ACTION PLAN *Water & Sediment Quality*

SE-3

Manage Sediments in Lake Worth Lagoon

ACTION:
Implement new projects for capping of muck sediments in Lake Worth Lagoon (LWL) to create sandy submerged bottom habitat, potential oyster or seagrass habitat, or emergent mangrove habitat, and to prevent resuspension of fine-grained sediments.

BACKGROUND:
All the steps highlighted in the 2008 SE-3 AP have been successfully implemented. In 2010, ERM completed the 8-acre Ibis Isle Restoration Project which successfully capped 30,000 cubic yards of muck sediments immediately east of the C-51 Canal. The planted cordgrass and mangroves have prospered and recruitment of oysters, seagrass and additional mangroves has occurred. Since completion, the project has provided foraging habitat for manatees and at least 44 different species of wading birds and shorebirds, as well as spawning habitat for horseshoe crabs. The capping technique developed during the Ibis Isle project will be used to complete the 22-acre Grassy Flats Restoration Project immediately south of Ibis Isle. The Grassy Flats Project will capture and contain approximately 30,000 cubic yards of additional muck sediments and result in seagrass habitat and two intertidal islands consisting of mangrove, tidal marsh, tidal flat, and oyster habitats.

Muck sediments continue to blanket large areas of the LWL, covering the bottom with an anaerobic substrate inhibiting seagrass growth and negatively impacting the diversity of the benthic community. These fine-grained sediments are easily resuspended by wind and wave action, increasing turbidity and attenuating light penetration, thereby further impacting the lagoon environment. Dredge holes created during the process of shoreline development often contain large volumes of muck sediments at times as deep as 10 feet. Muck also covers expansive shallow bottom areas in the central lagoon. Capping of muck will contain these sediments to prevent their resuspension and can provide habitat for seagrass, oysters, and/or mangroves.

STRATEGY:

STEP 1 Identify funding and sand sources for Grassy Flats project. Construct project and implement monitoring program.
Potential Partners: PBC, USFWS, FWC, FIND, USACE, LWLPGP, FDEP

STEP 2 Identify additional potential sites for sediment capping and initiate permitting. Candidate sites shall include dredge holes with low habitat value as well as thinner deposits or depressions where elevations may be increased for

recruitment of seagrass.
Potential Partners: ERM, HBOI/FAU

STEP 3 Implement additional sediment capping projects in LWL.
Potential Partners: ERM

SCHEDULE:
STEP 1 to be completed during 2012-2013. **STEP 2** to be completed by 2014. **STEP 3** will begin once additional capping sites have been identified and permitted.

COST:
$2.6 million

EXPECTED BENEFITS:
Conversion of muck deposits to suitable habitat for environmental restoration. Habitat includes seagrass, oysters, mangroves, and cordgrass. Capping of fine-grained muck deposits will reduce resuspension of material directly improving water quality.

MONITORING ENVIRONMENTAL RESPONSES:
Both pre- and post-construction monitoring (water clarity, seagrass coverage, benthic invertebrates) will be required to assess the positive impact of the project.

REGULATORY NEEDS:
Environmental Resource Permits will be required from USACE and SFWMD or FDEP.

FUNDING:
Funding sources to be determined. Potential funding mechanisms include SFWMD, FDEP, NMFS, FIND and USACE

POTENTIAL PARTNERS AND FUNDING SOURCES*:

SFWMD, USFWS, EPA, USACE, NMFS, PBC, LWLPG, FIND, FWC, FDEP (SEFCRI), HBOI/FAU

*Listed Agencies have not committed funds and are subject to Agencies' budget approval