Southeast Florida Water and Sediment Baseline Sampling Plan

****Approval of this workplan is for the purposes of obtaining data for the Natural Resource Damage Assessment. Parties each reserve its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.****

APPROVAL

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1. Introduction

a. Region Extent and Resource Management Jurisdictions

Southeast Florida spans 4 counties (Miami-Dade, Broward, Palm Beach and Martin) and more than 100 miles from Jensen Beach to Miami. Within this region, the Florida Department of Environmental Protection's Office of Coastal and Aquatic Managed Areas directs the management of the Coral Reef Conservation Program, the Loxahatchee River -Lake Worth Creek/Indian River Lagoon-Jensen Beach-Jupiter Inlet Aquatic Preserves (Indian River Lagoon Aquatic Preserves), and the Biscayne Bay Aquatic Preserves, the latter of which extends into the Florida Keys region in Card Sound. Additionally, the southeast Florida region overlaps seven state parks that contain coastal and/or aquatic resources and shares boundaries with two national wildlife refuges, and one national park.

b. Southeast Florida Ecosystem

i. Coral Reefs and Hardbottom Resources

The southeast Florida coral reef ecosystem, located at the convergence of the subtropical and temperate climate zones, extends 105 miles (170 km) from the St. Lucie Inlet at its northern limit to just south of Miami. It encompasses the northern third of the Florida Reef Tract, a complex of limestone ridges that run parallel to the coast. Nearshore reef habitats include hardbottom areas, patch reefs, and worm reefs with octocoral, macroalgae, stony coral, and sponge assemblages. Offshore, coral reef associated biotic assemblages occur on linear Holocene *Acropora palmata* mid-shelf and shelf margin reefs that extend from Miami-Dade to Palm Beach counties. Anastasia Formation limestone ridges and terraces colonized by reef biota characterize the reefs from Palm Beach through Martin County. More than forty species of scleractinian (stony corals) are found on Florida's coral reefs. Staghorn (*A. cervicornis*) and elkhorn (*A. palmata)* corals are listed as threatened species under the U.S. Endangered Species Act, and pillar coral (*Dendrogyra cylindrus*) is listed by the Florida Fish and Wildlife Conservation Commission as an endangered species. All three listed species occur in the southeast Florida

region. Southeast Florida's reefs support a thriving tourism industry, provide shoreline protection, and serve as critical habitat for a diverse assemblage of marine life including recreational and commercial fisheries. Southeast Florida's reefs also support more than 61,000 jobs and generate $5.7 billion dollars in income and sales each year for Miami-Dade, Broward, Palm Beach and Martin counties.

ii. Seagrasses

Seagrasses provide habitat and serve as nursery grounds for numerous fish and invertebrates in southeast Florida, including many important commercial and recreational species. This ecologically important marine community also supports a wide range of state and federally listed species, such as marine turtles, manatees, and smalltooth sawfish. One of the seven species of seagrasses found in this region, *Halophila johnsonii*, is the only federally protected marine plant. The economic benefits to the State from seagrass-associated commercial and recreational activities, such as fishing and ecotours, are significant.

iii. Mangroves

Mangroves provide numerous ecological services including habitat for the federally endangered American crocodile, federally threatened Atlantic salt marsh snake, federal species of special concern such as the mangrove rivulus, and filter-feeding invertebrates such as oysters, sponges, and tunicates. Mangroves serve as nursery habitat for a variety of fish and can serve as rookeries and feeding grounds for marine birds. Mangroves also help prevent shoreline erosion, offer natural barriers from storms and aid in carbon sequestration. An estimated 75% of the game fish and 90% of the commercially-fished species in south Florida are dependent on mangrove ecosystems for at least a part of their life cycles.

iv. Oysters

American oysters are valued ecosystem components located in northern Biscayne Bay, the Indian River Lagoon, and the Loxahatchee and St. Lucie Rivers. Oysters provide habitat for fish and invertebrates, and foraging

grounds for birds including the protected American oystercatcher and American bald eagle. When they form complex reefs, oysters are able to significantly improve water quality, dissipate wave energy, promote sediment stabilization, and facilitate adjacent establishment of seagrasses. The economical value of oysters in southeast Florida is directly related to the ecological function of this community.

v. Sand

Sand is important for many species of marine (and intertidal) fauna, providing a unique and critical southeast Florida habitat. Numerous meiofauna - organisms that live and move among the grains of sand - as well as other marine organisms which bury themselves (e.g. flat fishes, stingrays), live in burrows in the sand (e.g. burrowing anemones, molluscs), or forage for food in softbottoms (numerous fishes, invertebrates and marine mammals), are dependent on sandy bottom habitats. Sand on the beach also provides habitat for many types of vegetation, as well as for fauna including shorebirds, crabs, beach mice, and others

Southeast Florida's sandy beaches are renowned for their tourism and recreational value and for the for the storm protection they provide for coastal properties. Additionally, offshore sand has high economic value as a source for (quickly depleting) fill material for beach nourishment projects.

2. Sampling Plan

a. Overview

The purpose of this water and sediment sampling plan is to determine the background concentration of oil compounds in the southeast Florida region, prior to exposure and potential impacts from an oil contamination event. The sampling plan was developed to enable collection of samples from representative sites across the extent of the region. Sensitivity or uniqueness of habitats; presence of, or utilization by, threatened and endangered species; and availability of historical data are additional criteria that were used to select sampling sites. A total of 35 sampling sites were selected for the southeast Florida sampling plan. The sites are depicted in the map in section 2(c) below

b. Southeast Florida Subregions

i. Offshore Southeast Florida

Seventeen sampling sites were selected in this subregion to include areas representative of habitats and conditions along and across the reef tract. It was determined that the existing Southeast Florida Coral Reef Evaluation and Monitoring Program (SECREMP) benthic habitat and water quality monitoring sites in the region fulfilled these criteria as well as the general criteria presented in (a) above. However, due to close proximity of the three Martin County SECREMP sites, only one of those sites was selected, and an another site in Martin County was selected at Kingfish Hole. A non-SECREMP site was also added at the southern extent of the subregion to capture the extensive seagrass resources offshore Miami-Dade County.

ii. Biscayne Bay Aquatic Preserves

Biscayne Bay is a subtropical estuary located along the entire east coast of Miami-Dade and mainland Monroe counties in Southeast Florida and extends approximately 55 miles in a southwesterly direction from Dumfoundling Bay in the north to Barnes Sound in the south. The Bay varies from 1-10 miles in width and is divided into three major regions: north, central and south. Historically connected to the Everglades, its depths generallye range from 1-10 feet, outside of navigable channels. Biscayne Bay is comprised of two state aquatic preserves, is home to Florida's only designated marine critical wildlife area and is situated along three state parks. Biscayne Bay envelopes a national park, a national wildlife refuge and two national marine sanctuaries. Almost all of it is an Outstanding Florida Water (OFW), and as such, is subject to some of the most stringent water quality and submerged land regulations in the State. Because of the Bay's shallow depths and clear waters, its productivity is largely benthic-based, with bottom cover including all seven of the State's seagrasses, sponges, macroalgae and hardbottom communities that include hard and soft corals. Ten sampling sites within the north, south and central parts of the Biscayne Bay subregion were selected based on their uniqueness and quality of habitat such as areas adjacent to

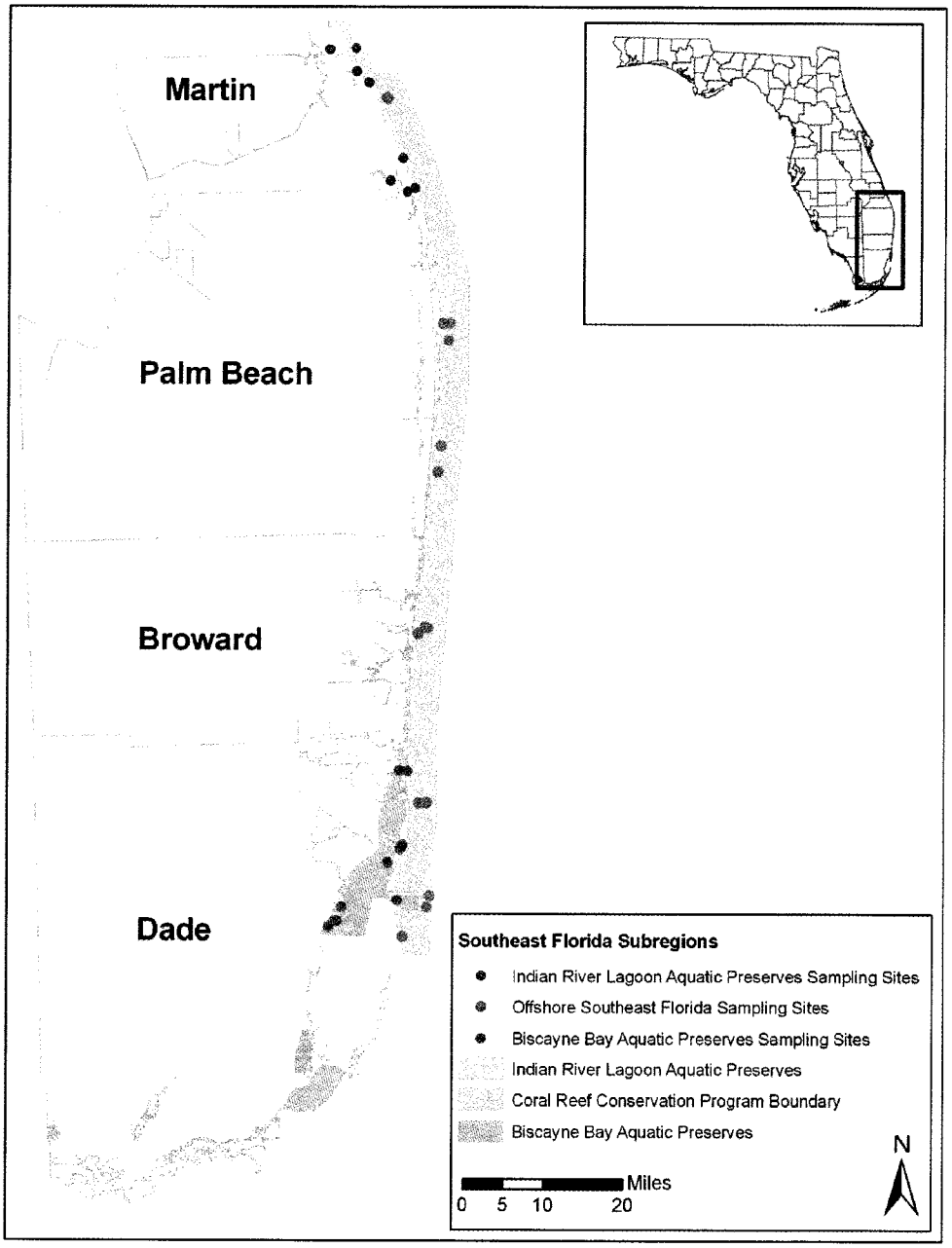
state parks, the state critical wildlife area, and dense mangrove forests and seagrass beds. Many sites were placed adjacent to stations monitored by various agencies for the benefit of having long-term water quality and/or submerged aquatic vegetation

iii. Indian River Lagoon Aquatic Preserves

The Indian River Lagoon extends 156 miles (251 km) from Ponce Inlet in Volusia County to Jupiter Inlet in Palm Beach County and is divided into three management regions: north, central, and south. The Indian River Lagoon subregion identified in this plan includes two state aquatic preserves in the southern management area: 1) Loxahatchee River - Lake Worth Creek and 2) Indian River Lagoon - Jensen Beach to Jupiter Inlet Aquatic Preserves. Pre-assessment sampling sites for this subregion were selected based on existing long-term monitoring programs and datasets. These include the Loxahatchee River District's oyster, seagrass, and continuous water quality monitoring programs and St. Johns River Water Management District's Indian River Lagoon-wide seagrass monitoring project. Eight sampling sites were selected in the subregion, many of which are monitored by multiple agencies and all of the water management district seagrass sites of which have point water quality data and are video documented each summer.

c. Map of Subregions and Sampling Sites

Southeast Florida Water and Sediment Sampling Sites



d. Sampling Teams and Cost/Delivery Estimates

i. Subregion Sampling Teams

Team	Subregion
1	Biscayne Bay Aquatic Preserves
2	Offshore - Northern Dade County
3	Offshore - Broward County
4	Offshore - Palm Beach County
5	Offshore - Martin County
6	Indian River Lagoon Aquatic Preserves

ii. Cost/Delivery Estimates

Trustee and other agency services to be provided during the sampling events include a boat, Captain, and one Deckhand, plus 2 - 4 divers or snorkelers for each of the 6 sampling teams. Approximately 2 - 3 days (for each sample team) will be needed to complete the sampling plan.

Estimated costs:

- Boat, Fuel, Capt. & Deckhand = $1000/boat/day
- 4 divers or snorkelers * $265/day (for staff time, gear, etc.) = $1060/boat/day
- Camera use/day = $100/boat/day
- $2160/ boat/day x 6 boats = $12,960/day
- $12,960 x 2 days = $25,920 or $12,960 x 3 days = $38,880

3. **Water and Sediment Sampling Protocol**

The latest approved Natural Resource Damage Assessment (NRDA) sampling protocols are integrated with DEP Standard Operating Procedures (SOPs) for water and sediment sampling. These protocols will be strictly followed during sampling activities (detailed in Appendix I-III). Prior to mobilization, all field samplers will view the NRDA 101 online training, and participate in pre-sampling briefing(s).

Sampling Objectives

- To collect background samples from clean sites representative of pre-oiling conditions, as well as areas not yet oiled, but in the potential path of the oil.

- To determine the concentration and source of oil compounds in the sample matrix (water or sediment).
- To measure sediment characteristics for interpreting chemical and biological results.
- To maintain the integrity of the sample(s) during sampling, transport, and storage.

a. Water Samples
   - At each sampling site, two 1L grab samples of surface water will be collected (one being a duplicate).
   - If subsurface samples are to be collected this will be done below 12 inches (as detailed in Appendix I).
   - BTEX/VOA samples will not be collected for water samples.

b. Sediment Samples
   - At each sampling site two 250ml sediment samples will be collected (one being a duplicate).
   - All water and sediment samples will be analyzed for all parameters listed in the final approved protocols.

Appendix I - Water Sampling Protocol

Sampling Objectives

- To determine the concentration of oil compounds in the water column. The method detection level (MDL) and sample size are critical in determining detection limits.
- To determine the source via fingerprinting, the degree of weathering, and background levels
- To document exposure of water-column organisms and validate toxicity models.
- To maintain the integrity the sample(s) during sampling, transport, and storage.

Sampling Equipment/Containers

- Collect two liter surface water samples in glass containers with Teflon lined lids. Amber glass is preferred to reduce light exposure, but not required.
- Visually inspect glass bottles and caps for defects. Do not use container if defects are present or if they do not appear clean.
- Take special effort to protect equipment, sample containers and supplies from accidental contamination.

Collection Methods

- Collect samples (wearing clean nitrile, non-powdered or other non-contaminating gloves) directly into the sample container from the water, to minimize risks of cross-contamination.
- Do not rinse the sample container with sample water. If using an intermediate vessel as the collection device rinse with ample amounts of site water prior to collecting the first sample. Discard rinsate away from or downstream of the sampling location.
- Remove the cap from the glass bottle without touching the interior of the container or lid.
- Do not collect sample by skimming the surface.
- Leave headspace of about 1 inch; do not leave for prolonged periods in the light.
- Containers for subsurface samples must be deployed and retrieved with the lid sealed so that the sample does not inadvertently include water surface constituents. Remove and replace the lid only at the sampling depth.
- A 15 minute time limit applies to collect aqueous samples only.
- Collect subsurface samples to characterize constituents present in particulate and/or dissolved state in the water column. Do not take samples from water surface to characterize water column concentrations (see separate protocol for collection of oil samples if the intent is to characterize floating oil).
- Collect surface water grab samples within the top 12 inches of the water column. If required to collect subsurface samples this needs to be done below 12 inches and refer to specific NRDA protocols.
- When using watercraft, take samples near the bow, away and upwind from any gasoline outboard engine. Orient watercraft so that the bow is positioned in the upstream direction.

- When wading, collect samples upstream from the body.
- Avoid disturbing sediments in immediate area of sample collection.
- Water samples should be taken prior to sediment samples when obtaining both from the same site.
- Collect a discrete sample that will be used for analysis. Do not use this sample for any other test.

Preservation/Holding Times

- Immediately place all water samples into coolers and keep on ice (but do not freeze).
- 1 liter samples for PAHs and TPH/THC: These samples should be extracted by the lab within 7 days of collection or sample integrity will be lost. No preservative should be added.
- Keep samples at 4°C, and ship to the lab daily (if feasible) to maximize available time for processing by lab.
- Use packing material around containers to prevent breakage.

Labeling/Documentation/Other Considerations

- Prepare sample labels following sample ID protocol provided in the instructions from the trustee data management team.
- Affix sample ID labels to each container and cover with clear tape wrapped around the entire container circumference.
- Preserve all original field notebooks, which should be signed and dated. If crossing out or correcting any entries, date and initial when making the changes. Documentation is critical; original records will be gathered and kept on file by the trustees.
- Record weather, wave conditions, etc. in field notes. Record GPS coordinates for each sample. Take photographs of the sampling locations and sample collection itself; make sure each photograph or series can be later associated with the corresponding sampling locations (e.g. through NRDA protocol). Do not delete or alter any photographs, the numbering sequence of photos uploaded from your camera must not have any gaps (see separate NRDA Field Photography Guidance).
- If collecting samples from a vessel, be aware of potential sources of contamination on the vessel (e.g. exhaust fumes, oily surfaces). Work up-wind of any exhausts. Segregate dirty/clean areas. Lay out clean substrates to work on and replace frequently.
- When using watercraft, take samples near the bow, away and upwind from any gasoline outboard engine. Orient See related NRDA protocol documents for specific sample shipping and notification/ sampling documentation instructions.
- See related NRDA protocol documents for specific sample shipping and notification/ sampling documentation instructions.

Appendix II – Sediment Sampling Protocol – Intertidal Sediments

Sampling Objectives

- To determine the concentration and source of oil compounds in the sediments collected.
- To measure sediment characteristics for interpreting chemical and biological results.
- To maintain the integrity the sample(s) during sampling, transport, and storage.

Sampling Equipment/Containers

- Two 250 ml sediment samples for AHC and PAH should be placed in glass containers, certified-clean to be organic-free (solvent rinsed), with Teflon- or aluminum-lined lids. For TOC, they can be placed in soap-cleaned glass or plastic containers. For grain size, Ziploc or Whirl-Pak bags can be used.
- Direct collection with the appropriate sample container may be appropriate in very low water or where sediment is exposed.
- To collect subsurface samples in coarse sediments (sand and gravel), it is easiest to use a shovel/scoop to dig a small trench and collect the desired sediment intervals from the exposed wall in the trench.
- To collect subsurface samples in fine sediments (mud), use a shovel to expose the sediments at the desired depth. Collect the sample from the natural break side, rather than the shovel side.
- Coring tubes can be used in muddy sediments when the sampling intervals have not been determined. Plastic tubes (polycarbonate or polyethylene is okay) should be 5 cm (2 in) in diameter, with a wall thickness of about 3 mm.

Sample Volume by Analytical Method

AHC by GC/FID	250 mL; or 1/2 pint; or 8 oz
PAH by GC/MS-SIM	250 mL; or 1/2 pint; or 8 oz (same sample as above)
TOC	10 g; or less than 10 mL
Grain size	100 g; or 4 oz (separate sample)

Collection Methods

- Decon sampling equipment and supplies initially and between samples, if re-using them. First wash with laboratory-grade detergent and clean water then rinse with clean water.
- To reduce the need for field decon, use pre-cleaned, disposable utensils (e.g., stainless steel blade or wooden spatula/tongue depressor), single-use core tubes, etc. The only equipment to be used between sites is a shovel.
- For surface sediments, use a wooden spatula or stainless steel blade to accurately collect the top 2 cm, avoiding contact with disturbed sediments.
- For subsurface sediments, expose a fresh surface at the desired interval, then remove the sediments which were in contact with the shovel prior to sampling.

- Scooping or using a shovel is generally most useful around the margin or shore of the water body or by wading in shallow waters.
- Stand facing the direction of flow and approach the location from the downstream direction.
- Take precautions not to disturb the bottom prior to scooping.
- Scoop the sample in the upstream direction of flow.
- Transfer sample to the appropriate sample container(s), using a clean non-reactive utensil.
- Composite samples (of at least three subsamples) are recommended for characterization of a sampling site, such as contaminant content in marsh sediments.

Preservation/Holding Times

- Immediately place all sediment samples in a cooler and keep at 4°C. Freeze samples for chemical analysis by the end of each day. Refrigerate water samples and sediments for TOC and grain size (do not freeze).
- Use packing material, such as bubble wrap, around containers to prevent breakage.
- Sediment samples can be held frozen in the dark for several years without loss of sample integrity.
- Sediment extracts can be held at 4°C in the dark for 40 days without loss of sample integrity.

Labeling/Documentation/Other Considerations

- Record GPS coordinates for each sample. Take photographs of the sampling locations and sample collection itself; make sure each photograph or series can be later associated with the corresponding sampling locations (e.g. through NRDA protocol). Do not delete or alter any photographs, the numbering sequence of photos uploaded from your camera must not have any gaps (see separate NRDA Field Photography Guidance).
- Record the sample no. on both the label and lid. Record the following on the field log sheet:
  -sample no.; date/time; station location; tidal elevation; gps coordinates
  -description of oiling conditions, using standard shoreline assessment terminology
  -sediment characteristics: texture, color, biota, vegetation, debris, odor, etc.
- Make a quick sketch in a field log book or sketch form showing the sampling locations in enough detail that the location could be re-occupied by someone else.

Appendix III - Sediment Sampling Protocol - Subtidal Sediments

Sampling Objectives

- To determine the concentration and source of oil compounds in the sediments collected.
- To measure sediment characteristics for interpreting chemical and biological results.
- To maintain the integrity the sample(s) during sampling, transport, and storage.

Sample Volume by Analytical Method

AHC by GC/FID	250 mL; or 1/2 pint; or 8 oz
PAH by GC/MS-SIM	1/2 pint; or 8 oz (same sample as above)
TOC	10 g ; or 10 mL
Grain size	100 g; or less than 4 oz (separate sample)

Sampling Equipment/Containers

- Use dredges for hard or rocky substrates.
- Use coring devices in quiescent waters, unless water depth precludes effective sample collection.
- Any sediment sampling device which meets the following requirements can be used:
  -creates a minimum bow wake when descending
  -penetrates the sediments below the desired sampling depth
  -closes to form a leak-proof seal after the sediment sample is taken
  -prevents sediment washout and disturbance when ascending
- Common sampling devices include: modified van Veen grab; Ekman grab; box dredge.
- Two 250ml sediment samples for AHC and PAH should be placed in glass containers, certified-clean to be organic-free (solvent rinsed), with Teflon- or aluminum foil-lined lids. For TOC, they can be placed in soap-cleaned glass or plastic containers. For grain size, Ziploc or Whirl-Pak bags can be used.

Sample Collection Methods

- Decon all sampling gear before using and between sampling stations. First wash with laboratory-grade detergent and clean water.
- Lower and retrieve the sampling device at a controlled speed of ~1 foot per second.
- The device should contact the bottom gently, making sure it settles flat; only its weight or piston mechanism should be used to penetrate the sediment. It is important to minimize disturbance to the surface floc which is likely to contain oil contaminants.
- Inspect the sample to make sure that it meets the following criteria:
  -the sampler is not overfilled; the sediment surface is not pressed against the sampler top.
  -overlying water is present, indicating minimal leakage.

-sediment surface is undisturbed, indicating lack of channeling or sample washout.
-the desired penetration depth is achieved (e.g., 4-5 cm for a 2 cm sample).

- Siphon off the overlying water near one side of the sampler.
- Using a flat scoop, accurately collect the top 2 cm, avoiding sediments in contact with the sides of the sampler. Use a new scoop for each station. Collect other intervals, per the sampling plan.

Preservation/Holding Times

- Immediately place all sediment samples in a cooler and keep at 4°C. Freeze samples for chemical analysis by the end of each day. Refrigerate samples for TOC and grain size (do not freeze).
- Use packing material, such as bubble wrap, around containers to prevent breakage.
- Sediment samples can be held frozen in the dark for several years without loss of sample integrity.
- Sediment extracts can be held at 4°C in the dark for 40 days without loss of sample integrity.

Labeling/Documentation/Other Considerations

- Record the sample no. on both the label and lid. Record the following on the field log sheet: sample no.; date/time; location; gps coordinates, water depth; penetration depth; surface sediment characteristics: texture, color, biota, debris, sheens, odor, etc.; vertical changes in sediment characteristics.
- Record GPS coordinates for each sample. Take photographs of the sampling locations and sample collection itself; make sure each photograph or series can be later associated with the corresponding sampling locations (e.g. through NRDA protocol). Do not delete or alter any photographs, the numbering sequence of photos uploaded from your camera must not have any gaps (see separate NRDA Field Photography Guidance).
- Be aware of sources of contamination on the sampling vessel (exhaust fumes, engine cooling systems, oily surfaces). Work up-wind of any exhausts. Segregate dirty/clean areas. Lay out clean substrates to work on and replace frequently.

Appendix IV – Sampling Sites

Sampling Sites - Indian River Lagoon Aquatic Preserves	Latitude (N)	Longitude (W)
North Bay	26° 57.031'	80° 05.627'
Oyster	26° 58.300'	80° 07.690'
Coral Cove	26° 57.421'	80° 04.710'
Hobe Sound	27° 00.714'	80° 06.049'
St. Lucie Inlet Preserve State Park	27° 09.055'	80° 09.905'
Sewell's Point	27° 10.375'	80° 11.386'
St. Lucie River Middle Estuary	27° 12.635'	80° 14.645'
Florida Oceanographic Society	27° 12.878'	80° 11.775'
Sampling Sites - Offshore Southeast Florida	**Latitude (N)**	**Longitude (W)**
MC2	27° 06.722'	80° 07.525'
Kingfish Hole	27° 07.333'	80° 07.788'
PB1	26° 42.583'	80° 01.714'
PB2	26° 40.710'	80° 01.095'
PB3	26° 42.626'	80° 00.949'
PB4	26° 29.268'	80° 02.345'
PB5	26° 26.504'	80° 02.854'
BCA	26° 08.985'	80° 05.810'
BC1	26° 08.872'	80° 05.758'
BC2	26° 09.597'	80° 04.950'
BC3	26° 09.518'	80° 04.641'
DC1	25° 50.530'	80° 06.242'
DC2	25° 50.520'	80° 05.704'
DC3	25° 50.526'	80° 05.286'
DC4	25° 40.357'	80° 05.301'
DC5	25° 39.112'	80° 05.676'
Dade Seagrass	25° 35.946'	80° 08.766'
Sampling Sites - Biscayne Bay Aquatic Preserves	**Latitude (N)**	**Longitude (W)**
Oleta River	25° 54.103'	80° 08.536'
Haulover Inlet	25° 54.034'	80° 07.534'
Government Cut	25° 45.995'	80° 08.434'
Norris Cut	25° 45.557'	80° 08.704'
Snapper Creek	25° 39.502'	80° 15.956'
Virginia Key Beach	25° 44.142'	80° 10.270'
Deering Estate	25° 37.247'	80° 17.601'
Chapman Field	25° 37.902'	80° 16.505'
Chicken Key	25° 37.902'	80° 16.873'
Cape Florida	25° 40.049'	80° 09.228'

Amendment - Appendix IV – Sampling Sites

Sampling Sites - Biscayne Bay Aquatic Preserves	Sediment		Surface Water	
	Latitude (N)	Longitude (W)	Latitude (N)	Longitude (W)
Oleta River	25° 54.114'	80° 08.514'	25° 54.102'	80° 08.538'
Haulover Inlet	25° 54.036'	80° 07.536'	25° 54.060'	80° 07.686'
Government Cut	25° 46.422'	80° 08.730'	25° 46.422'	80° 08.730'
Norris Cut	25° 45.558'	80° 08.706'	25° 45.558'	80° 08.706'
Snapper Creek	25° 39.502'	80° 15.858'	25° 39.504'	80° 15.954'
Virginia Key Beach	25° 44.142'	80° 10.272'	25° 44.142'	80° 10.272'
Deering Estate	25° 37.926'	80° 16.464'	25° 37.902'	80° 16.872'
Chapman Field	25° 37.560'	80° 17.034'	25° 37.566'	80° 17.028'
Chicken Key	25° 37.050'	80° 17.418'	25° 37.050'	80° 17.418'
Cape Florida	25° 39.894'	80° 09.234'	25° 40.050'	80° 09.228'

The sampling sites for Biscayne Bay Aquatic Preserves submitted May 25, 2010 were modified in the field from what was proposed when absolutely necessary. Whenever possible, water and sediment samples collected in tandem at the same location. At several sites sediment samples were collected at the originally proposed location while surface water samples were collected in close proximity to the originally proposed sampling location. These sites were not accessible because of extremely shallow depths. In addition, the Haulover Inlet sampling site exhibited unsafe SCUBA diving conditions resulting in only surface water collection at the proposed sampling site, with the sediment collection site moved to the nearest safe location in close proximity to the originally proposed sampling site. The Government Cut sampling site was originally located in the center of Government Cut and was deemed unsafe to collect samples due to boat traffic and United States Coast Guard restrictions. Therefore the Government Cut sample collection site was moved to the nearest safe location where surface water and sediment samples were collected.