Mississippi Canyon 252

ASSESSMENT PLAN FOR BIRD COLONY AERIAL PHOTOGRAPHY – 2012

Approval of the Assessment Plan for Bird Colony Aerial Photography 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. By signing this work plan and agreeing to fund the work outlined, BP is not endorsing the model articulated in the work plan.

Kerrim D. Reynolds — 5/15/2012

Department of the Interior Trustee Representative — Date

FOR ROLAND GUIDRY — 6/9/12

Louisiana Trustee Representative — Date

5/16/2012

BP Representative — Date

INTRODUCTION

This *Assessment Plan for Bird Colony Aerial Photography 2012* is part of the ongoing Natural Resource Damage Assessment (NRDA) for the *Deepwater Horizon*/Mississippi Canyon 252 (MC 252) Oil Spill (Oil Spill) to assess potential impacts to birds resulting from the Oil Spill. Birds will be in breeding colonies throughout the Study Area (see definition, below) during the months of May and June, 2012. During this period, the Trustees will conduct two photographic surveys of seabird and coastal wader colonies in Louisiana, Alabama, Mississippi, and the Florida panhandle. Since the various species present at these colonies differ in their breeding phenology, the Trustees will visit all documented colonies in the study area twice, once during the May survey and once during the June survey.

STUDY AREA

The Study Area for this Assessment Plan is defined as the region between Atchafalaya, Louisiana and Apalachicola, Florida. The Trustees will revisit all colonies that were surveyed in 2010 and 2011, regardless of whether they were found to have breeding activity at that time.

METHODS

Aircraft and Crew

Colony photography will be accomplished using a small fixed wing aircraft equipped with a belly port for photography. Survey crews will consist of two photographer/observers and a navigator/ data logger who will record summaries of observations and direct the pilot. Flight lines from aerial photography surveys carried out in May and June 2010 are shown in the figure below. These surveys were repeated in 2011.

Colony Photography

Colony photographs taken in 2012 will provide a detailed record of bird attendance and behavior for eventual comparison with the equivalent 2010 and 2011 data. The Trustees will revisit all colonies found to be active in 2010-11 and, as was done in the previous two surveys, will systematically check the status of all the colony sites in Louisiana, Alabama, and Mississippi for which there are records from the last (approximately) 30 years. Some of these colonies may no longer be attended. Active colonies are photographed in multiple frames using high resolution digital cameras equipped with telephoto lenses. These photographs are sufficiently detailed that even the postures and species of relatively small birds such as terns can usually be distinguished. Colony locations, altitude, trackline, and photographic frame numbers are recorded on a computer/GPS system. When engaged in colony photography, the aircraft will remain at an altitude of 600' ASL or more at all times to avoid any flushing behavior or disturbance on the part of nesting or roosting birds. (See Appendix A for Standard Operating Procedure).

COORDINATION WITH MANAGERS OF CONSERVATION UNITS

Avoiding any disturbance to colonies is a high priority. Disturbance can negatively affect the productivity of colonies, and photographic counts cannot be made if a colony is disturbed. At no time will National Park Service (NPS) lands, U.S. Fish and Wildlife Service (USFWS) refuges, or Louisiana Department of Wildlife and Fisheries (LDWF) management areas be crossed at altitudes less than 600'. If managers have concerns regarding disturbance, they may place monitors who are in direct communication with the aircraft on the ground near the colonies. If monitors have *any* concerns about the behavior of the birds, they can contact the aircraft and immediately halt the photographic survey until such time as they indicate it is safe to approach the colony again. This technique has been used on the west coast for colonies that are in the jurisdiction of both NPS and USFWS, and has been found to be an effective way of monitoring and avoiding colony disturbance.

PERMITTING

The appropriate state and federal permits, including research permits for National Park Service lands and special use permits for U.S. Fish and Wildlife Service Refuge lands, will be secured prior to any field activities.

DATA HANDLING

MC 252 NRDA chain-of-custody procedures will be observed for camera memory cards after a card is full or after the study is completed pursuant to a protocol for transferring and uploading digital photos.

Copies of all data collected in accordance with this Assessment Plan, including raw data, field notes, and photographs will be provided to BP and its representatives and the Louisiana Oil Spill Coordinator's Office (LOSCO) within 30 days of the completion of data collection.

BUDGET

The total field costs for this Assessment Plan is $ 174,007. 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 approved work plan that may arise. The trustees will make a good faith effort to notify BP in advance of any such increased costs.

APPENDIX A

SOP FOR BIRD COLONY AERIAL PHOTOGRAPHY

Aerial photographic surveys will be used to census seabird and waterbird colonies between the Louisiana border and Apalachicola Bay based on previous colony photographic surveys carried out in 2010 and 2011 (Table 1 and, Figure 1). The survey area in 2010 was larger than in 2011 because the actual extent of the spill was better defined by 2011. The list of colonies visited in 2011 will be used as the baseline for planning the 2012 flights. Colonies containing only cryptic beach nesting birds, such as Least Terns or plover species, are not included.

Colony photographic surveys will be carried out from a fixed wing aircraft or helicopter configured so that two photographers can work simultaneously. Photographers will be familiar with both aerial survey protocols and colony counting methodology so that they can determine immediately whether or not photograph quality is adequate for purposes of counting. Digital SLR cameras equipped with 18-200 mm and 200-300 mm telephoto lenses will be used to acquire photographs. Aircraft waypoints and time will be recorded automatically at 5 second or smaller intervals. Photograph time (recorded as part of the JPG file) will be used to estimate the position of each photograph. Alternatively, GPS location can be recorded directly by the camera, if so equipped.

Crews will consist of a pilot, a navigator /data recorder, and two photographers. The navigator will coordinate the sequence of colony visits and optimal aerial approach to each colony with the pilot. One photographer will take 'context' photographs showing a relatively wide area view of the colony, while the other photographer will concentrate on more detailed 'close-up' shots that will actually be used for counting. If time allows, the context photographer also will zoom in to obtain additional close-up photographs. The navigator will record when the aircraft is approaching a colony, when it is leaving, and the range of frame numbers shot over that colony.

Each colony will be visited once during each survey cycle unless it is determined that the photos for a particular colony need to be retaken. The sequence of colony visitations will be determined at the time of the survey, taking into account weather conditions and the proximity of colonies to each other.

As the aircraft approaches a target colony, the crew will assess the spatial distribution of birds on the colony. Photographers, navigator, and pilot will confer to determine the best angle of approach and the ideal altitude for photographic census. Their decision will be based on the shape of the colony, the species present at the colony, the strength and direction of the wind, vegetation around the colony, and angle of the sun. While the approach altitude is variable, all photography will be carried out at an altitude between 600' and 900' ASL, adjusted so that birds present on the colony do not leave their nests. Multiple approaches from different directions or altitudes may be made if photographers feel that they are not obtaining pictures of adequate quality or if birds appear to be responding to the presence of the aircraft.

Photograph files (JPG) will be downloaded daily to an external back-up device. Flash memory cards from the cameras will be labeled and stored when they are full. After each day's survey, a subset of photographs will be checked to ensure that the photographic quality is such that the photos they are usable for counting. If better photographs are required for a particular colony and survey logistics allow, a colony may be visited a second time.

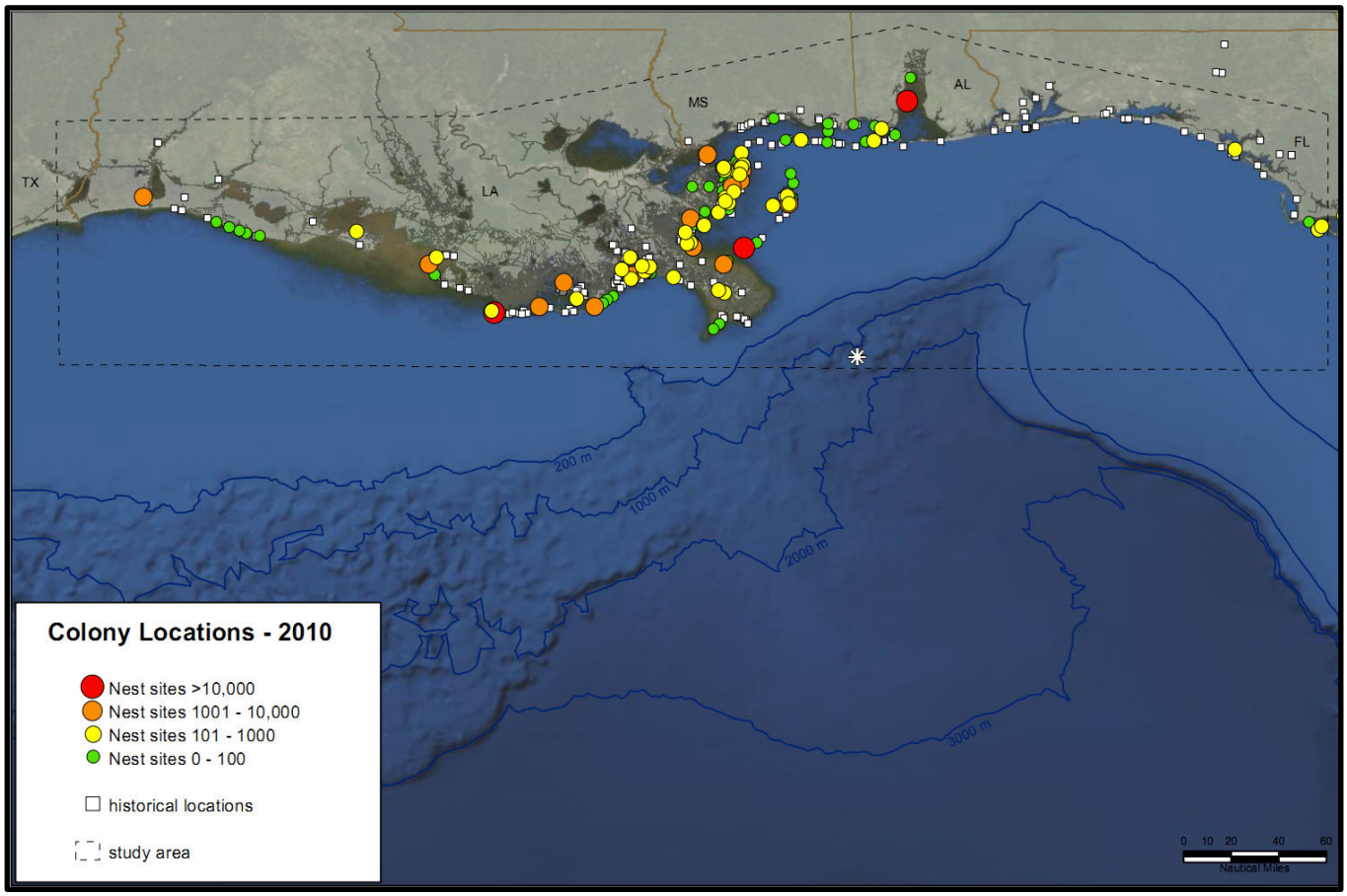

Figure 1.Locations and sizes of colonies to be censused during the 2012 Bird Colony Aerial Photography Assessment Plan. White squares indicate colonies within the study area for which there are historical records, but which did not appear to be active in 2010.

Table 1. List of colonies within the study area that were censused in 2011.

ColonyName	Latitude	Longitude
Raccoon Island	29.0505	-90.9266
Breton Island	29.4955	-89.1742
Gaillard Island	30.5063	-88.0362
Wine Island	29.0948	-90.6108
	29.2558	-90.44
Queen Bess Island	29.3043	-89.9592
Brush Island	30.034	-89.1863
Rabbit Island	29.8494	-93.383
	29.6943	-84.884
	29.3856	-91.3858
Martin Island	29.959	-89.1983
	29.3474	-89.8672
	29.0941	-90.2212
	29.7017	-89.5487
	29.5021	-89.5356
	29.7988	-88.8605
	29.9197	-89.2627
Half Moon Island	30.1376	-89.4352
	29.3822	-89.32
	29.3656	-89.8646
	29.1437	-90.3475
Belle Isle	29.5758	-89.5727
	29.3631	-89.8534
	29.8716	-84.5886
Freemason Island	29.79	-88.9735
	29.8565	-88.875
	29.6523	-89.464
	30.2367	-88.2661
Bastian Island	29.2923	-89.6732
	29.3341	-89.8716
	30.0637	-89.1928
	30.0261	-89.2274
	29.3659	-89.8357
	30.0675	-89.2069
	30.0578	-89.2011
Cat Island	30.3207	-88.2099
Isle au Pitre	30.1526	-89.1968
	29.6243	-85.1519

	29.5334	-89.556
	29.5314	-89.5535
	29.1875	-89.3123
	29.7143	-84.9749
	29.7411	-89.3568
	29.5247	-89.5726
	29.2818	-89.967
Dog Island	30.2433	-88.7758
	29.6521	-89.4577
	29.8043	-89.2815
Smith Is.	30.0486	-84.3158
	29.2054	-89.3549
Dry Bread Island	29.8426	-89.3064
	29.3459	-90.0342
	30.067	-89.1841
	30.0485	-89.322
	29.4282	-91.3287
	29.8807	-89.2497
	29.8162	-89.3088
	29.0596	-90.9416
Manilla Island	29.4308	-89.9732
Audubon Is.	30.1765	-85.7357
	29.8004	-88.8628
	29.6055	-89.5887
	30.0525	-89.1944
	29.3727	-89.8929
	30.0038	-89.2065
	30.0324	-89.3141
	29.6069	-91.8913
	30.0516	-89.3183
	29.6471	-85.1279
	29.7808	-88.874
Terrapin Island	30.335	-88.2619
	29.8166	-89.3095
	30.2274	-88.3173
	30.6686	-88.0125
	29.5291	-89.5507
	29.407	-89.2903
	30.2289	-88.3269
	29.763	-89.2851
	29.9984	-89.2924
	29.6873	-89.4646
	29.5392	-89.5353
	30.0502	-89.3117
	29.8781	-84.5684

	29.9628	-89.3156
	29.7047	-89.5647
	30.3911	-88.9705
	29.9943	-89.2162
	30.0476	-89.3183
	29.9679	-89.2276
	30.0481	-89.3202
	29.6629	-89.4628
	29.922	-89.3156
	29.9168	-89.4183
	29.6618	-89.4672
	29.9059	-89.2954
	30.2382	-88.8867
	29.8375	-88.8388
	29.8191	-89.3101
	29.8734	-88.8793
	29.6569	-89.5145
	29.9207	-89.5374
	29.8979	-89.301
	29.9368	-89.2873
	29.7439	-89.4532
	30.0271	-89.2796
	29.9751	-89.2762
	29.9813	-89.2574
St. George Is.	29.6952	-84.7769
St. Vincent Is.Roost	29.6773	-85.2214
Cedar Island	30.2791	-88.1193
	30.3454	-88.4083
Round Island	30.297	-88.588
	30.3524	-88.5882
Horn Island	30.2237	-88.5912
	29.945	-88.831
	30.008	-88.8466
	29.8275	-88.8475
	29.815	-88.8567
	29.7942	-88.865
	29.5299	-89.0869
	30.0049	-89.2309
	30.0909	-89.2318
	29.9295	-89.2373
	29.8283	-89.3191
	29.892	-89.3273
	28.972	-89.3475
	28.9395	-89.3937

	29.3261	-89.8319
	29.1636	-90.0932
	29.1376	-90.1323
	29.1181	-90.165
	29.3141	-91.3429
	29.5776	-92.5678
	29.5967	-92.6617
	29.6137	-92.7139
	29.6407	-92.7851
	29.6755	-92.8694