

Deepwater Horizon/Mississippi Canyon 252 Spill

As agreed upon by the Trustees and BP, all samples collected for contaminant analysis during the sampling plan described below will be sent to Alpha Analytical Laboratory, unless they are designated to be archived. Samples for other analyses, if not archived, will be sent to the laboratories indicated in the plan below.

Each 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 BP (or ENTRIX 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 BP (or ENTRIX on behalf of BP). 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-ed data shall be made available simultaneously to all trustees and BP (or ENTRIX on behalf of BP). 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-ed data set released by the DMT shall be considered the consensus data set. In order to assure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data has been made available to the parties. Also, 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/un-validated" and will be made available equally to all trustees and to BP (or ENTRIX on behalf of BP).

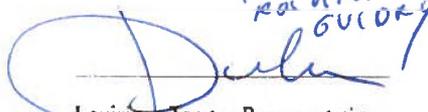
All materials associated with the collection or analysis of samples under these protocols or pursuant to any approved work plan, except those consumed as a consequence of the applicable sampling or analytical process, must be retained unless and until approval is given for their disposal in accordance with the retention requirements set forth in paragraph 14 of Pretrial Order # 1 (issued August 10, 2010) and any other applicable Court Orders governing tangible items that are or may be issued in MDL No. 2179 IN RE: Oil Spill by the Oil Rig "DEEPWATER HORIZON" (E.D. LA 2010). Such approval to dispose must be given in writing and by a person authorized to direct such action on behalf of the state or federal agency whose employees or contractors are in possession or control of such materials.

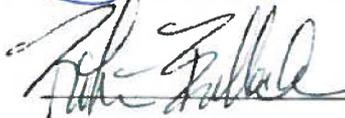
This plan will be implemented consistent with existing trustee regulations and policies. All applicable state and federal permits must be obtained prior to conducting work.

Mississippi Canyon 252 Spill Spring 2011 Oyster Recruitment Sampling Plan-Amendment 1
September 6, 2011

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

APPROVED:

FOR AMO GUIDRY
 10/28/2011
Louisiana Trustee Representative: Date

 10/10/2011
BP Representative: Date

Jessica White for Lisa DiPinto 9/8/2011
NOAA Trustee Representative Date
(on behalf of all other trustees)

Mississippi Canyon 252 Spill
Spring 2011 Oyster Recruitment Sampling Plan
-Amendment 1

September 6, 2011

Introduction and Summary

This document (Amendment 1) amends the initial Spring 2011 Oyster Recruitment Sampling Plan (Spring Plan). Amendment 1 updates the plan to include additional rounds of recruitment sampling across all sites to gather additional data through the summer months. Under previous oyster sampling efforts (Phase I Amendment 2, Transition Plan, and Spring Plan), teams have collected data on tissue and sediment chemistry, gonadal index, and larval recruitment in the summer through late fall of 2010 and spring of 2011.

Continued assessment of oyster recruitment throughout the summer of 2011 will provide a more complete picture of the state of oyster reproduction in the Gulf of Mexico in the period following the Deepwater Horizon Oil Spill. The additional sampling will allow the oyster working group to monitor for evidence of potential injury to oyster reproduction resulting from: 1) potential exposure of oysters to contaminants released into the environment as a result of the Deepwater Horizon Oil Spill; and/or 2) potential exposure of oysters to low salinities resulting from actions undertaken by the state of Louisiana in response to the spill. Preliminary data collected in 2010 show low or zero oyster settlement across much of the study area. Continued sampling will further characterize the spatial extent and temporal persistence of these low settlement rates.

In addition, the opening of the Morganza and Bonnet Carre spillways by the Army Corps of Engineers in May of 2011 in response to historically high levels of the Mississippi River resulted in the potential for freshwater impacts from flooding to oyster resources in the Atchafalaya Basin and Lake Pontchartrain/Lake Borgne areas in Louisiana and Mississippi. Under the Spring Plan, dredge samples of oysters were collected prior to spillway openings at most of the study sites that were anticipated to be subsequently inundated by the spillway flow. Under this Amendment, an additional set of dredged oyster samples and three additional rounds of settlement plates will be collected through summer 2011, both to continue characterizing potential impacts to oyster resources from the Deepwater Horizon spill and response efforts and to compare oyster abundance and settlement prior to and following the spillway openings. The additional rounds of sampling in this amendment allow for collection of the post-2011 spillway opening data.

The continued sampling will occur at all Spring Plan sites, and will consist of sampling of the same metrics for three additional rounds. This will result in a total of six sampling rounds of settlement

plates and two dredge surveys of oysters per site during the Spring and Summer of 2011, instead of the three sampling rounds and one dredge survey per site described in the Spring Plan.

Estimated samples from this activity:

The text in this section and Tables 1 and 2 of this Amendment updates the corresponding information in the Spring Plan as follows:

- Up to 272 dredge surveys of oysters (two sets of three replicates per site);
- Up to 272 composite oyster tissue samples (two per site, up to 6 market-sized oysters analyzed (or equivalent) per sample);
- Up to 272 oyster gonad/disease/condition samples (two per site, up to 15 market-sized oysters analyzed per sample); and
- Up to 816 sets of settlement plates (six sampling events, with 136 sets collected each round).

Cost Estimate

The text in the Cost Estimate section and Table 4 of the Spring Plan are updated as follows:

Table 4 provides the cost estimate for the Spring Recruitment Sampling Plan, assuming all 136 sites are sampled. The total cost associated with this level of field effort is \$1,634,400, including the Spring Plan and this Amendment. Analytical costs for samples collected as part of this plan add up to another \$476,000, including up to \$408,000 for tissue contaminant analysis, and up to \$68,000 for gonad/disease samples, bringing the total cost of the study to \$2,110,400.

The incremental costs of this Amendment are \$1,000,000, assuming all samples are analyzed.

The Parties acknowledge that this budget is an estimate, and that actual costs may prove to be higher due to a number of potential factors. BP's commitment to fund the costs of this work includes any additional reasonable costs within the scope of this work plan that may arise because of any contingencies. The trustees will make a good faith effort to notify BP in advance of any such contingencies.

Table 1. Proposed metrics for the Spring Recruitment Sampling Plan

Metric	Proposed Frequency of Sampling
<i>Effect Metrics</i>	
Disease	Two samples per site (first sample collected during one of three site visits in Spring 2011 and second sample collected during one of three site visits in Summer 2011)
Gonadal condition	Two samples per site (first sample collected during one of three site visits in Spring 2011 and second sample collected during one of three site visits in Summer 2011)
Larval settlement	Six rounds of plate deployment/retrieval (spaced approximately three weeks apart)
<i>Exposure metrics</i>	
Tissue concentrations	Two rounds of samples collected during six site visits (three in Spring and three in Summer 2011)
Oiling observations (qualitative)	Collected on each site visit

Table 2: Estimated Sampling Activity for Spring Recruitment Sampling Plan

Metric	Method	N = Sample Sizes (Potential Maximum # of sites)				Estimated subsamples per site	Estimated subsamples per event	Freq. of sampling	Estimated Total # of subsamples
		<i>LA</i>	<i>MS</i>	<i>AL</i>	<i>FL</i>				
Oyster Settlement	Settlement plate	103	15	7	11	2 samples (3 plates each) ¹	272	6	1,632 (816 analyzed)
Oyster Gonadal, Condition and Disease	Oysters	103	15	7	11	10-15 oysters	1,360 - 2,040 oysters (136 samples)	2	2,720 – 4,080 oysters
Tissue contaminant analysis	Oysters	103	15	7	11	6 oysters (1 composite)	816 oysters (136 composites)	2	1,632 oysters (272 composites)

¹ Two samples are deployed at each site in the event that one sample is lost during the deployment period. If both samples are retrieved, one sample from the pair will be selected randomly and analyzed, so that only one sample will be enumerated per site. Both the analyzed sample and the unanalyzed sample will be archived.

Table 4. Costs for Spring Recruitment Sampling Plan (Assumes 136 Sites)

Item	Unit cost	Units	Units	Costs (per event)	# (of events)	Total cost
FIELD SAMPLING/PROCESSING						
Settlement Plate and Dredge						
Field Sampling						
(Rds 1-5 Deployment & Pickup;						
Rd 6 Deployment Only)						
				\$192,600	6	\$1,155,600
Personnel	█	Person days	█	\$81,600		\$489,600
Boat charges	\$1,600	Days	60	\$96,000		\$576,000
Supplies	\$250	Days	60	\$15,000		\$90,000
Settlement Plate Pickup Round 6						
				\$128,400	1	\$128,400
Personnel	█	Person days	█	\$54,400		\$54,400
Boat charges	\$1,600	Days	40	\$64,000		\$64,000
Supplies	\$250	Days	40	\$10,000		\$10,000
Settlement Plate Processing						
				\$22,840	6	\$137,040
Personnel	█	Person days	█	\$20,800		\$124,800
Supplies	\$5	Samples	136	\$680		\$4,080
Shipping and archive charges	\$5	Samples	272	\$1,360		\$8,160
Dredge Processing						
				\$85,680	2	\$171,360
Personnel	█	Person days	█	\$81,600		\$163,200
Supplies	\$5	Samples	408	\$2,040		\$4,080
Shipping and archive charges	\$5	Samples	408	\$2,040		\$4,080
Cooler Rental	\$2,000	Month	7	\$14,000	3	\$42,000
Field Sampling/Processing Total						\$1,634,400
LABORATORY ANALYSIS						
Sediment Contaminants	1,500	Sample	N/A	N/A	N/A	N/A
Oyster Contaminant	1,500	sample	136	\$204,000	2	\$408,000
Disease and Gonad	250	sample	136	\$34,000	2	\$68,000
Laboratory Total						\$476,000
TOTAL						\$2,110,400