

Mississippi Canyon 252

ADDENDUM: ASSESSMENT PLAN TO DETERMINE POTENTIAL EXPOSURE AND INJURIES OF NESTING AND HATCHLING KEMP'S RIDLEY TURTLES AND THEIR NESTS - 2012 FIELD SEASON

Approval of this Kemp's Ridley Sea Turtle Plan Addendum is for the purposes of obtaining data for the Natural Resource Damage Assessment. Each party reserves its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan.

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.

The Trustees have developed a preliminary conceptual model of the DWH release, potential pathways and routes of exposure, and potential receptors. This preliminary model has informed the trustees' decision to pursue the studies outlined in the work plan.

Kevin D. Reynolds 8/24/2012
Department of the Interior Trustee Representative: Date

[Signature] 9/13/12
Louisiana Trustee Representative: Date

[Signature] 8/30/2012
Texas Trustee Representative: Date

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Introduction

Potential impacts of *Deepwater Horizon*/Mississippi Canyon 252 (MC 252) oil and dispersants on Gulf coast Kemp's ridley sea turtles may range from mortality to sub-lethal stress and chronic impairment, including potential deleterious effects on reproduction and recruitment.

A Technical Working Group (TWG), composed of technical experts and trustee agency representatives has been assembled to draft a work plan to carry out post-discharge assessment of Kemp's ridley sea turtles along the Texas coastline of the Gulf of Mexico in support of the ongoing Natural Resource Damage Assessment (NRDA) for the MC 252 Oil Spill. Additionally, BP Exploration and Production, Inc. (BP) has participated in a review capacity. The trustees and BP, however, were unable to reach consensus on the assessment activities in time to conduct the field activities, so the trustees pursued this Assessment Plan independently.

This *Addendum: Assessment Plan to Determine Potential Exposure and Injuries of Nesting and Hatchling Kemp's Ridley Sea Turtles and Their Nests - 2012 Field Season* (Plan) is a component of the NRDA for the MC 252 Oil Spill. All studies called for by this Plan are to be completed as an adjunct to the ongoing efforts conducted on behalf of the Division of Sea Turtle Science and Recovery at the Padre Island National Seashore (PAIS). In 1986, Padre Island National Seashore began systematic efforts to detect, investigate, and protect nesting by Kemp's ridley and other sea turtles on North Padre Island, and these efforts have grown over the years. Nest detection patrols occur on the entire Texas Gulf of Mexico beachfront to some extent during the Kemp's ridley nesting season. Collection of Kemp's ridley nests occurs primarily between April and July. Nests that are found on the Texas coast are retrieved for protected incubation. Most nests from North Padre Island (including PAIS) northward are transported to the incubation facility at PAIS for protected care. Some nests from the southern end of PAIS are moved to a corral located at a base camp there. All nests from South Padre Island and Boca Chica Beach are moved to a corral on South Padre Island. The data collected in this new NRDA effort will supplement data collected in the 2010 and 2011 Kemp's ridley nesting seasons and will be similar to data collected pursuant to the Loggerhead nesting NRDA Preassessment plans. The Kemp's and Loggerhead nesting plans were signed by BP and Trustees in 2010 and 2011. The work described in this Plan is a subset of the National Park Service's Kemp's ridley monitoring program, and includes collection of data that supplement the typical information collected annually.

Purpose:

The purpose of this Plan is to document potential exposure to MC 252 oil and dispersants (hereafter referred to as "MC 252 oil") and possible associated impacts to the adult, hatchling and egg life stages of Kemp's ridley sea turtles, a species that resides in the Gulf of Mexico and nests along the Texas shoreline. The Plan provides for data collection to document post-discharge conditions consistent with the standard operating protocols (SOPs) referred to in this document. This Plan is the third year of a study to assess the potential impacts of the MC 252 Oil Spill on nesting and hatchling Kemp's ridley sea turtles and Kemp's ridley sea turtle nests as part of the Deepwater Horizon NRDA. Data generated pursuant to this Plan are anticipated to assist in characterizing potential exposure and possible resulting impacts that may have occurred in this species while nesting females foraged in the area of the release.

Objectives

1. Assess nesting female physical condition, conduct satellite tracking of inter-nesting and post-nesting movements, and collect blood samples as part of the annual Kemp's ridley management program.
2. Collect samples to assess possible toxicological and physiological effects and impairments in nesting females, eggs, and hatchlings at Padre Island National Seashore and Upper Texas coastal beaches in the Gulf of Mexico.

The intent is to achieve these objectives by conducting nesting female physical evaluations; satellite tracking of nesting female inter-nesting and post-nesting movements; collecting blood samples; and collecting residual tissue samples from eggshells, non-viable eggs, and hatchlings.

Post-collection sample analyses to be conducted will be described in a separate addendum. The Analytical Addendum for the 2012 field season will be similar in nature and scope to the 2010-2011 Turtle Analytical Plan and will include similar analyses for Polycyclic Aromatic Hydrocarbons (PAHs) and fingerprinting for MC252 oil, where technically practicable. Modifications may be made to the new analytical plan as lessons are learned from implementation of the 2010-2011 Plan.

Background:

The general background material for this Plan has not changed from the previously approved 2010 work plan.

General Study Approach

The study approach for this Addendum is similar to that used in the previously approved 2010, and 2011 work plans, with the addition of the following:

1. Blood samples taken from nesting adult female Kemp's ridley turtles will be assessed for hematological and immune endpoints at the time of collection due to their requirement for fresh rather than frozen blood.
2. Sand and cracked egg samples will not be collected during this field season.

Modification details, where appropriate, can be found in the Sampling Design section, below.

Study Area:

Activities covered in this Addendum will incorporate the same two study areas, Bolivar Peninsula through Surfside Beach, and Padre Island National Seashore, described in the previously approved 2010 and 2011 work plans.

Sampling Design:

Nesting Female Assessments:

Texas coastal surveys for nesting Kemp's ridley turtles and standard identification (non-transmitter) tagging will be performed in the same manner as described in the previously approved 2010 and 2011 work plans. For nesting sites in the two NRDA study areas, including those where no turtle was encountered, GPS data will be collected. If an animal was previously tagged by study investigators or other investigative groups, then the previously established animal identification numbers will be maintained.

Turtles from the two field study areas will be examined as field conditions and resources permit, and any evidence of illness or lesions will be described in detail in field notes and photographed. Any turtle found with visible oil, and all turtles receiving satellite transmitters, will undergo a carapace swab. A 10 cm square section of the highest point of the carapace will be swabbed with a methanol soaked Teflon® pad which will be immediately placed in a pre-certified chemically-clean glass container. Any visible oil will be collected in the same manner from all nesting turtles from both study sites.

For nesting turtles from each of the two study areas that receive satellite transmitters, field personnel will attempt to collect 20 milliliters of blood from the cervical sinus using Vacutainer® needles and tubes (Becton, Dickinson and Company, Franklin Lakes, New Jersey). Blood samples will be partitioned for clinical chemistry, hematology and chemical analyses to be described in a separate analytical addendum. At the time of blood collection, subsamples will be processed for endpoints requiring fresh blood. These include basic hematological and immune function assessments.

Six mm biopsy punches will be used to obtain both tissue and scute samples (per approved FWS protocol) in the same manner as described in the previously approved 2010 and 2011 work plans. Unlike the previous plans, cracked eggs and nest substrate will not be preserved and analyzed.

Nesting emergence and success

After nesting is complete, all nests will be excavated and the eggs will be moved to either a protected corral or the sea turtle incubation facility at the Padre Island National Seashore for the duration of the incubation period.

Following hatching and emergence, all remaining nest contents (unhatched eggs, hatched eggs, pipped eggs) and live and dead hatchlings and embryos will be processed in a similar manner as described in the previously approved 2010 and 2011 work plans.

Sea Turtle Tracking and the Number and Extent of Nesting Females Potentially Exposed

Depending on the number of turtles observed, up to five turtles located within each of the two study areas will be fitted with SIRTRACK Kiwi Sat 101 satellite tags and up to five from each site with Wildlife Computer Mk10 Fastlock GS satellite tags (for a total of up to 20 satellite transmitters deployed), using established methods for sea turtle satellite telemetry (Seney and Landry 2008, Shaver and Rubio 2008), and in the same manner as described in the previously approved 2010 and 2011 work plans. The Fastlock tags will be programmed to provide dive data, as well as to obtain GPS locations once per week.

Sample and Data Handling:

MC 252 NRDA chain-of-custody procedures will be observed for all samples. All samples will be transferred with appropriate chain of custody forms, and all samples that will undergo chemical analysis will be shipped to appropriate laboratories for processing and analysis. Camera memory cards (to include GPS locations) will be handled under Chain-of-Custody after a card is full or after the study is completed pursuant to the National Ocean and Atmospheric Administration's DWH NRDA protocol for transferring and uploading digital photos.

All field and laboratory data will be collected, managed and stored in accordance with written SOPs. The appropriate training on particular equipment or in the conduct of specific field studies for all personnel involved with the project shall be documented and those records kept on file for the duration of this project.

All materials associated with the collection or analysis of samples under these protocols or pursuant to any approved work plan, including any remains of samples and including remains of extracts created during or remaining after analytical testing, must be preserved and disposed of in accordance with the preservation and disposal requirements set forth in Pretrial Orders ("PTOs") # 1, # 30, #35, # 37, #39 and #43 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). Destructive analytical testing of oil, dispersant or sediment samples may only be conducted in accordance with PTO # 37, paragraph 11, and PTO # 39,

paragraph 11. Circumstances and procedures governing preservation and disposal of sample materials by the trustees must be set forth in a written protocol that is approved by the state or federal agency whose employees or contractors are in possession or control of such materials and must comply with the provisions of PTOs # 1, # 30, # 35, 37, #39 and #43.

Data Sharing

Copies of all data collected in accordance with this Plan, including raw data, field sheets, and field notes, will be provided to the Louisiana Oil Spill Coordinator's Office (LOSCO) within a reasonable timeframe once data collection, QA analyses and data entry procedures are complete, and no later than 45 days after the non-analytical data are collected. *Non-analytical data include:* field sheets, photos, photologger forms and GPS files. For non-analytical data collected before the Plan is signed, such data shall be shared not later than 45 days after the Plan is signed. Telemetry data will be made publicly available on www.seaturtle.org after a 7 day delay for QA/QC review and will be provided until such time as the telemetry devices cease to operate.

All samples collected pursuant to this plan will be submitted to laboratories that are operated in a manner that is consistent with the guidelines of the Analytical Quality Assurance Plan for the Mississippi Canyon (Deepwater Horizon) Natural Resource Damage Assessment (version 3.0 or later).

Budget:

The total field cost for this 2012 Addendum is \$344,725. The Parties acknowledge that this budget is an estimate, and that actual costs may prove to be higher.

Principle Investigator:

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Other investigators:

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U.S. Fish and Wildlife Service Coordinators:

Tom Shearer (361-994-9005, Tom_Shearer@fws.gov)

Primary Responsibilities of Lead Investigators

Name	Role
Dr. Donna Shaver National Park Service	Principle Investigator/Project Coordinator
Dr. Kim Reich Texas A&M University at Galveston	Lead Investigator for Bolivar Peninsula to Surfside
Dr. Michael Hooper U.S. Geological Survey	NRDA, Restoration and toxicology support
Dr. Céline Godard-Codding Texas Tech University	Collection Support, sample/data management
Tom Shearer U.S. Fish and Wildlife Service	Trustee representative, consultant on permitting

Data Collection Summary Outline

Turtles

- Collect blood from nesting females
- Collect hematological and immune function data
- Satellite track inter-nesting and post-nesting movements
- Collect scute samples from nesting turtles
- Collect tissue samples from nesting turtles
- Take carapace swipes from satellite transmitter-tagged nesting turtles and oiled turtles
- Take additional samples of oil from nesting turtles with visible signs of oil
- Describe and photograph any signs of illness or lesions on nesting turtles

Nests

- Collect tissue samples from unhatched eggs and dead hatchlings
- Collect CAMs from dead late stage embryos and eggshells
- Collect gonad and DNA samples from dead late stage embryos

Nesting data

- Collect GPS points for every nest in the two study areas.

LITERATURE CITED

Seney, E.E., and A.M. Landry, Jr. 2008. Movements of Kemp's ridley sea turtles nesting on the upper Texas coast: implications for management. *Endang Species Res* 4:73-84

Shaver, D.J. and C. Rubio. 2008. Post-nesting movement of wild and head-started Kemp's ridley sea turtles (*Lepidochelys kempii*) in the Gulf of Mexico. *Endang Species Res* 4:43-55
