

**WORK PLAN SUPPLEMENT FOR ESTIMATING SHOREBIRD OILING
AND POTENTIAL MORTALITY FOR THE DEEPWATER HORIZON
(MISSISSIPPI CANYON 252) OIL SPILL**

BIRD STUDY #5

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INTRODUCTION

The Deepwater Horizon (Mississippi Canyon 252) oil spill began April 20, 2010. Oil spill related injury to wildlife is a major concern of the Natural Resource Trustees, BP and the public. Seabirds, colonial waterbirds, secretive marsh birds, and shorebirds are susceptible to impacts from oil. Several workplans have been developed concurrently to evaluate potential oil spill related injuries to these different avian guilds including: Secretive Marsh Birds (Bird Study #3), Colonial Waterbirds (Bird Study #4), Breeding Shorebirds (Bird Study #8), Pelagic Birds (Bird Study #6), Piping Plovers (Bird Study #7), and Non-Breeding Shorebirds (Bird Study #5). This plan is a supplement to the Non-Breeding Shorebird Plan, which is the fifth in a series of avian injury ephemeral data collection studies.

The studies described in the Non-Breeding Shorebird Plan, and the field work included in this supplemental plan, are intended to refine the overall estimate of shorebird mortality due to the oil spill. The third objective of the Non-Breeding Shorebird Study outlines data collection that is intended to support an estimate of the potential effects of the oil spill on the short-term survival rate of adult shorebirds along the Gulf Coast using the American oystercatcher as an indicator species. The focus of this study is to supplement Bird Study #5 by collecting similar data on the short-term survival rate of eastern willets (*Tringa semipalmata*) along the Louisiana coast.

Throughout the year, willets are an abundant component of the coastal avifauna, with an estimated 50,000 willets generally found along the Louisiana and Texas Coast in the fall (William Vermillion, Gulf Coast Joint Venture, Pers. Comm). Willets tend to concentrate and spend most of their time on the edges of the shoreline or marsh areas, and their foraging preferences for gleaning and probing in coastal sediments may make them susceptible to impacts from shoreline oiling. Therefore, the collection of data related to this additional representative species should further assess and refine estimates of potential oil spill-related short-term mortality to shorebirds.

Willetts will be netted, banded and radio-tracked to estimate the short-term survival rate of shorebirds inhabiting the Louisiana Gulf Coast.

BACKGROUND

The U.S. Shorebird Conservation Plan identifies the Gulf of Mexico coast as one of the most important areas in the United States for the conservation of continental shorebird populations (GCPWG 2000). The plan also identifies oil spills as a potential threat to long-term health and viability of shorebirds and their habitat. Coastal oiling associated with the Deepwater Horizon (Mississippi Canyon 252) oil spill could influence the survival of shorebirds. In addition to potential harm from direct dermal exposure, exposure to oil through preening, or direct ingestion may represent exposure pathways.

Areas that have been impacted by the Deepwater Horizon oil spill host significant numbers of shorebirds as they move through the area of potential impact during migration to wintering areas further south, or overwinter in the Gulf of Mexico. Shorebirds that inhabit the Louisiana Gulf Coast include populations of the eastern willet (*Tringa s. semipalmata*), which are particularly

abundant along the Louisiana coast.

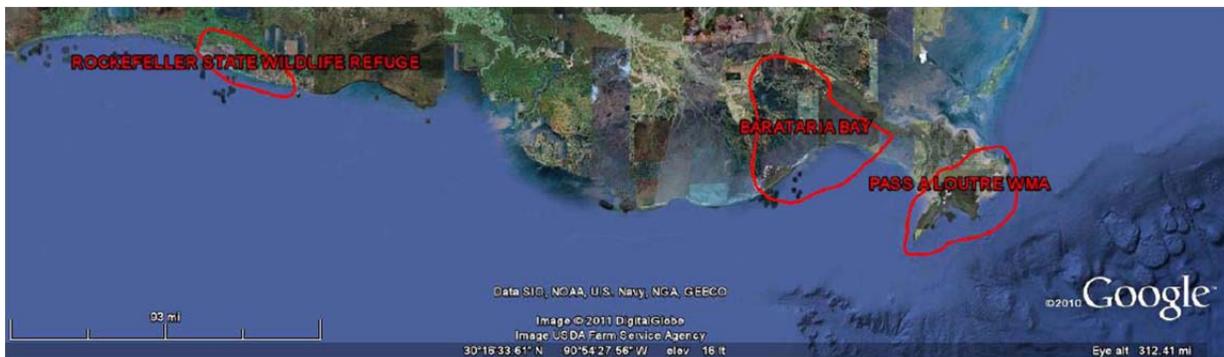
OBJECTIVE

The main objective of this supplement is to estimate the short-term survival rates of eastern willets on the Louisiana Gulf Coast. Survival rates will be estimated for visibly oiled birds trapped in two oiled study areas, and for birds that are not visibly oiled collected from a nearby area not affected by direct oiling.

STUDY AREA

Three areas have been targeted for this study because they have large known populations of willets: Pass a Loutre Wildlife Management Area (PALWMA), Barataria Bay, and Rockefeller State Wildlife Refuge. Pass a Loutre and Barataria Bay have been selected as study areas because they are known to have been heavily oiled during the course of the spill and are still oiled as of March 2011. Rockefeller Wildlife Refuge has been selected as the reference area since no Deepwater Horizon oiling has been documented in this location, and it is located far enough away that DWH oiled willets are unlikely to be found there. Birds will be tracked generally as far as the vicinity of Galveston, TX to the west, the Louisiana/Mississippi border to the east, and as far inland as the Intercoastal Canal.

Figure 1, Shows the study areas that have been selected for tagging willets.



STUDY DESIGN

The purpose of this data collection effort is to estimate short-term survival rates among visibly oiled eastern willets from oiled areas, in comparison to eastern willets with no visible oiling from a reference area. This comparison could help to determine if exposure to oil has an effect on the short-term survival rates of these birds.

Individual birds will be captured using whoosh, cannon, mist or rocket nets, or net guns. All captured birds will be examined for visible oiling and for fluorescence under UV light, and all birds will be banded. Only visibly oiled eastern willets will be fitted with transmitters in the study areas and only visibly unoiled eastern willets in the reference area will be fitted with

transmitters. Transmitters on eastern willets meeting these and other pre-determined criteria will be equipped with mortality switches, and tracked via air, boat or from land using radio-telemetry receivers.¹ Transmitters will allow the birds to be more easily located in a broad landscape so that visible oiling status can be assessed from a distance for each individual. Transmitter attachment will follow USGS Bird Laboratory banding permit guidelines. Feather samples will also be taken from each bird captured.

SAMPLE DESIGN

Sample Unit-individual eastern willet.

Sample Selection- Individual willets will be captured within the three study areas that have been selected (2-heavily impacted areas and 1-reference area). In the heavily impacted areas, only visibly oiled birds will be fitted with transmitters. In the reference area, only birds with no visible oil will be fitted with transmitters. Birds will be trapped at sites of potential exposure within the impacted areas and at selected willet use sites with similar habitat in the reference area. Every effort will be made to tag birds in the impact and reference areas at roughly the same time.

Sample Size- An attempt will be made to place transmitters on sixty visibly oiled birds divided approximately evenly between the two selected impact areas, as practical and consistent with the goals of the study. Sixty birds with no visible oil will also be fitted with transmitters in the reference area.

Survey Frequency or Duration- It is anticipated that capture efforts will begin in March 2011. Tracking will occur throughout the expected life of the transmitters, which is expected to be approximately four to six months. Every effort will be made to capture and tag all individuals by June 1.

DATA COLLECTION

Trapped willets will first be visually assessed for oil, and then examined under ultraviolet (UV) light according to a standard operating procedure (SOP) (Attachment 1). Visible oiling observations under ambient light, and fluorescence under UV light, will be recorded separately on the Universal Avian Capture Form (Attachment 2). Field teams will work cooperatively to reach consensus on the oiling and fluorescence status of a bird while in the field in accordance with Attachment 3. Birds will then be measured to determine if they are eastern or western willets (see Attachment 5, SOP for Identifying Eastern and Western Willets), with radio tags to be affixed only to visibly oiled eastern willets in the two impact areas and to eastern willets with no visible oiling in the reference area. All willets captured will be fixed with standard USGS color leg bands and individual field-readable codes, as well as color banded based on the study area in which they were captured. Feather samples will be collected per SOPs, and archived for

¹ Although all data from this effort will be shared and otherwise treated as cooperatively collected under this plan, all aerial surveys will be conducted solely by the Trustees.

possible future analysis (Attachment 9). Eastern willets meeting minimal mass requirements will also be outfitted with 3.2 g radio transmitters. Transmitters will be attached to the birds with backpacks. (Dwyer, T.J. 1972).

Radio tagged birds will be remotely located (via radio transmitter) daily, as practicable, for the first 14 days after transmitter attachment to monitor for post-handling mortality. Thereafter, all tagged willets will be remotely located at least once a week until transmitters fail (expected to be within 4-6 months after installation). Relocation surveys will be conducted from the ground, by boat or by plane as needed. Study birds will be checked at least weekly for visible signs of oiling throughout the study period and scored as not visibly oiled, oiled to a specific degree (Attachment 3), or not resighted.

If a mortality signal is received, every effort will be made to recover the individual within 24 hours. When possible, radio tagged carcasses will be retrieved, documented, and turned over to the appropriate authority using current SOPs (Attachment 10 and 11). Prior to turning over any carcass, the radio transmitter will be removed. Radio tags purchased by BP will be returned to BP or its designated representative, unless otherwise agreed.

Results of daily relocation efforts will be added to a telemetry summary sheet (see Attachments 6 and 7) and e-mailed weekly to the Louisiana Oil Spill Coordinators Office (LOSCO), USFWS, and BP or its designated representatives. BP or its designated representative will be notified of all mortality signals and provided at least two hours advance notice, if practicable, to participate in any carcass recovery effort. Recovered carcasses will be collected according to standard carcass collection protocols. (Attachment 10 and 11).

GENERAL OPERATING PROCEDURES

All field and laboratory data will be collected, managed and stored in accordance with US EPA Good Laboratory Practice regulations (GLPs) to the extent practicable. In accordance with GLPs, all field and laboratory work, and the calibration and use of field and laboratory equipment (e.g., scales, hand held GPS devices, etc.) shall be conducted using 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 by the implementing entity for the duration of this project. Copies of all data (including electronically archived data) and data sheets or electronic files, must be promptly transferred to USFWS and BP or their representative. Original data will be provided to LOSCO. All samples will be sent to NRDA qualified laboratories. All samples and data sheets will be transferred with appropriate chain of custody forms.

Laboratory Data

No chemical analysis of any samples is currently included in this Study Plan. In the event that samples are collected during the implementation of this study, and the Trustees and BP agree that such samples should be cooperatively submitted to a laboratory for analysis, 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 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 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 Analytical Quality Assurance Plan, after which time the validated/QA/QC'd 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 Analytical Quality Assurance 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. In order to ensure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data have 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/unvalidated" and will be made available equally to all trustees and to BP (or ENTRIX on behalf of BP).

Durable Equipment - All durable equipment (such as cameras, GPS, etc.) purchased by BP for this study will be returned to BP or their designated representatives at the conclusion of its use for this study. Radio tags that are recovered or are not deployed will also be returned to BP or its designated representative at the conclusion of this study, unless otherwise agreed.

Carcass Management - Carcasses encountered during field efforts will be processed according to the current Deepwater Horizon (MC 252) Oil Spill Carcass Collection Protocol (Attachment 10).

Adaptive Management of Field Efforts – BP's continued participation in, and funding of the cooperative Non-Breeding Shorebird plan, or any of its specific tasks, is contingent upon adherence to SOPs and any modifications agreed upon by BP and the Trustees. Adherence will be reviewed at discussions occurring 15 days after the first bird is fitted with a radio transmitter, and after 30 field days to discuss the status of the surveys, unless otherwise agreed.

Over the first 30 field days, the cooperative field teams will tag only as many reference birds as have been tagged in the impacted areas, plus up to five additional reference birds.

If the field teams are unable to tag at least 15 visibly oiled eastern willets within 30 field days or by the end of April, whichever comes later, the Trustees and BP will meet to review all data collected to date and decide whether to terminate the study. If BP decides it will no longer fund the study, the Trustees may proceed independently. In such event, BP agrees not to initiate field work that duplicates or overlaps Trustee willet tagging or tracking efforts.

The Trustees and BP will meet (either in person or by phone) for project review every 30 to 45 days for the duration of the effort (including tracking, once tagging is complete). After such a meeting, if BP decides it will no longer fund the study, the Trustees may proceed independently. BP may also cease funding and withdraw if 45 days pass without such a meeting despite BP's good faith efforts to schedule one. In either case, should Trustees continue the study, BP agrees not to initiate field work that duplicates or overlaps Trustee willet tagging or tracking efforts.

Scheduling Capture and Tagging Efforts- A good faith effort will be made to conduct field operations with cooperative, integrated teams of observers. A weekly schedule describing the number of teams and their general area of operation will be prepared by the Trustees' project coordinator, and provided to BP or its designated contractor two weeks in advance of each week's scheduled field operations, if practicable. BP or its designated representative will provide the Trustees' project coordinator a list of the teams on which it will participate at least 10 days prior to the beginning of the designated week. If these agreed-upon notification and coordination procedures are followed, yet circumstances prevent BP or its designated representative from participating in a survey, the survey will be carried out without the participation of BP or its designated representative's participation.

Prior to concluding each field day, integrated teams will share (1) all data sheets (2) all official photographs, and (3) the official GPS track log using methods developed as part of the Beached Bird Survey (Study #1) effort. In the event that a survey is carried out without BP or its designated representative present, the data (data sheets, track logs, photos) will be e-mailed to a designated BP representative within 48 hours of collection. If a survey is carried out without a Louisiana Wildlife and Fisheries representative, the data will be e-mailed to LOSCO within 48 hours of collection.

Safety - Field teams will comply with all existing training and safety protocols as applicable to operations. Prior to commencement of field activities, BP and the Trustees will agree upon a person or persons to whom study participants may report any safety concerns. Such person(s) will take action to address and resolve reported concerns in a timely fashion.

LITERATURE CITED

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- Gulf Coastal Prairie Working Group. 2000. U.S. Shorebird Conservation Plan: Lower Mississippi/Western Gulf Coast Shorebird Planning Region.
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WORKPLAN ATTACHMENTS

ATTACHMENT 1-STANDARD OPERATING PROCEDURE FOR VISUAL OBSERVATION AND PHOTOGRAPHY OF FLUORESCENCE ON SHOREBIRDS USING AN ULTRAVIOLET LIGHT SOURCE

ATTACHMENT 2- MC 252 UNIVERSAL AVIAN CAPTURE FORM

ATTACHMENT 3- NRDA BIRD OILING LEVELS

ATTACHMENT 4-INSTRUCTIONS FOR NRDA WILLET TEAMS

ATTACHMENT 5-SOP FOR IDENTIFICATION OF EASTERN VERSUS WESTERN WILLETS

ATTACHMENT 6-WILLET RADIO TRACKING MASTER SHEET

ATTACHMENT 7-WILLET TELEMETRY SURVEY FORM

ATTACHMENT 8-LIVE ANIMAL ASSESSMENT FORM: NON-BREEDING SHOREBIRDS

ATTACHMENT 9-AVIAN SAMPLE COLLECTION FIELD PROTOCOL

ATTACHMENT 10-AVIAN CARCASS COLLECTION PROTOCOL

ATTACHMENT 11-AVIAN CARCASS COLLECTION CHAIN OF CUSTODY RECORD

BUDGET

	Rate	Total
Personnel-USGS		
PI Salary for 6 months		
General Biologist (1) for 6 months		
Biotech II (7) for 4 months		
Statistical Support		
Spatial Analysis Support		
Travel & Per Diem (\$1,000/month for 6 people)		
Color Leg Bands		1,000.00
Radio Transmitters		
120 for willets (\$175/each)		21,000.00
Receivers provided by NWRC		
Replacement parts for telemetry equipment (i.e., antenna elements, cables, etc.)		500.00
Boats, Airboats, and Vehicles Fuel (\$300/week for 16 weeks)		4,800.00
Repairs		1,000.00
Supplies/Non-capital equipment		5,000.00
USGS Total		290,500.00
Indirect Costs		124,915.00
USGS Total		415,415.00
Personnel-LDWF		
Field Biologist (3) for 4 months		
Travel & Per Diem (6450/month for 3 people)		
LDWF Sub-Total		61,227.00
Total		\$ 476,642.00

Contingency funding - The Parties acknowledge that this budget is an estimate, and that actual costs may prove to be higher. 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. The trustees will make a good faith effort to notify BP in advance of any such increased costs.

**OILING AND POTENTIAL MORTALITY
DEEPWATER HORIZON (MISSISSIPPI CANYON 252) OIL SPILL
BIRD STUDY #5 SUPPLEMENT**

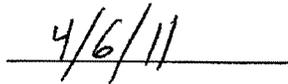
Approval of this work plan is for the purpose of obtaining data for the Natural Resources Damage Assessment. Each Party signing below reserves its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan

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.

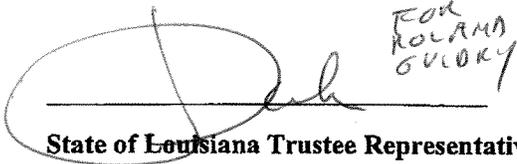
APPROVAL



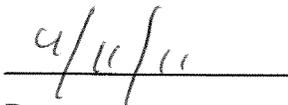
Trustee NRDA Bird Group Lead



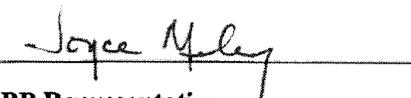
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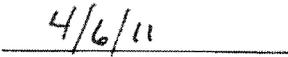
State of Louisiana Trustee Representative



Date



BP Representative



Date

Aerial Tracking

Most locations of instrumented willets will be obtained from ground tracking using hand-held antennae (3 element folding Yagi) and Advanced Telemetry R4500S Receiver-Datalogger. Instrumented birds which are not located by the ground tracking will be located by the PI from a Cessna Amphibean-182 aircraft weekly. The area bounded by the Texas Stateline to the west and the Mississippi Stateline to the east and south of the Intercoastal Water Way will be searched systematically. Aircraft use for locations will follow the procedures outlined in Gilmer et al. 1981. Antennae will be mounted on wing struts facing sideways. Coaxial cable will run from each antenna into a right-left switch box to determine direction of the transmitter from the aircraft. Initial flights will be at 1000 feet AGL. When a bird missed by the ground tracking is located, elevation will be reduced to 500' AGL to determine an accurate location of the transmitter. All GPS locations of transmitted birds gathered during the aerial surveys will be recorded on the "Willet Telemetry Survey Form," in Attachment-7. After completion of the flight, the ground tracking teams will go to the location of the missing bird to determine bird status.

Literature Cited

Gilmer, D.S., L.M. Cowardin, R.L. Duval, L.M. Mechlin, C.W. Shaiffer, and V.B. Kuechle. 1981. Procedures for the use of aircraft in biotelemetry studies. U.S. Fish Wildl. Serv., Resource Publ. 140. 19pp.

Budget

Aircraft (\$300/hour/week, total of 64 hours)	\$19,200.00
Indirect Costs (43%)	\$ 8,256.00
Total Aerial Tracking	\$ 27,456.00