

Indian River Lagoon Water and Sediment Baseline Sampling Plan
June 14, 2010

1. Introduction

a. Region Extent and Resource Management Jurisdictions

The Indian River Lagoon (IRL) spans six counties (Volusia, Brevard, Indian River, St. Lucie, Martin, and Palm Beach) and more than 156 miles from New Smyrna (Ponce Inlet) to Jupiter. Within this region, the Florida Department of Environmental Protection's Office of Coastal and Aquatic Managed Areas directs the management of seven aquatic preserves - Mosquito Lagoon, Banana River, IRL - Malabar to Vero Beach, IRL - Vero Beach to Fort Pierce, North Fork St. Lucie River, IRL - Jensen Beach to Jupiter Inlet, and Loxahatchee River -Lake Worth Creek Aquatic Preserves. The Indian River Lagoon region also overlaps eight state parks that contain aquatic resources and shares boundaries with four national wildlife refuges, and one national seashore.

b. Indian River Lagoon Valued Ecosystem Components

i. 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.

ii. 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.

iii. Oysters

American oysters are valued ecosystem components located in the Indian River Lagoon, Banana River, Mosquito Lagoon and all associated tributaries, such as 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.

iv. Sand

Sandy shoals are most common near the inlets and in heavy spoil areas associated with the dredging of the Intracoastal Waterway and sandy shorelines are found throughout the IRL. These sandy areas provide critical habitat for shorebirds, including the federally protected piping plover and American oystercatcher, as well as many species of marine (and intertidal) fauna. Numerous infauna – organisms that live and move among the grains of sand – provide a food source for the associated shorebirds. Many species of fish, including the commercially important permit, pompano, and mojarra, are also dependent on sandy bottom habitats.

v. Emergent (Intertidal and High) Marsh

Intertidal and high marsh habitats are critical to the long-term viability of regional fisheries and have been designated as Essential Fish Habitat by NOAA. These areas function as nursery grounds for commercially and recreationally important fishes and crustaceans that typically recruit directly from coastal spawning sites as pelagic larvae or small juveniles. Some of the

more well-recognized transient species that use emergent marshes include snook, ladyfish, spot, tarpon, and black and red drum. Smaller, resident fish taxa that complete their life cycle without extensive migration from this habitat provide a year-round food source to wetland visitors (fish, birds, reptiles, and mammals). These wetlands also trap suspended sediments and nutrients, ultimately benefitting surrounding water quality.

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 Indian River Lagoon, 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; accreting sides of the inlets on the beachside; and availability of historical data (See Table 1) are additional criteria that were used to select sampling sites. Historical data are expected to provide additional background information in the event that the impact of oil on specific communities or species needs to be determined. A total of 40 sampling sites were selected for the Indian River Lagoon sampling plan. The sites are depicted in the map in section 2(c) below and listed in Appendix IV. Note that sites selected for the southern Indian River Lagoon (Martin and Palm Beach counties) are incorporated into the Southeast Water and Sediment Baseline Sampling Plan. The identical information for these two counties was included in the Indian River Lagoon plan as well to show on a system-wide scale, which Indian River Lagoon locations will be sampled.

Table 1. Long-term data sets used to select baseline monitoring sites.

| Agency | Habitat/Environmentals Monitored | Date Started | Date Ended | Reference Number |
|----------------------------------------------------------------------------------|----------------------------------|--------------|------------|------------------|
| St. Johns River Water Management District | Water Quality | 3/1996 | current | 1 |
| St. Johns River Water Management District | Seagrass | 1994 | current | 2 |
| University of Central Florida/The Nature Conservancy/Canaveral National Seashore | Oyster Reefs | 2007 | current | 3 |
| South Florida Water Management District | Water Quality | 1990 | current | 4 |
| FWC Florida Wildlife Research Institute | Oyster Reef | 1/2005 | 1/2008 | 5 |
| Smithsonian Marine Station | Macrobenthic Invertebrates | 2005 & 2007 | current | 6 |
| Smithsonian Marine Station | Cyanobacteria and Seagrass | 2008 | current | 7 |
| Smithsonian Marine Station | Foraminifera | 1977 | current | 8 |
| Volusia County | Water Quality | 12/1991 | current | 9 |
| St. Lucie County Dept. of Health | Water Quality | 7/2005 | current | 10 |
| Martin County | Oyster Reef | 2006 | 2007 | 11 |
| Florida Oceanographic Society | Acoustics on Oyster Reefs | 8/2009 | current | 12 |
| Loxahatchee River District | Water Quality | 1995 | current | 13 |
| Loxahatchee River District | Oyster Reef | 10/2008 | current | 14 |
| Loxahatchee River District | Seagrass | 6/2003 | current | 15 |
| University of Central Florida/The Nature Conservancy | Oyster Reef | 1/2008 | current | 16 |
| FDEP Central District | Macrobenthic | 1992 & 1997 | current | 17 |
| University of Central Florida | Wetland/Impoundment | 2005 | current | 18 |
| Marine Resources Council | Water Quality | 1982 | current | 19 |
| Marine Resource Council for FWRI | HABs/Cysts in Sediments | 10/2005 | current | 20 |
| Canaveral Port Authority | Water Quality | 1995 | current | 21 |

b. Indian River Lagoon Subregions

i. Northern Indian River Lagoon

The northern IRL subregion encompasses Volusia and Brevard counties and includes Turkey Creek and sections of the St. Sebastian River. It includes the Mosquito Lagoon, Banana River, the northern section of the IRL - Malabar to Vero Beach Aquatic Preserves, three state parks: 1) Indian River Lagoon Preserve State Park, 2) Sebastian Inlet State Recreation Area, and 3) St. Sebastian River Preserve State Park, Merritt Island and Archie Carr National Wildlife Refuges, and Canaveral National Seashore. Ponce and Sebastian Inlets border this subregion to the north and south, respectively. Eighteen sampling sites were selected in this subregion based on long-term monitoring efforts and habitat type.

ii. Central Indian River Lagoon

The central IRL subregion encompasses Indian River and St. Lucie Counties and includes sections of the St. Sebastian and St. Lucie Rivers. This subregion is bordered to the north by Sebastian Inlet and includes the IRL's largest inlet, Fort Pierce Inlet. Four state aquatic preserves: 1) the southern section of the IRL-Malabar to Vero Beach, 2) IRL- Vero Beach to Fort Pierce, 3) northern portion of the IRL – Jensen Beach to Jupiter Inlet, and 4) North Fork St. Lucie River Aquatic Preserves, two state parks - Fort Pierce Inlet State Park and Savannas Preserve State Park, and Pelican Island National Wildlife Refuge are included in this subregion as well. The 14 sampling sites identified in this subregion were selected based on habitat type and amount of current and historical monitoring data.

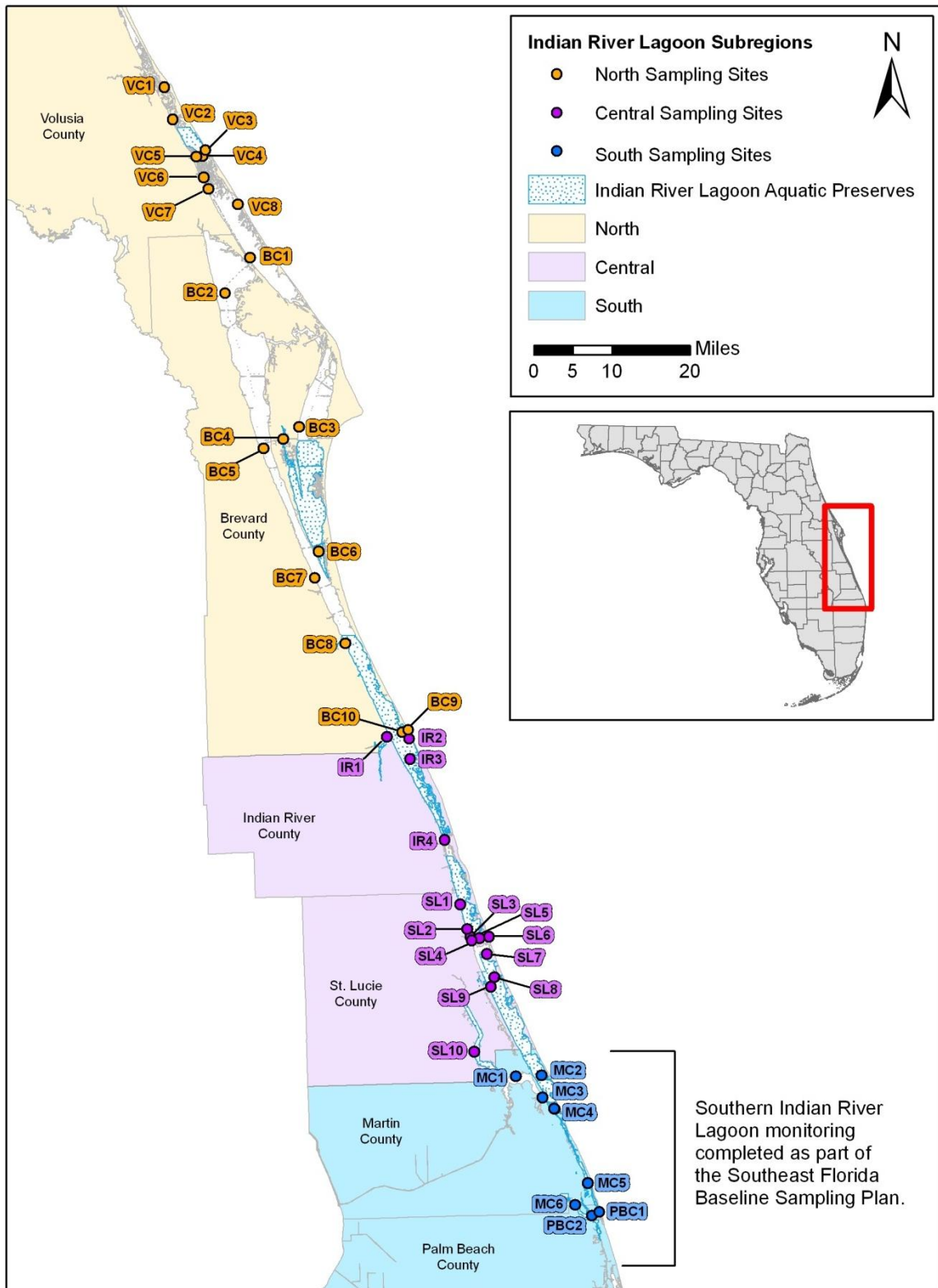
iii. Southern Indian River Lagoon

Note: The southern Indian River Lagoon sites were incorporated into the Southeast Water and Sediment Baseline Sampling Plan and inserted into the Indian River Lagoon Plan to provide a single document system-wide view of the selected sampling sites.

The southern IRL subregion encompasses northern Martin and Palm Beach counties and includes the Loxahatchee River and portions of the St. Lucie River. Ocean exchange in this subregion occurs at St. Lucie and Jupiter Inlets. It also includes two state aquatic preserves: 1) Loxahatchee River – Lake Worth Creek and 2) Indian River Lagoon – Jensen Beach to Jupiter Inlet, three state parks – St. Lucie Inlet Preserve State Park, Seabranh Preserve State Park, and Jonathan Dickinson State Park, as well as Hobe Sound National Wildlife Refuge. Eight pre-assessment sampling sites in 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.

c. Map of Subregions and Sampling Sites

Indian River Lagoon Water and Sediment Sampling Sites



d. Sampling Teams and Cost/Delivery Estimates

i. Subregion Sampling Teams

| <u>Team</u> | <u>Subregion</u> |
|-------------|------------------------------------------------|
| 1 | North - Northern Volusia County |
| 2 | North - Southern Volusia County |
| 3 | North - Northern Brevard County |
| 4 | North - Central Brevard County |
| 5 | Central - Southern Brevard/Indian River County |
| 6 | Central - Northern St. Lucie County |
| 7 | Central - Southern St. Lucie County |

Sampling for the southern Indian River Lagoon was completed as part of the Southeast Sampling Plan.

ii. Cost/Delivery Estimates

Trustee and other agency services to be provided during the sampling events include a boat, Captain, and one Deckhand, plus 1 snorkeler for each of the 7 sampling teams. Approximately one day (for each sample team) will be needed to complete the sampling plan.

Estimated costs:

- Boat and Fuel= \$100/boat/day x 7 boats = \$700
- Snorkelers = \$265/day (for staff time, gear, etc.) x 7 snorkelers = \$1,855
- Camera use = \$100/boat/day x 7 boats = \$700

Total for 7 boats + 7 snorkelers + cameral use for 1 day = \$3,255

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 minimum 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, 1L surface water samples in amber glass containers with Teflon lined lids.
- 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

- Take a picture of your GPS at your first site. The GPS page should show the time and date.
- 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, such as a plastic garbage bag, to work on and replace frequently.
- See related NRDA protocol documents for specific sample shipping and notification/ sampling documentation instructions.
- Make a quick sketch on the back of the field log sheet showing the sampling locations in enough detail that the location could be re-occupied by someone else.

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. Samples entering the collection jar are to be taken from portions of the collected sediment that have not been touched by the sampling equipment (e.g., ponar or shovel). Rinse water (clean fresh water) and a five gallon bucket for rinsate are needed to decontaminate sampling equipment.
- 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

- Take a picture of your GPS at your first site. The GPS page should show the time and date.
- Decon sampling equipment and supplies initially and between samples, if re-using them. First wash with laboratory-grade detergent (Alconox) and clean water then rinse with clean water, ensuring that all detergent rinsate is collected into a five gallon bucket. The rinsate should be disposed of when back on shore.

- To reduce the need for field decon, use pre-cleaned, disposable utensils (e.g., 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 on the back of the field log sheet 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; ponar; box dredge.
- Rinse water (clean fresh water) and a five gallon bucket for rinsate are needed to decontaminate sampling equipment.
- 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

- Take a picture of your GPS at your first site. The GPS page should show the time and date.
- Decon all sampling gear before using and between sampling stations. First wash with laboratory-grade detergent (Alconox) and clean water then rinse with clean water, ensuring that all detergent rinsate is collected into a five gallon bucket. The rinsate water should be disposed of when back on shore.
- 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; GPSs 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). Draw a site map on the back of the field log sheet.
- 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.
- Make a quick sketch on the back of the field log sheet showing the sampling locations in enough detail that the location could be re-occupied by someone else.

Appendix IV - Sampling Sites

| Map ID | Team Number | Location Description | Latitude (N) | Longitude (W) | Historical Data Source (Reference Table 1) |
|-------------------------------------|-------------|-------------------------------------|--------------|---------------|--------------------------------------------|
| Northern Indian River Lagoon | | | | | |
| VC1 | 1 | Ponce Inlet | 29.069030 | -80.925632 | 9 |
| VC2 | 1 | Big Snapper | 29.008614 | -80.910309 | 1,9 |
| VC3 | 1 | Cedar Creek | 28.949665 | -80.841552 | 2,19 |
| VC4 | 1 | CANA Oyster 1 | 28.938321 | -80.848903 | 16 |
| VC5 | 1 | CANA Oyster 2 | 28.937778 | -80.861948 | 16 |
| VC6 | 2 | CANA Impoundment 1 | 28.899624 | -80.847590 | 18 |
| VC7 | 2 | ML_ICW | 28.877520 | -80.838937 | 1,17 |
| VC8 | 2 | CANA Impoundment 2 | 28.847547 | -80.77641 | 2,18 |
| BC1 | 2 | Haulover | 28.745900 | -80.755647 | 2 |
| BC2 | 2 | Northern IRL | 28.683834 | -80.807880 | 2,17 |
| BC3 | 3 | Barge Canal | 28.434785 | -80.659689 | 2 |
| BC4 | 3 | Sykes Creek | 28.409401 | -80.693901 | 21 |
| BC5 | 3 | IRL528 | 28.393118 | -80.736147 | 1,2 |
| BC6 | 4 | Banana South | 28.198996 | -80.625286 | 1,2 |
| BC7 | 4 | Pineapple Point | 28.150254 | -80.634890 | 2, 20 |
| BC8 | 4 | Turkey Creek | 28.027007 | -80.574874 | 2 |
| BC9 | 5 | SB Inlet South Crossover | 27.862615 | -80.447047 | n/a (beachside) |
| BC10 | 5 | SBI North | 27.860981 | -80.458988 | 2 |
| Central Indian River Lagoon | | | | | |
| IR1 | 5 | St. Sebastian | 27.854263 | -80.491505 | 1,5,6,19 |
| IR2 | 5 | SBI South | 27.847902 | -80.445037 | 2 |
| IR3 | 5 | Roseate Island | 27.808126 | -80.444836 | 2,6 |
| IR4 | 5 | Fritz Island | 27.659299 | -80.378516 | 1,2 |
| SL1 | 6 | Harbor Branch | 27.536070 | -80.348879 | 2,8 |
| SL2 | 6 | St. Lucie Village | 27.489946 | -80.335680 | 2,4 |
| SL3 | 6 | North Bridge | 27.476455 | -80.329339 | 6 |
| SL4 | 6 | Taylor Creek | 27.468788 | -80.326888 | 2,4 |
| SL5 | 6 | Little Jim | 27.472489 | -80.310879 | 7 |
| SL6 | 6 | FP Inlet South Crossover | 27.474500 | -80.290327 | n/a (beachside) |
| SL7 | 7 | Bear Point | 27.442714 | -80.297607 | 2 |
| SL8 | 7 | Middle Cove | 27.398713 | -80.282071 | 6 |
| SL9 | 7 | Midway | 27.382010 | -80.289838 | 2,4 |
| SL10 | 7 | Mud Cove | 27.262284 | -80.328751 | 10 |
| Southern Indian River Lagoon | | | | | |
| MC1 | | St. Lucie River Middle Estuary | 27.214491 | -80.243956 | 5, 11, 12 |
| MC2 | | Florida Oceanographic Society | 27.214690 | -80.190475 | 2 |
| MC3 | | Sewell's Point | 27.173728 | -80.190653 | 2 |
| MC4 | | St. Lucie Inlet Preserve State Park | 27.151438 | -80.165326 | 2 |
| MC5 | | Hobe Sound | 27.012345 | -80.101283 | 2,15 |
| MC6 | | Oyster | 26.972130 | -80.128146 | 5,13,14 |
| PBC1 | | Coral Cove | 26.956886 | -80.078434 | 2 |
| PBC2 | | North Bay | 26.951240 | -80.094144 | 13,15 |

Unless otherwise agreed upon by the Trustees and BP, all samples will be sent to TDI Brooks Lab.

The laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the trustee Data Management Team (DMT), the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana and to ENTRIX (on behalf of BP). The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO and to ENTRIX. Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Quality Assurance Project Plan, after which time the validated/QA/QC'd data shall be made available to all trustees and ENTRIX. Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Quality Assurance Project Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QC'd data set released by the DMT shall be considered the consensus data set. The LADP shall not be released by the DMT, LOSCO, BP or ENTRIX prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data prior to validation/QA/QC, any released data will be clearly marked "preliminary/unvalidated" and will be made available equally to all trustees and ENTRIX."

Approval of this work plan 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.