Southwest District Office on a weekly basis within seven days of collection. Reports shall be submitted under a cover letter containing the following statement: "**This information is provided in partial fulfillment of the monitoring requirements in Permit 0157891-009-EI Tampa Harbor Comprehensive Maintenance Dredging Project.**" The cover letter shall summarize any significant compliance issues. Also, please clearly reference permit number 0157891-009-EI on each page of the report. In addition to analytical results for samples and quality control, the report should also include:

- a. time of day samples were taken
- b. depth of water body
- c. depth of sample
- d. antecedent weather conditions
- e. tidal stage and direction of flow
- f. wind direction and velocity
- g. a statement describing the methods used in collection, handling, storage and analysis of the samples
- h. turbidity meter calibration
- i. a map indicating the location of the current construction activity, the sampling locations (background and compliance), and the visible plume pattern of the 150 meter mixing zone
- j. a statement by the individual responsible for implementation of the sampling program concerning the authenticity, precision, limits of detection and accuracy of the data.



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Failure to submit monitoring reports in a timely manner constitutes grounds for revocation of the permit.

13. Berthing Areas. Maintenance dredging of berthing areas for the Port of Tampa must follow the permit held by the Tampa Port Authority, including the water quality monitoring and disposal specified in permit DEP 29-126458-9 and modification 0190711-001.

**Protected Species**

14. For all berthing areas in Big Bend and Port Sutton and the Big Bend Channel and Port Sutton Channels, the following special conditions shall apply:
  - a. No clamshell dredging and disposal activities are authorized to occur between dusk and dawn.
  - b. Between November 15 and March 31, at least two designated manatee observers shall be present when in-water work is being performed. These observers shall be approved by the Florida Fish and Wildlife Conservation Commission at least two weeks before the beginning of construction, and be equipped with polarized sunglasses to aid in observation. The manatee observer must be on site during all in-water construction activities and will advise personnel to cease operation upon sighting a manatee within 50 feet of any in-water construction activity. Movement of a work barge, other associated vessels, or any in-water work shall not be performed after sunset, when the possibility of spotting manatees is negligible.
  - c. The permittee shall ensure that the contractor maintains a log detailing sightings, collisions, or injuries to marine species should they occur during the contract period. Following project completion, a report summarizing incidents and sightings shall be submitted to the Florida Fish and Wildlife Conservation Commission, Imperiled Species Management, MS 6A, 620 South Meridian Street, Tallahassee, Florida 32399-1600.
  - d. No blasting shall occur.
15. For all activities, in order to ensure that manatees and marine turtles are not adversely affected by construction activities, the following conditions shall be followed:
  - a. The permittee shall instruct all personnel associated with the project of the potential presence of manatees and marine turtles and the need to avoid collisions with

manatees and marine turtles. All construction personnel are responsible for observing water-related activities for the presence of manatee(s) and marine turtles.

- b. 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 of 1972, The Endangered Species Act of 1973, and the Florida Manatee Sanctuary Act.
- c. Siltation barriers shall be made of material in which manatees cannot become entangled, are properly secured, and are regularly monitored to avoid manatee entrapment. Barriers must not block manatee entry to or exist from essential habitat.
- d. All vessels associated with the construction project shall operate at "no wake/idle" speeds at all times 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.
- e. If manatee(s) or marine turtles are seen within 100 yards of the active daily construction/dredging operation or vessel movement, all appropriate precautions shall be implemented to ensure protection of the manatee or turtle. These precautions shall include the operation of all moving equipment no closer than 50 feet of a manatee or turtle. Operation of any equipment closer than 50 feet to a manatee or turtle shall necessitate immediate shutdown of that equipment. Activities will not resume until the manatee(s) or turtle has departed the project area of its own volition.
- f. Any collision with and/or injury to a manatee or marine turtle shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. Collision and/or injury should also be reported to the U.S. Fish and Wildlife Service in Jacksonville (1-904-232-2580) for north Florida or Vero Beach (1-772-562-3909 dial 0) in south Florida.
- g. Temporary signs concerning manatees shall be posted prior to and during all construction/dredging activities. All signs are to be removed by the permittee upon completion of the project. A sign measuring at least 3 ft. by 4 ft. which reads *Caution: Manatee Area* will be posted in a location prominently visible to water-related construction crews. A second sign should be posted if vessels are associated with the construction, and should be placed visible to the vessel operator. The second sign should be at least 8 ½" by 11" which reads *Caution: Manatee Habitat. Idle speed is required if operating a vessel in the construction area. All equipment must be shutdown if a manatee comes within 50 feet of operation. Any collision*

*with and/or injury to a manatee shall be reported immediately to the FWC Hotline at 1-888-404-FWCC. The U.S. Fish and Wildlife Service should also be contacted in Jacksonville (1-904-232-2580) for north Florida or in Vero Beach (1-772-562-3909 dial 0) for south Florida.*

16. In order to ensure that migratory birds are not adversely affected by construction activities, the Migratory Bird Protection Plan (MBPP) for disposal sites 2-D and 3-D shall remain in effect and be implemented by the permittee when sites 2-D or 3-D are utilized during bird nesting season (April 1st through August 31st). This plan requires that no activities occur between April 1st through August 31st. If any activity must occur during that window (including mobilization or removal of equipment from the site), specific migratory bird nesting habitat protection measures must be approved by the Migratory Bird Protection Interagency Committee (MBPC) as established by the U.S. Army Corps of Engineers' Migratory Bird Protection Policy or one of the Florida Fish and Wildlife Conservation Commission's Committee members before the activity can proceed. Prior to each use of these sites, the permittee must submit these approved, specific migratory bird nesting habitat protection measures to the Florida Department of Environmental Protection. At a minimum, the following conditions shall be followed:
  - a. The Contractor shall keep construction activities under surveillance, management, and control to prevent impacts to migratory birds and their nests. All construction personnel shall be advised that migratory birds are protected by the Florida Endangered and Threatened Species Act of 1977, Title XXVIII, Chapter 372.072, and the U.S. Fish and Wildlife Service pursuant to the Migratory Bird Treaty Act of 1918 and the Endangered and Threatened Species Act of 1982, as amended. The Contractor may be held responsible for harming or harassing the birds, their eggs or their nests as a result of the construction.
  - b. **Monitoring of Construction Area:** In order to meet these responsibilities, the Contractor shall conduct monitoring of the construction area beginning April 1 through August 31, if construction activities occur during that period. Prior to any work being initiated within potential nesting habitat, daily monitoring using the Daily Bird Monitoring Report shall be conducted by a bird monitor approved by the MBPC or the Florida Fish and Wildlife Conservation Commission's Regional Nongame Biologist (caution shall be taken by the monitor to avoid disturbance to the nesting birds.) The Contractor shall maintain a daily log detailing monitoring and nesting activity (not all bird species are listed). Within 30 days after completion of construction, a summary of monitoring shall be submitted to the U.S. Army Corps of Engineers, the BBCS and the Florida Fish and Wildlife Conservation Commission detailing nesting and nesting success failure including species, number of nests created,



location, number of eggs, number of offspring generated during the project and reasons for nesting success or failure, if known.

- c. Nesting Activity Notification: Any nesting activity observed by the Contractor shall be entered into the Florida Fish and Wildlife Conservation Commission's Beach-Nesting Bird Website (<http://myfwc.com/shorebirds/>) within 24 hours and reported immediately to the Contracting Officer who shall have sole authority for any work stoppages, creation of the buffer area, or restart of construction activities.
  
- d. Nesting Within Construction Area:
  - (1) Should nesting begin within the construction area, a temporary, 300-foot buffer shall be created around the nests and marked to avoid entry. The area shall be left undisturbed until nesting is completed or terminated, and the chicks fledge. Once the Florida Fish and Wildlife Conservation Commission Regional Nongame Biologist, U.S. Fish and Wildlife Service, and/or MBPC have determined that nesting has concluded, the decision to allow construction in a former nesting site will be determined by the Contracting Officer. Access to the nesting sites by humans (except limited access when accompanied by the bird monitor), equipment or pets under control of the permittee is prohibited.
  
  - (2) If nesting occurs within the construction area, a bulletin board shall be placed and maintained by the Contractor in the contracting shed with the location map of the construction site showing the bird nesting areas and a warning, clearly visible, stating that "BIRD NESTING AREAS ARE PROTECTED BY THE FLORIDA THREATENED AND ENDANGERED SPECIES ACT AND THE FEDERAL MIGRATORY BIRD TREATY ACT".
  
- e. Bird Monitoring Qualifications: The Contractor's Environmental Protection Plan shall contain the qualifications of the bird monitor and the steps to be taken to construct the project in such a manner as not to impact migratory birds or induce their nesting. The qualifications of the bird monitor are a demonstrated ability to identify bird species, general and nesting behavior characteristics, nests and eggs, and a knowledge of habitat requirements. In addition, references must be provided to verify non-educational experience. The qualifications shall be submitted on the Bird Monitoring Qualification Sheet.

- f. Work Delay: Delays in work due to the fault of negligence of the Contractor or the Contractor's failure to comply with this specification shall not be compensable. Any adjustments to the contract performance period or price that are required as a result of compliance with this section shall be made in accordance with the clause *SUSPENSION OF WORK of Section 00700 CONTRACT CLAUSES*.
17. For all activities, in order to ensure that marine turtles are not adversely affected, the following conditions shall be followed:
- a. Placement of sand on a sea turtle nesting beach shall only proceed if the U.S. Fish and Wildlife Service has issued an Incidental Take Authorization for each individual placement. If necessary, this permit shall then be modified to incorporate appropriate conditions for tilling and scarp remediation once incidental take has been authorized for beach placement. Fill placement may also occur under a separate permit, which would include appropriate marine turtle protection conditions.
  - b. All fill material placed shall be sand that is similar to that already existing at the beach site in both coloration and grain size distribution and suitable for marine turtle nesting. All such fill material shall be free of construction debris, rocks, or other foreign matter, and shall not contain, on average, greater than 10 percent fines (i.e., silt and clay) (passing the #200 sieve) and shall be free of gravel or cobbles.
  - c. From May 1 through November 1, all project lighting shall be limited to the immediate area of active construction only and shall be the minimal lighting necessary to comply with U.S. Coast Guard and/or OSHA requirements. Stationary lighting on the beach and all lighting on the dredge shall be minimized through reduction, shielding, lowering, and appropriate placement of lights to minimize illumination of the nesting beach and water.
  - d. From May 1 through November 1, staging areas for construction equipment shall be located off the beach to the maximum extent possible. Nighttime storage of construction equipment not in use shall be off the beach to minimize disturbance to sea turtle nesting and hatching activities.
  - e. In the event a hopper dredge is utilized for sand excavation, all conditions in the U.S. Fish and Wildlife Service Biological Opinion for hopper dredging and relocation trawling in the Gulf of Mexico must be met, including the following:
    - i. Prior to initiating hopper, the permittee shall notify Dr. Allen Foley, Florida's Sea Turtle Stranding and Salvage Network (STSSN) state representative, of

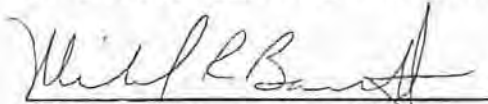


the start-up and completion of hopper dredging operations  
([allen.foley@myfwc.com](mailto:allen.foley@myfwc.com)).

- ii. The permittee shall fax (850-921-6988) or e-mail ([Meghan.Conti@MyFWC.com](mailto:Meghan.Conti@MyFWC.com)) weekly reports to the Florida Fish and Wildlife Conservation Commission Imperiled Species Management Section on Friday each week that relocation trawling is conducted in Florida waters. These reports shall include: the species and number of turtles captured in Florida waters, general health, and release information. A summary of all turtles captured in Florida waters, including all measurements, the latitude and longitude (in decimal degrees) of captures and tow start-stop points, and times for the start-stop points of the tows, including those tows on which no turtles are captured shall be submitted to the Imperiled Species Management Section by January 15 of each year.
- iii. Turtles collected within Florida waters must be released in Florida waters.
- iv. Copies of all reports submitted to the U.S. Fish and Wildlife Service as required by the Biological Opinion and Incidental Take Statement shall also be submitted to the Florida Fish and Wildlife Conservation Commission. The final report shall include a description of the index of abundance, identify all parameters included in the index, and include a discussion of the accuracy and precision of this index.
- v. Any turtles incidentally taken during dredging activities must be reported to the Sea Turtle Stranding and Salvage Network. Three photographs of each turtle (dorsal, ventral, close-up of head) should be submitted with each stranding report.
- f. Upon locating a dead, injured, or sick endangered or threatened sea turtle specimen, initial notification must be made to the Florida Fish and Wildlife Conservation Commission at 1-888-404-FWCC. Care should be taken in handling sick or injured specimens to ensure effective treatment and care and in handling dead specimens to preserve biological materials in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered or threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

Executed in Tallahassee, Florida.


STATE OF FLORIDA, DEPARTMENT  
OF ENVIRONMENTAL PROTECTION



Michael R. Barnett, P.E., Chief  
Bureau of Beaches and Coastal Systems

**FILING AND ACKNOWLEDGMENT**

FILED, on this date, pursuant to 120.52(7),  
Florida Statutes, with the designated Department Clerk,  
receipt of which is hereby acknowledged.

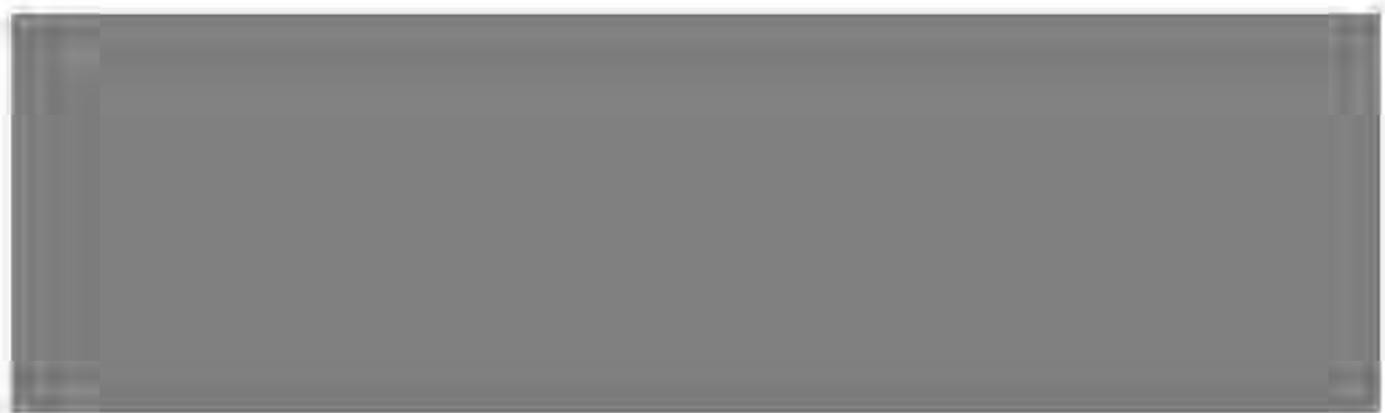
 4/17/06  
Clerk Date

Attachments: 17 pages (permit drawings)

Copies furnished to:

Corps of Engineers, Regulatory Office, Tampa  
Randy Runnels, Aquatic Preserve Manager  
Cece McKiernan, DEP, Southwest District  
Tim Murphy, Corps, Jacksonville  
Paul Karch, Corps, Jacksonville  
Pat Hanson, Corps, Jacksonville  
David Parsche, Tampa Port Authority  
Clay Bryant, Gahagan & Bryant Associates  
FWC Florida Marine Patrol  
George Henderson, FWCC, FWRI  
Bryan Pridgeon, USFWS, St. Petersburg  
Suzanne Cooper, TBRPC, ABM  
Holly Greening, TBEP  
Bob Stetler, EPCHC  
Tom Reese

Randy Runnels, Aquatic Preserve Manager  
Mary Duncan, FWC, ISMS  
BBCS Permit Information Center  
BBCS File  
Steve West, BBCS, Field Representative









FLORIDA DEPARTMENT OF STATE

**Dawn K. Roberts**

Interim Secretary of State

DIVISION OF HISTORICAL RESOURCES

July 13, 2010

Mr. Eric P. Summa  
Planning Division – Environmental Branch  
Jacksonville Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232-0019

Re: SHPO/DHR Project File No.: 2010-2424 (Ref.: 2010-02100)  
Received: June 4, 2010  
Routine Operations and Management Dredging of the Shipping Associated with Port Tampa  
Hillsborough and Pinellas Counties

Dear Mr. Summa:

Our office received and reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and 36 CFR Part 800. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties (archaeological, architectural, and historical resources) listed, or eligible for listing, in the National Register of Historic Places, assessing the project's effects, and considering alternatives to avoid or minimize adverse effects.

We reviewed your June 1, 2010 letter regarding the maintenance dredging project (Cuts A, F and G) and disposal areas. We note that a professional archaeological monitor will be present throughout the project to monitor disposal on Egmont Key. This office concurs that the proposed dredging and disposal operations will have no direct adverse effect on historic properties.

If you have any questions concerning our comments, please contact Laura Kammerer, Deputy State Historic Preservation Officer for Review and Compliance, at 850-245-6333 or [lkammerer@dos.state.fl.us](mailto:lkammerer@dos.state.fl.us). Thank you for your interest in protecting Florida's historic properties.

Sincerely,

Scott M. Stroh III, Division Director and  
State Historic Preservation Officer

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

Director's Office  
850.245.6300 • FAX: 245.6436

Archaeological Research  
850.245.6444 • FAX: 245.6452

Historic Preservation  
850.245.6333 • FAX: 245.6437





FLORIDA DEPARTMENT OF STATE

**Dawn K. Roberts**

Interim Secretary of State

DIVISION OF HISTORICAL RESOURCES

Mr. Jim Jeffords  
Operations - Jacksonville Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232-0019

May 14, 2010

Re: DHR Project File No.: 2010-02100 / Received: April 12, 2010  
Public Notice No.: PN-OD-TH-287  
Tampa Harbor and Cuts Maintenance Dredging  
Hillsborough & Pinellas Counties

Dear Mr. Jeffords:

Our office received and reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and 36 CFR Part 800. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties (archaeological, architectural, and historical resources) listed, or eligible for listing, in the National Register of Historic Places, assessing the project's effects, and considering alternatives to avoid or minimize adverse effects.

This is a maintenance dredging project and disposal areas (some previously approved) will be used. As over the years, we note there is no historical data regarding the potential cumulative and secondary effects of the Tampa Harbor and federal channel dredging operations on the historic properties on and offshore Egmont Key, 8H117, listed in the National Register in 1978. Therefore, it is the opinion of this office that a minimum this project should include monitoring by a professional cultural resource consultant or Corps archaeologist. This will ensure that any Egmont Key nearshore disposal will have no direct adverse effect impact on historic structures located out beyond the low tide line, but not address ongoing erosion concerns.

If you have any questions concerning our comments, please contact Michael Hart, Historic Sites Specialist, by phone at 850.245.6333, or by electronic mail at [mrhart@dos.state.fl.us](mailto:mrhart@dos.state.fl.us). Your continued interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer  
Deputy State Historic Preservation Officer  
For Review and Compliance

PC: Daniel Hughes, Corps – Jacksonville District

500 S. Bronough Street • Tallahassee, FL 32399-0250 • <http://www.flheritage.com>

Director's Office  
850.245.6300 • FAX: 245.6436

Archaeological Research  
850.245.6444 • FAX: 245.6452

Historic Preservation  
850.245.6333 • FAX: 245.6437



DIVISIONS OF FLORIDA DEPARTMENT OF STATE

Office of the Secretary  
Office of International Relations  
Division of Elections  
Division of Corporations  
Division of Cultural Affairs  
Division of Historical Resources  
Division of Library and Information Services  
Division of Licensing  
Division of Administrative Services



FLORIDA DEPARTMENT OF STATE  
Katherine Harris  
Secretary of State  
DIVISION OF HISTORICAL RESOURCES

TM

MEMBER OF THE FLORIDA CABINET  
State Board of Education  
Trustees of the Internal Improvement Trust Fund  
Administration Commission  
Florida Land and Water Adjudicatory Commission  
Eating Board  
Division of Bond Finance  
Department of Revenue  
Department of Law Enforcement  
Department of Highway Safety and Motor Vehicles  
Department of Veterans' Affairs

District Engineer  
Jacksonville District Corps of Engineers  
P.O. Box 4970  
Jacksonville, Florida 32232-0019

June 15, 2001

RE: DHR No. 2001-4093  
Date Received by DHR: April 27, 2001  
Agency: United States Army Corps of Engineers  
Public Notice No. PN-CO-CLW-252  
Project Name: Clearwater Pass  
Pinellas County, Florida

RECEIVED

JUN 22 2001

JACKSONVILLE DISTRICT  
USACE

Dear District Engineer:

Our office has received and reviewed the above referenced project in accordance with Section 106 of the *National Historic Preservation Act of 1966* (Public Law 89-665), as amended in 1992, and *36 C.F.R., Part 800: Protection of Historic Properties*. The State Historic Preservation Officer (SHPO) is to advise and assist federal agencies when identifying historic properties (listed or eligible for listing, in the National Register of Historic Places), assessing effects upon them, and considering alternatives to avoid or reduce the project's effect on them.

Records indicate that our office issued a letter on June 24, 1991 indicating that no further cultural resource investigations were required to meet the requirements of the *National Historic Preservation Act of 1966*. We maintain this determination.

If you have any questions concerning our comments, please contact Brian Yates, Historic Sites Specialist, at [byates@mail.dos.state.fl.us](mailto:byates@mail.dos.state.fl.us). Your interest in protecting Florida's historic properties is appreciated.

Sincerely,

*Frederick P. Gault, Deputy SHPO*

Janet Snyder Matthews, Ph.D., Director  
Division of Historical Resources  
State Historic Preservation Officer

JSM/Yby



# SEMINOLE TRIBE OF FLORIDA TRIBAL HISTORIC PRESERVATION OFFICE

TRIBAL HISTORIC  
PRESERVATION OFFICE  
SEMINOLE TRIBE OF FLORIDA  
AH-TAH-THI-KI MUSEUM  
30290 JOSIE BILLIE HWY  
PMB 1004  
CLEWISTON, FL 33440  
PHONE: (863) 983-6548  
FAX: (863) 902-1117



TRIBAL OFFICERS  
CHAIRMAN  
**JAMES E. BILLIE**  
VICE CHAIRMAN  
**TONY SANCHEZ, JR.**  
SECRETARY  
**PRISCILLA D. SAYEN**  
TREASURER  
**MICHAEL D. TIGER**

Aubree Hershorin  
Jacksonville District Corps of Engineers  
P.O. Box 4970  
Jacksonville, FL 32232-0019

**THPO#:**008553

July 25, 2011

**Subject:** Draft EA for Operations and Maintenance Dredging of the Tampa Harbor Federal Navigation project, Hillsborough County, FL

Dear Ms. Hershorin,

The Seminole Tribe of Florida Tribal Historic Preservation Office (STOF-THPO) has received the Jacksonville Corps of Engineers' project notification for the aforementioned project. Due to the fact that the project area is within the geographic area considered by the Seminole Tribe of Florida to be ancestral, aboriginal, or ceded (NHPA 1966, Section b1, and 36 CFR, Section 800.2) and has a potential to adversely affect unrecorded submerged cultural resources, the STOF-THPO would like to request and review a Phase I archaeological survey for the following project. We thank you for the notification of this proposed project. Please reference **THPO-008553** in any future documentation about this project.

Sincerely,

**Direct routine inquiries to:**

Willard Steele,  
Tribal Historic Preservation Officer  
Seminole Tribe of Florida

Anne Mullins  
Compliance Review Supervisor  
annemullins@semtribe.com

JP:am:ws







REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
**JACKSONVILLE DISTRICT CORPS OF ENGINEERS**  
P.O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

Planning Division  
Environmental Branch


JUL 06 2011

To Whom It May Concern:

Pursuant to the National Environmental Policy Act and U.S. Army Corps of Engineers Regulation (33 CFR 230.11), this letter constitutes the Notice of Availability of the Draft Environmental Assessment (DEA) of Operations and Maintenance Dredging of the Tampa Harbor Federal Navigation project. This project is located in Hillsborough and Pinellas Counties, Florida. Enclosed is the draft Finding of No Significant Impact (FONSI).

The DEA is available on the U.S. Army Corps of Engineers, Jacksonville District website at [http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices\\_OnLine\\_HillsboroughCo.htm](http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices_OnLine_HillsboroughCo.htm) for your review and comment. For your comments to be considered, they must be received within thirty days from the date of this letter. Letters should be addressed to the letterhead address, to the attention of the Planning Division, Environmental Branch, Coastal Section. If you have any questions or comments, please contact Ms. Aubree Hershorin by telephone at 904-232-2136, or by email at [Aubree.G.Hershorin@usace.army.mil](mailto:Aubree.G.Hershorin@usace.army.mil).

Sincerely,

  
Eric P. Summa  
Chief, Environmental Branch

Enclosures

*DL* Hershorin/CESAJ-PD-EC/2136  
*DL* Spinning/CESAJ-PD-EC  
*DL* Summa/CESAJ-PD-E

L:\GROUP\PDEC\Hershorin\Hillsborough-Tampa Hbr O&M\2010 DMMP Update\EA\Notice of Availability.doc



**DEPARTMENT OF THE ARMY**  
**JACKSONVILLE DISTRICT CORPS OF ENGINEERS**  
P.O. BOX 4970  
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO  
ATTENTION OF

**FINDING OF NO SIGNIFICANT IMPACT**

**OPERATIONS AND MAINTENANCE DREDGING**

**TAMPA HARBOR FEDERAL NAVIGATION PROJECT  
HILLSBOROUGH AND PINELLAS COUNTIES, FLORIDA**

I have reviewed the Environmental Assessment (EA) for the proposed action. This Finding incorporates by reference all discussions and conclusions contained in the Environmental Assessment enclosed hereto. Based on information analyzed in the EA, reflecting pertinent information obtained from agencies having jurisdiction by law and/or special expertise, I conclude that the proposed action will not significantly impact the quality of the human environment and does not require an Environmental Impact Statement. Reasons for this conclusion are in summary:

a. The dike raising included in the proposed action would occur within the existing diked disposal sites being actively used for containment of dredged materials. Raising of the dikes would occur within the existing footprint of the diked disposal areas. Minimal environmental resources occur on these sites. No eligible historic resources are found on the sites.

b. The U.S. Army Corps of Engineers, Jacksonville District, will take measures to minimize the effects to the West Indian Manatee. Additional consultation would be initiated with the U.S. Fish and Wildlife Service for sea turtles and piping plover should placement of material occur at Egmont Key or Mullet Key. There will be no unauthorized impacts to other threatened and endangered species. The projects will not jeopardize the continued existence of any federally listed species or adversely modify designated critical habitat.

c. Pending completion of consultation with the State Historic Preservation Officer and the National Park Service, sites of cultural or historical significance will not be affected. An archeological monitor will be required to be present during dredge disposal operations at Egmont Key to ensure the protection of significant resources on the island. We are anticipating concurrence with this determination.

d. State water quality standards will be met. Modification of the Tampa Harbor Maintenance Dredging Environmental Resource Permit was completed and issued on April 7, 2006. This permit expires on April 7, 2016. The U.S. Army Corps of Engineers, Jacksonville District, will obtain the necessary permits from the Florida Department of Environmental Protection prior to placing dredged materials at disposal sites not covered under the existing permit.

e. Pending the State's concurrence with the Coastal Zone Consistency Determination (Appendix A of the EA), the proposed action is consistent with the Florida Coastal Zone Management Program.

f. The proposed project has been evaluated pursuant to the Migratory Bird Treaty Act. The Jacksonville District's Migratory Bird Protection procedures will be implemented for all maintenance dredging and dike raising actions associated with the Tampa Harbor Federal Navigation project. These procedures have been coordinated with the U.S. Fish and Wildlife Service and the State of Florida.

g. This project was coordinated with the U.S. Fish and Wildlife Service in accordance with the Fish and Wildlife Coordination Act (FWCA). The Department of the Interior expressed no objections to this project, and it is in full compliance with the

h. Endangered Species Act, the Coastal Barrier Resources Act, and the Fish and Wildlife Coordination Act.

i. Benefits to the public include maintenance of the navigation channel and continued local economic stimulus.

j. Measures to eliminate, reduce below the level of significance, or avoid potential impacts to fish and wildlife resources will be implemented during project construction, including the following:

- (1) Dike raising would occur within the foot-print of the existing diked disposal sites;
- (2) All water based activities would follow standard manatee protection measures;
- (3) The Jacksonville District's Migratory Bird Protection Plan would be followed if any migratory birds are encountered;
- (4) Prior to construction, the State must concur with the Coastal Zone Consistency Statement; and
- (5) Prior to construction, the State Historic Preservation Officer must concur with the Jacksonville District's determination of no effect on any eligible historic resources.

In consideration of the information summarized, I find that the proposed action will not significantly affect the human environment and does not require an Environmental Impact Statement. This document will be available to the public on the U.S. Army Corps of Engineers Jacksonville District website at [http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices\\_OnLine\\_HillsboroughCo.htm](http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmental/DocsNotices_OnLine_HillsboroughCo.htm).

ALFRED A. PANTANO, JR.  
Colonel, U.S. Army  
Commanding

\_\_\_\_\_  
Date



FLORIDA DEPARTMENT OF STATE  
**Kurt S. Browning**  
Secretary of State  
DIVISION OF HISTORICAL RESOURCES

Mr. Eric Summa  
Operations Division  
Jacksonville Corps of Engineers  
Post Office Box 4970  
Jacksonville, Florida 32232-0019

August 8, 2011

Re: DHR Project File No.: 2011-03068/ Received: July 11, 2011  
Operations and Maintenance Dredgings of the Tampa Harbor Federal Navigation Project  
Counties: Hillsborough, Pinellas

Dear Mr. Summa:

Our office received and reviewed the project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended and 36 CFR Part 800. The State Historic Preservation Officer is to advise and assist federal agencies when identifying historic properties (archaeological, architectural, and historical resources) listed, or eligible for listing, in the National Register of Historic Places, assessing the project's effects, and considering alternatives to avoid or minimize adverse effects.

Because of the nature of the project, this office concurs with the Finding of No Significant Impact.

If you have any questions concerning our comments, please contact Michael Hart, Historic Sites Specialist, by phone at 850.245.6333, or by electronic mail at [mrhart@dos.state.fl.us](mailto:mrhart@dos.state.fl.us). Your continued interest in protecting Florida's historic properties is appreciated.

Sincerely,

Laura A. Kammerer  
Deputy State Historic Preservation Officer  
For Review and Compliance



## Hershorin, Aubree SAJ

---

**From:** KIRKPATRICK, JASON W CTR Contractor AMC 6 CES/CEVN  
[jason.kirkpatrick.2.ctr@us.af.mil]  
**Sent:** Thursday, July 21, 2011 4:28 PM  
**To:** Hershorin, Aubree SAJ  
**Subject:** Draft EA for O&M Dredging Tampa Bay

Aubree;

I have reviewed the Draft EA for the Operations & Maintenance Dredging for the Tampa Harbor Federal Navigation Project. Your EA's are structured a little different from ours, and are certainly a lot more detailed. That was a lot of information.

I could not find a 'comments' page or sheet to fill out on the website, so I figured I'd just e-mail you.

MacDill AFB has no concerns about the proposed dredging activities in Tampa Bay or the potential beneficial use sites scattered around the bay. We concur with the position that filling the two dredge holes around Gadsden Point will create (increase) habitat suitable for seagrasses in the bay, although the increase would be negligible. We are not opposed to filling the MacDill Runway Dredge Hole either.

You also noted in the EA that marine access around MacDill AFB is restricted. That buffer extends out to 1,000 feet from the shoreline. Any construction work within the marine exclusion zone would need to be coordinated with the MacDill AFB Marine Patrol, and anyone entering the zone must go through the background check process. It's a simple process, but there are no exceptions.

Thank you for the opportunity to review the EA and FONSI for this project.

JasonK

//SIGNED//

JASON W. KIRKPATRICK, Contractor  
6th Civil Engineer Squadron  
Cell 813-695-3206  
Comm 813-828-0459  
DSN 968-0459





## Hershorin, Aubree SAJ

---

**From:** Mark Sramek [Mark.Sramek@noaa.gov]  
**Sent:** Tuesday, August 23, 2011 3:41 PM  
**To:** Hershorin, Aubree SAJ  
**Subject:** Re: Tampa Harbor O&M EA (UNCLASSIFIED)

NOAA's National Marine Fisheries Service, Southeast Region, Habitat Conservation Division, has reviewed the Department of the Army, Jacksonville District Corps of Engineers' Draft Environmental Assessment (EA), Tampa Harbor Federal Navigation Project, Operations and Maintenance Dredging, dated July 2011.

The draft EA identifies that under the Tentatively Selected Plan (TSP) periodic maintenance will be performed to remove accumulated sediments, and the existing navigational channel will be maintained at its authorized dimensions. The project is located in Pinellas and Hillsborough counties, on the west central coast of Florida in Tampa Bay and the adjacent Gulf of Mexico. Dredging is proposed to occur throughout Tampa Bay along the entire length of the Federal Project and associated berthing areas. The site alternatives for sediment placement assessed in the EA include an ocean dredged material disposal site, dredged material management areas identified as 2-D and 3-D within Tampa Bay, and beneficial use sites, including the permitted portions of Egmont Key, Fort DeSoto Beach on Mullet Key, Sunken/Bird Island, the permitted dredged holes Gandy Channel North, Northshore Beach, MacDill Hole, McKay Bay, and Whiskey Stump Key Holes 1 and 2, and the following locations, for which permitting would be required prior to their use:

1. St. Petersburg Clearwater Airport East Dredge Hole 2. Rocky Point Dredge Hole 3. Big Island Cut Dredge Hole 4. Cypress Point Dredge Hole 5. Howard Frankland West Dredge Hole 6. Snug Harbor West (2 Dredge Holes) 7. Northeast St. Petersburg Pit 1 8. Venetian Isles South Dredge Hole 9. Shore Acres Dredge Hole 10. Gadsden Point (2 Dredge Holes) 11. Skyway Causeway South Dredge Hole 12. Longshore Bar

Further, under the TSP, it is anticipated no adverse effects on hardbottom or seagrass communities would occur from the proposed activity. However, the potential construction of longshore bar(s) features utilizing available dredged sediments from portions of the channel would likely result in sediment deposition on some seagrass communities at the tentatively proposed longshore bar area (refer to Figure 4, Page 19 of the draft EA).

Therefore, based upon our review of the information in subject draft EA, we anticipate that any adverse effects that might occur on marine and anadromous fishery resources would be minimal and, therefore, do not object to the Tampa Harbor Federal Navigation Project, Operations and Maintenance Dredging TSP activities as proposed. However, should components of the Tampa Harbor Federal Navigation Project, Operations and Maintenance Dredging TSP activities be modified to include activities outside of the federally-authorized and maintained channel sections and turning basins in which proposed maintenance actions would take place, and otherwise require complete or partial filling of the dredged holes identified above (numbers 1 through 12), or consideration that the project include the construction of longshore bar projects in Tampa Bay, we further recommend that these activities be re-coordinated through our office under the essential fish habitat consultation provisions of the Magnuson-Stevens Act

Thank you for your consideration of these comments.

Hershorin, Aubree SAJ wrote:  
> Classification: UNCLASSIFIED  
> Caveats: NONE  
>

> Hi Mark,  
>  
> I left you a message this morning, but I wanted to touch base with you  
> to find out if you had a chance to review the draft EA for O&M  
> activities in Tampa Harbor. The Notice of Availability was sent out  
> on July 6, and the public comment period ended on August 6. This is  
> the "whole-harbor" EA that covers all maintenance dredging activities  
> in Tampa Harbor, including placement at a number of dredged holes. I  
> had presented it at an ABM meeting prior to going on maternity leave.  
> The draft is located at  
> <http://www.saj.usace.army.mil/Divisions/Planning/Branches/Environmenta>  
> l/DocsN otices\_OnLine\_HillsboroughCo.htm for your review.  
>  
> If you have any questions on it, please give me a call to discuss.  
> I'm teleworking today, but I'm available on my cell phone at 352-359-0110.  
>  
> Hope you're doing well!  
>  
> Aubree Hershorin  
> Environmental Branch, Coastal Section Planning and Policy Division  
> U.S. Army Corps of Engineers  
> 701 San Marco Blvd.  
> Jacksonville, FL 32207  
> Office: (904) 232-2136  
>  
>  
> Classification: UNCLASSIFIED  
> Caveats: NONE  
>  
>  
>





ANN B. HODGSON, PHD  
AUDUBON OF FLORIDA  
410 WARE BOULEVARD  
SUITE 702  
TAMPA, FL 33619

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PINELLAS COUNTY  
FL DEPT OF PUBLIC WORKS  
315 COURT ST.  
CLEARWATER, FL 34616

CHAIRMAN, AMERICAN LITTORAL  
SOCIETY  
PO BOX 491228  
MIAMI, FL 33149

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10005 GULF DRIVE  
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TALLAHASSEE, FL 32399-1100

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323 THE CAPITOL  
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222 THE CAPITOL  
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1301 THE CAPITOL  
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316 THE CAPITOL  
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322 THE CAPITOL  
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303 HOUSE OFFICE BUILDING  
402 SOUTH MONROE STREET  
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