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End of Study Report for Sandy Beach Avian Carcass Persistence (Bird Study #1C: Beached Carcass Persistence Study)

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1.0 INTRODUCTION

This report provides the data obtained from implementation of the June 7, 2011 final "Work Plan (Bird Study #1C): Beached Carcass Persistence Study" henceforth referred to as the 'Work Plan,' available from the U.S. Department of the Interior's Administrative Record for the natural resource damage assessment (NRDA) associated with the 2010 *Deepwater Horizon* / Mississippi Canyon 252 (MC 252) oil spill. The Work Plan was developed and implemented cooperatively with personnel from BP and Cardno ENTRIX.

The purpose of this study was to collect data on carcass persistence rates in spill-affected areas to help refine estimates of mortality derived from counts of birds recovered during the course of the beached bird surveys (BBS). One of the major factors impacting the number of carcasses documented on a given BBS search is the carcass persistence rate, defined as the probability that a carcass will remain in the study area for a given period of time (Byrd et al. 2009). Because carcass persistence rates are variable, dependent upon a range of local factors (Byrd et al. 2009, Ford and Zafonte 2009, Ford 2006, Fowler and Flint 1997), this Carcass Persistence Study was undertaken to document persistence rates on a site-specific basis.

2.0 STUDY TIMING

The Carcass Persistence Study was implemented in late June 2011. Conducting the Carcass Persistence Study in the summer allowed collection of data to take place in weather conditions similar to those experienced by beached bird survey teams that were in the field from May through September, 2010.

Carcass Persistence Study personnel began to arrive on site in the Daphne, AL area June 9, 2011 and conducted various mobilization tasks through June 11, 2011. Most of the birds were deployed on June 12, 2011, and data collection took place from June 13 to June 26, 2011. Study personnel departed at various times as their assignments and demobilization activities were completed.

3.0 METHODS

Study methods are described in detail in the Work Plan. In summary, unoiled and un-scavenged carcasses obtained from government agencies, research organizations, and/or other sources were subtly marked and placed in transects that were used by search teams during spill response. Carcass persistence teams were comprised of at least one Trustee and one BP/Entrix representative. After carcass placement, teams returned to the transect to check the birds every day for 14 days, weather permitting. During each check, teams took photographs to document the location and bird, and recorded the presence of the bird and scavenging state, along with any other notes. The following sections provide additional methodological information and identify changes to the original study design or additional design details not included in the Work Plan that were necessary to address issues that arose in the field.

3.1 TRANSECTS

For Carcass Persistence Study purposes, carcasses were placed on 26 Beached Bird Survey transects.[1] These transects are identified in Exhibit 1 and shown in maps in Appendix A. Transects were located in Louisiana (n=7), Mississippi (n=3), Alabama (n=5), and western Florida (n=11), and represent a variety of habitat types including developed mainland, undeveloped mainland, developed barrier island, and undeveloped barrier island.

The protocol used to identify the study transects is provided in Appendix D. The results of the decision process used to identify the final study transects is described in Appendix E.

3.2 BIRD PREPARATION

Details on the bird preparation protocol can be found in the Work Plan. Bird carcasses used for the study were stored in a freezer at the FWS storage facility in Fairhope, AL prior to study implementation. Consistent with the Work Plan, birds were sorted into three size classes: small (less than 200g), medium (200g-500g), and large (>500g).

All birds were labeled with two plastic identification tags affixed to locations on the carcass unlikely to affect its detectability by scavengers (patagium and upper leg). The tags were numbered poultry tags; therefore, each bird's unique identification consisted of two numbers, the number from the patagium tag and the one from the leg tag.[2] Bird size, position relative to surf, and identification number were recorded in a database (see Appendix B for summary information about each bird used in the study). Additionally, a small wooden block was placed with each bird that contained study contact information and the bird's identification number, to aid searchers in distinguishing between a rewash event and the removal of a carcass by a scavenger.[3]

Birds to be deployed on a given transect were individually bagged, with the transect number and carcass/placement details (i.e., size category, distance from start of transect and position relative to surf) indicated on the bag. All birds to be deployed at a single transect were placed in a larger bag with the transect number and total number of birds for that transect indicated on the bag.

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[1] The Work Plan indicated that 'up to 30' transects would be included in this study, depending on the number of available carcasses and other logistical considerations confirmed by field teams just prior to study implementation.

[2] Ten unique identification numbers were repeated due to a shortage of uniquely numbered poultry tags; however, these numbers were on birds from different locations and were kept separated in the analysis based on the location.

[3] There was one exception: bird 97/98 on transect LA-644-01 was deployed without a wooden block.

EXHIBIT 1. TRANSECTS USED FOR THE CARCASS PERSISTENCE STUDY

BBS Transect ID	State	Carcass Persistence Study Field Personnel*
Western Louisiana Team		
LA-75-06	LA	DC, CT
LA-76-06	LA	DC, CT
LA-562-01	LA	DC, CT
LA-562-03	LA	DC, CT
Terrebonne Bay Team		
LA-642-01	LA	VV, KC, GF
LA-643-01	LA	VV, KC, GF
LA-644-01	LA	VV, KC, GF
Mississippi Barrier Islands		
MS-06-01	MS	GF, RG, AS
MS-13-03	MS	GF, RG, AS, DK, BR
MS-13-05	MS	GF, RG, AS
Dauphin Island/Bon Secour Team		
AL-07-02	AL	AS, AP
AL-08-02	AL	AS, AP
AL-08-04	AL	AS, AP
AL-23-02	AL	AS, AP
Pensacola/Santa Rosa Team		
AL-26-06	AL	FS, CP
WFL-11-01	FL	FS, CP
WFL-15-02	FL	FS, CP
Destin/Panama City Team		
WFL-18-01	FL	JT, WS
WFL-18-02	FL	JT, WS
WFL-26-04	FL	JT, WS
WFL-27-02	FL	JT, WS
WFL-28-07	FL	JT, WS
Port Saint Joe Team		
WFL-38-07	FL	NW, CB
WFL-39-06	FL	NW, CB
WFL-41-06	FL	NW, CB
WFL-42-01	FL	NW, CB

*Carcass Persistence team members and affiliations are listed below. Trustees: Veronica Varela (VV), USFWS and Dane Cassady (DS), LA Dept. of Wildlife and Fisheries. Trustee Contractors: Glenn Ford (GF), Josh Taylor (JT), Andy Smith (AS), Nate Wintle (NW), Frank Sexton (FS), and Allen Stewart (AS). BP/ENTRIX: Brian Reilly (BR), Craig Tolliver (CT), Douglas Kibbe (DK), Kimberly Chancey (KC), Ron Goddard (RG), Wendy Swindell (WS), Amy Poopatanapong (AP), Catrina Paez (CP), and Celina Bellanceau.

3.3 CARCASS NUMBERS, SIZE, POSITION AND DISTANCE FROM TRANSECT START

Modest adjustments to bird size and placement characteristics specified in the Work Plan were made in the field, as summarized below. Finalized placement characteristics are presented in Appendix B of this document.

Due to limitations in the number of 'small' and 'medium' birds available for the study, 19 'medium' sized birds and 12 'large' birds were used in place of 31 small birds, and four 'large' birds were substituted for four 'medium' birds.

Due to constraints in the field, some carcass placements were adjusted. The locations of birds 102/101 on transect WFL-27-02, 33/34 on transect WFL-28-07, 67/68 and 75/47 on transect WFL-15-02, 67/68 on transect AL-08-02, and 9/10, 14/13, 69/70, and 93/88 on transect WFL-18-02 were adjusted slightly (typically within approximately 100 meters of original location) to the east or west of the originally designated placement location to avoid people who were sunbathing or otherwise using the targeted area of beach and to avoid private or restricted lands (e.g., a military base) to which access permissions were not obtained.

All of the Mississippi transects were located within areas managed by the National Park Service (NPS). Due to NPS requirements, three birds originally prepared for use had to be replaced with appropriate native species. As a result, birds 7/8, 61/62, and 85/86 were replaced with medium sized laughing gulls. Birds 7/8 and 85/86 were originally medium sized birds, and bird 61/62 was a small bird; however, no small native birds were available to replace bird 61/62, so a medium-sized bird was used to replace it. These changes in carcasses resulted in a delay in deployment of these study carcasses by at least one day.

Finally, due to a mistake in the number of birds bagged for the Western Louisiana transects, bird number 43/42 on transect LA-562-03 was not deployed, resulting in 113 birds used in the study instead of 114.

3.4 CARCASS DEPLOYMENT AND CHECKS

As previously noted, teams of at least two people (at least one Trustee representative and one BP/ENTRIX representative) handled carcass deployment and checking activities at each transect. For Terrebonne Bay transects, two Trustee representatives and one BP/ENTRIX representative deployed and checked carcasses while permission was being obtained to access the Mississippi barrier island transects. Once permission was obtained, the extra Trustee representative deployed and checked birds on the Mississippi transects starting on June 15, 2011. Exhibit 1 identifies which study personnel worked each transect.

Field teams deployed carcasses between approximately 6 and 9 A.M. on June 12, 2011, except for: 1) the Mississippi team (as mentioned above), which began deployment on June 15, 2011 and deployed additional birds on June 16 and 17, 2011; and 2) two Western Louisiana transects (LA-562-01 and LA-562-03) for which deployments occurred on June 13, 2011.

As described in the Work Plan, field teams placed carcasses at 'wrack', 'upper' and 'lower' positions on the beach. The overall intent was to place birds in a natural, realistic

manner. No deployed carcasses were completely buried by sand or wrack, although some debris or sand was deliberately deposited on some carcasses to create a natural appearance. Three photographs were taken of each bird placement and photographs were taken each time birds were checked to document the bird as well as the surrounding environment.

In general, carcasses were checked at approximately the same time each morning for the next 14 days after deployment (or until a carcass was deemed absent). There were a few exceptions to this procedure due to logistical and/or weather constraints.[4] Western Louisiana transects LA-562-01 and LA-562-03 were not checked on June 17, 2011; LA-562-01 was not checked on June 22, 2011; transects LA-75-06 and LA-76-06 were not checked on June 26, 2011; and the Terrebonne bay transects were not checked on June 20–22 and June 24, 2011.

3.5 DATA COLLECTION AND MANAGEMENT

Details on data collection and management procedures can be found in the Work Plan. Study data sheets were developed to document carcass placement, the presence of any carcasses each day transects were checked, carcass state, carcass position relative to the surf, presence of the wooden block, and tidal conditions. Procedures also were developed to collect and manage photographs taken of bird placements and the condition of birds on subsequent days of the study. All original datasheets and photographs were archived in the U.S. Department of the Interior's Deepwater Horizon (MC252) NRDA Database.

All field teams took three photographs (1, 5, and 25 meters) of the placed carcass, and at least two photographs (1 and 5 meters) were taken of the carcass on each subsequent day; however, not all teams photographed the area on the first day a carcass was found missing. In addition, some photographs from the Western Louisiana transects were incorrectly labeled on the respective data sheets, missing, and /or the dates were incorrectly labeled on data sheets. The following deviations were identified:

- The 25 meter photograph of bird 23-24, transect LA-562-01, 6/14/2011 was incorrectly labeled on the data sheet and labeled using the same image number as the 5 meter photograph.
- The dates on datasheets for LA-75-06 from 6/16/11 and 6/17/11 were incorrectly labeled.
- Photographs for bird 31-32 and 37-38, transect LA-562-03, for 6/16/11 were labeled incorrectly on the data sheet, with bird 31-32 photographs labeled as 37-38 on the data sheet and photographs for bird 37-38 not indicated on the data sheet. However, the photographs for bird 37-38 were named according to the information indicated within the photographs (i.e., camera date and bird and transect information from white board photographed with the bird).
- All photographs for bird 93-94 on transect LA-562-03, for 6/16/1 are missing, despite the indication of photographs taken on the data sheet.

[4] Terrebonne Bay and Western Louisiana teams had to stand down due to heavy rains.

- Photographs for bird 22-14 on transect LA-76-06, for 6/17/11 at 5 and 25 meters are missing despite the indication of photographs taken on the data sheet.

3.6 DATA SHARING

Details on data sharing procedures can be found in the Work Plan. Data sheets were signed by field teams at the end of each day. Original data sheets remained in the possession of the Trustee counterpart of each team until they completed their assigned transects and returned to the Fairhope, AL field office. The BP/ENTRIX representative on each team was provided the opportunity to photograph each data sheet at the end of the day. At the end of the study, the original data sheets were provided to a designated Trustee representative. The Trustee representative scanned all data sheets onto CDs or external jump drives; one set of CDs/drives was mailed to a designated BP/ENTRIX representative and one set to Trustee contractor Industrial Economics, Inc. (IEc) following Chain of Custody procedures.

Photographs were downloaded to a computer and given a name following conventions specified in the Work Plan.[5] At the end of the study, electronic copies were made and a full set of photos were provided to a designated Trustee representative and a designated BP/ENTRIX representative following Chain of Custody procedures.

4.0 RESULTS

A table of results documenting each bird utilized in the study is provided in Appendix B and tables illustrating the number and percentage of birds remaining after each day by transect are provided in Appendix C. Exhibit 2 below presents summary results by state and habitat type. Additional breakdowns of study results are presented in the following sections of this document.

4.1 CARCASS PERSISTENCE RESULTS BY HABITAT TYPE

Overall, 28 (24.8%) carcasses were placed on developed mainland beaches, 35 (31.0%) on undeveloped mainland, 11 (9.7%) on developed barrier islands, and 39 (34.5%) on undeveloped barrier islands. Exhibit 3 shows the percentage of carcasses remaining in each habitat type after three, six, and nine days and at the end of the study period and Exhibit 4 shows the proportion of birds remaining in each habitat type over time.

4.2 CARCASS PERSISTENCE RESULTS BY CARCASS SIZE

Overall, seven small (6.2%), 53 medium (46.9%), and 53 large (46.9%) birds were deployed across all transects. Small and medium birds tended to have lower persistence than large birds; for example, 42.9% of small and 49.1% of medium birds remained after 72 hours compared to 62.3% for large birds. Exhibit 5 shows the percentage of carcasses remaining in each size class after three, six, and nine days, and at the end of the study period.

[5] Western Louisiana transect photographs were not named according to the naming convention specified in the Work Plan by the field team, but were named after the end of the study by IEc staff according to photo numbers identified on the respective data sheets.

EXHIBIT 2. SUMMARY CARCASS PERSISTENCE RESULTS BY STATE AND HABITAT TYPE

State	Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining x Days after Carcass Placement			
			Day 3	Day 6	Day 9	Last Day[1]
AL	Barrier Developed	6	100%	100%	83%	67%
	Barrier Undeveloped	8	63%	50%	50%	50%
	Mainland Developed	4	75%	50%	50%	50%
	Mainland Undeveloped	4	75%	50%	50%	50%
FL	Barrier Developed	5	100%	100%	100%	80%
	Barrier Undeveloped	5	80%	60%	60%	60%
	Mainland Developed	24	42%	25%	21%	13%
	Mainland Undeveloped	13	54%	31%	31%	23%
LA	Barrier Undeveloped	10	60%	60%	60%	60%
	Mainland Undeveloped	18	61%	44%	44%	39%
MS	Barrier Undeveloped	16	13%	13%	6%	6%
Total		**113**				

Notes:

[1]The last day refers to the last day of the study period, 6/26/11.

-Some transects were not checked on certain days (as described in Section 3.4); however all the numbers in the table above reflect the assumption that birds were present on days in which they were not checked if the bird was found in subsequent checks.

EXHIBIT 3. CARCASS PERSISTENCE RATES BY HABITAT TYPE

Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining x Days after Carcass Placement			
		Day 3	Day 6	Day 9	Last Day[1]
Barrier Developed	11	100%	100%	91%	73%
Barrier Undeveloped	39	44%	38%	36%	36%
Mainland Developed	28	46%	29%	25%	18%
Mainland Undeveloped	35	60%	40%	40%	34[2]%
Total	**113**				

Notes:

[1]The last day refers to the last day of the study period, 6/26/11.

[2]LA-75-05 and LA-76-06 were not checked on 6/26/11, but birds were assumed present on last day.

-Some transects were not checked on certain days (as described in Section 3.4); however all the numbers in the table above reflect the assumption that birds were present on days in which they were not checked if the bird was found in subsequent checks.

EXHIBIT 4. PROPORTION OF CARCASSES REMAINING BY HABITAT TYPE

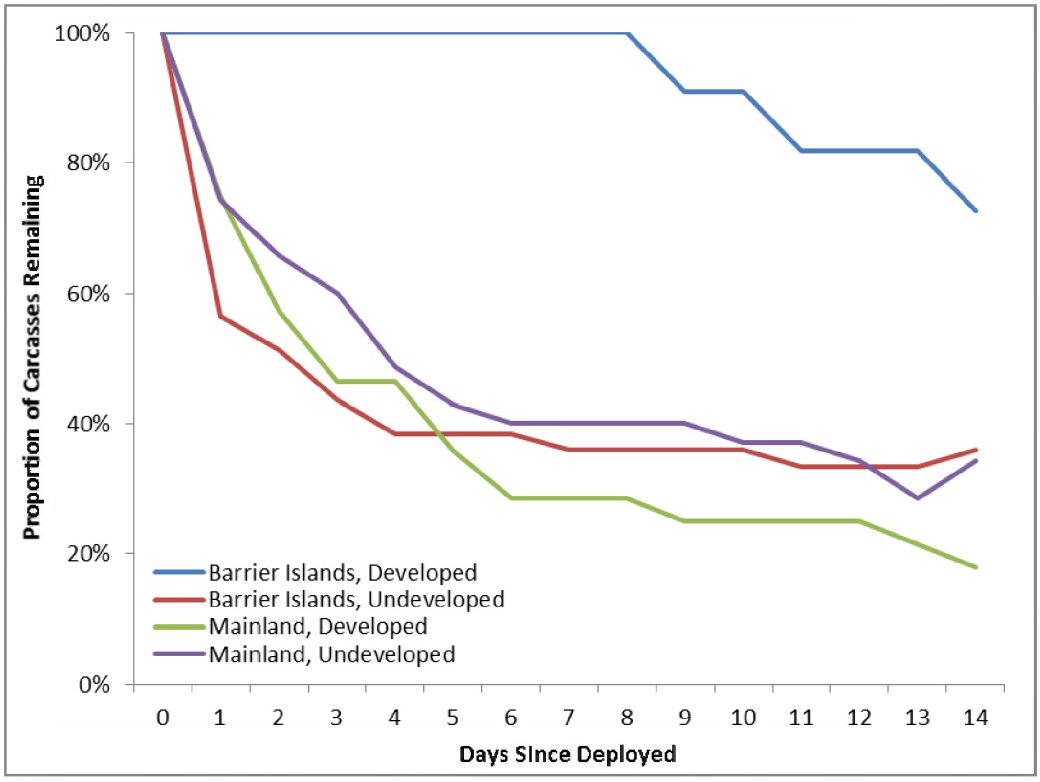


EXHIBIT 5. CARCASS PERSISTENCE RATES BY CARCASS SIZE

Size Class	Total Carcasses Placed	Percentage of Carcass Remaining x Days after Carcass Placement			
		Day 3	Day 6	Day 9	Last Day[1]
Small	7	43%	43%	43%	43%
Medium	53	49%	36%	34%	30%
Large	53	62%	49%	45%	38%
Total	**113**				

Notes:

[1]The last day refers to the last day of the study period, 6/26/11.

-Some transects were not checked on certain days (as described in Section 3.4); however all the numbers in the table above reflect the assumption that birds were present on days in which they were not checked if the bird was found in subsequent checks.

4.3 SCAVENGING CONDITION OVER TIME

All carcasses were unscavenged when deployed, although 13 birds were in a 'disturbed' state.[6] Overall, 30.1% and 5.3% of deployed birds were found to be lightly and heavily scavenged after 24 hours, respectively. Exhibit 6 shows the percentage of birds remaining in each scavenging category after three, six, and nine days, and at the end of the study period.

EXHIBIT 6. CARCASS SCAVENGING CONDITION OVER TIME

Scavenging Category	Percentage of Carcasses x Days after Carcass Placement			
	Day 3	Day 6	Day 9	Last Day[1]
Unscavenged	9%	0%	0%	0%
Lightly scavenged	39%	28%	21%	12%
Heavily scavenged	7%	14%	12%	19%
Carcass gone	45%	58%	60%	65%
No Data[2]	0%	0%	6%	4%

Notes:

[1]The last day refers to the last day of the study period, 6/26/11.

-Some transects were not checked on certain days (as described in Section 3.4); however all the numbers in the table above reflect the assumption that birds were present on days in which they were not checked if the bird was found in subsequent checks.

[2] On some days, the scavenging category percentages do not add up to 100 percent of birds. This row represents days during which scavenging state was not recorded.

4.4 CARCASS PERSISTENCE RATES BY CARCASS POSITION

Overall, 37 (32.7%) carcasses were placed in the lower portion of the beach, 37 (32.7%) in the upper, and 39 (34.5%) in the wrack area. Carcasses generally did not persist as long in the lower portion of the beach compared to the upper and wrack areas. For example, 43.2% of carcasses in the lower portion of the beach remained after 72 hours compared to 62.2% of the carcasses in upper and 59.0% in the wrack. Exhibit 7 shows the percentage of carcasses remaining in each position on the beach after three, six, and nine days and at the end of the study period.

[6] Bird 17/18 on transect Al-08-04 had a broken left wing, 51/82 on transect AL—08-04 had a broken neck, 67/68 on transect AL-08-02 had a broken right wing and neck and 3/4 on transect LA-562-01 had a broken neck.

EXHIBIT 7. CARCASS DETECTION RATES BY CARCASS POSITION

Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining x Days after Carcass Placement			
		Day 3	Day 6	Day 9	Last Day[1]
Low	37	43%	30%	30%	30%
Upper	37	62%	49%	49%	38%
Wrack	39	59%	49%	41%	36%
Total	**113**				

Notes:

[1]The last day refers to the last day of the study period, 6/26/11.

-Some transects were not checked on certain days (as described in Section 3.4); however all the numbers in the table above reflect the assumption that birds were present on days in which they were not checked if the bird was found in subsequent checks.

5.0 OTHER CONSIDERATIONS

Based on our experience during study implementation we provide the following additional observations:

1) A variety of factors not specifically measured in this study, including but not limited to human activity, presence of wrack, and weather conditions can affect carcass persistence results. By conducting this study on a relatively large number of transects (26), across four states and habitat types, over several days, we expect that collected data provide a reasonable reflection of variability in such factors.

2) Both human activity and scavengers affected the persistence of carcasses in this study. Human activities were particularly high on developed transects, where study teams described study carcasses as buried, removed, and/or marked by humans. Study carcasses were scavenged by crabs, beetles, and other insects on developed and undeveloped transects. The loss of carcasses due to scavenging by larger animals or tidal action versus human interactions may be difficult to tease out in some cases. Close evaluation of the wooden block data and the detailed notes taken by carcass persistence teams may provide additional information.

6.0 REFERENCES

Byrd, G.V., J.H. Reynolds, and P.L. Flint. 2009. Persistence rates and detection probabilities of bird carcasses on beaches of Unalaska Island, Alaska, following the wreck of the M/V *Selendang Ayu*. *Marine Ornithology*, 37: 197-204.

Ford, R.G. 2006. Using beached bird monitoring data for seabird damage assessment: The importance of search interval. *Marine Ornithology*, 34: 91-98.

Ford, R.G. and M.A. Zafonte. 2009. Scavenging of seabird carcasses at oil spill sites in California and Oregon. *Marine Ornitholog,y* 37: 205–211.

Fowler, A.C. and P.L. Flint. 1997. Persistence rates and detection probabilities of oiled King Eider carcasses on St Paul Island, Alaska. *Marine Pollution Bulletin*, 34: 522-526.

APPENDIX A
CARCASS PERSISTENCE TRANSECTS MAPS AND HABITAT TYPES

TRANSECTS SURVEYED

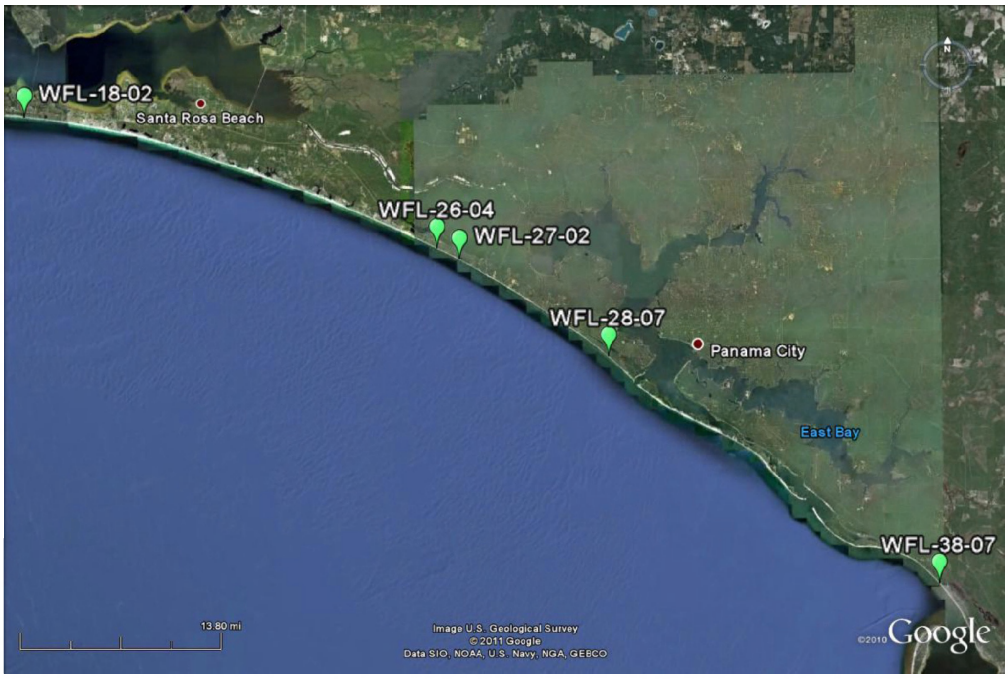
BBS Transect ID	Start Latitude	Start Longitude	Direction	Habitat Type
AL-07-02	30.25029	-88.20244	Eastward	Barrier Undeveloped
AL-08-02	30.24339	-88.07608	Eastward	Barrier Undeveloped
AL-08-04	30.22418	-88.019627	Eastward	Mainland Undeveloped
AL-23-02	30.228969	-87.977804	Eastward	Mainland Developed
AL-26-06	30.27631	-87.538792	Eastward	Barrier Developed
LA-562-01	29.77731	-93.24435	Eastward	Mainland Undeveloped
LA-562-03	29.77253	-93.1907	Eastward	Mainland Undeveloped
LA-642-01	29.081	-90.53541667	Eastward	Barrier Undeveloped
LA-643-01	29.059	-90.461	Westward	Barrier Undeveloped
LA-644-01	29.0731833	-90.3113	Eastward	Barrier Undeveloped
LA-75-06	29.7663494	-93.52022819	Eastward	Mainland Undeveloped
LA-76-06	29.7671307	-93.39681133	Eastward	Mainland Undeveloped
MS-06-01	30.22413	-88.61443	Eastward	Barrier Undeveloped
MS-13-03	30.21126	-88.98399	Eastward	Barrier Undeveloped
MS-13-05	30.23253	-88.89397	Eastward	Barrier Undeveloped
WFL-11-01	30.334563	-87.120065	Eastward	Barrier Developed
WFL-15-02	30.379233	-86.863975	Eastward	Barrier Undeveloped
WFL-18-01	30.38376	-86.45357	Eastward	Mainland Undeveloped
WFL-18-02	30.38253	-86.43201	Eastward	Mainland Developed
WFL-26-04	30.25408	-85.9585	Eastward	Mainland Developed
WFL-27-02	30.2428	-85.9329	Eastward	Mainland Developed
WFL-28-07	30.14711	-85.76237	Eastward	Mainland Developed
WFL-38-07	29.9211147	-85.3851916	Eastward	Mainland Developed
WFL-39-06	29.7811193	-85.40907807	Eastward	Mainland Undeveloped
WFL-41-06	29.68141	-85.26058	Eastward	Mainland Undeveloped
WFL-42-01	29.8657062	-85.34549608	Eastward	Mainland Undeveloped

MAINLAND: DEVELOPED

These six transects (AL-23-02, WFL-18-02, WFL-26-04, WFL-27-02, WFL-28-07, and WFL-38-07) represent developed beaches in residential (beach homes) and commercial (hotels) areas.

Alabama

West Florida

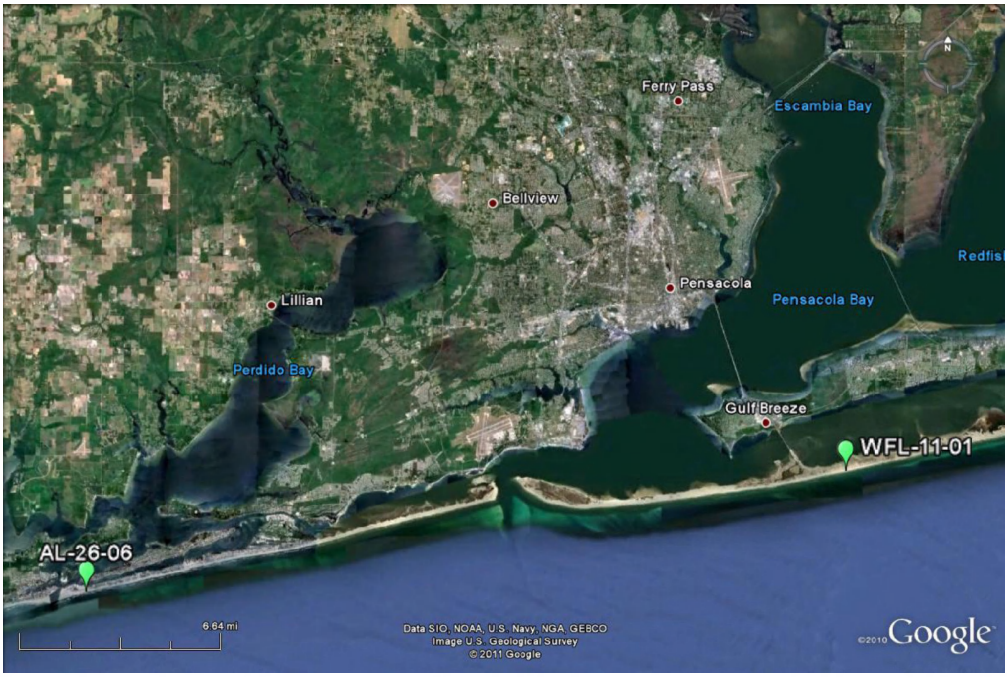


MAINLAND: UNDEVELOPED

These nine transects (AL-08-04, WFL-18-01, WFL-39-06, WFL-41-06, WFL-42-01, LA-562-01, LA-562-03, LA-75-06, and LA-76-06) represent mainland undeveloped beaches.

BARRIER: DEVELOPED

These two transects (AL-26-06 and WFL-11-01) represent developed barrier beaches in residential/commercial areas.



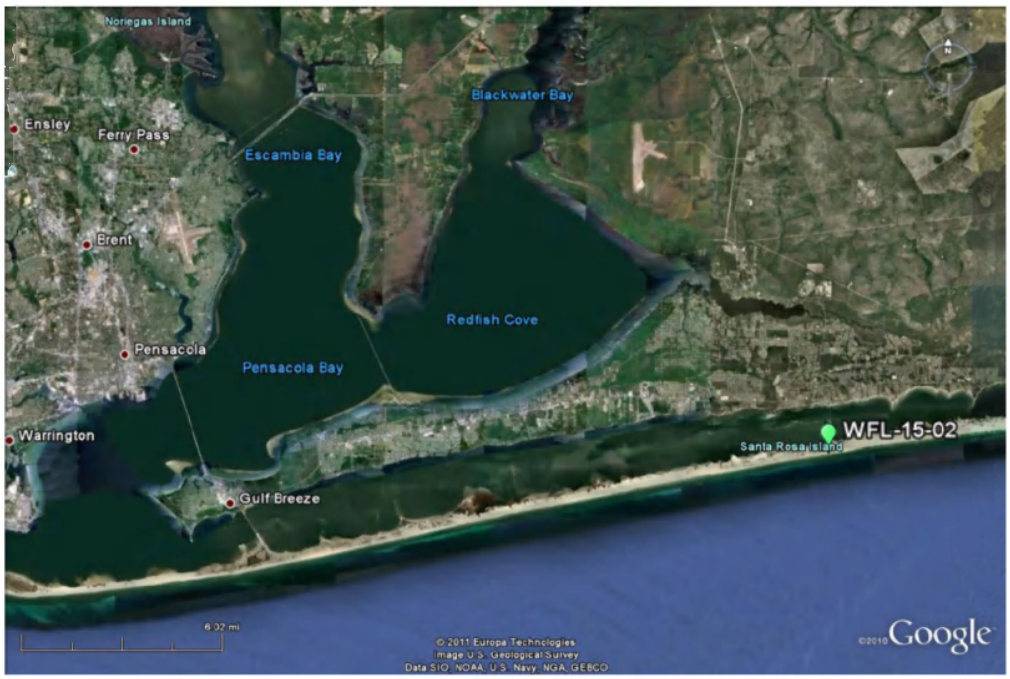
BARRIER: UNDEVELOPED

These nine transects are in Mississippi National Park Service (NPS) lands, Dauphin Island, Alabama, Santa Rosa Island, Florida, and Terrebonne Bay, Louisiana and represent undeveloped sandy, barrier island beaches (MS-06-01, MS-13-03, MS-13-05, AL-07-02, AL-08-02, WFL-15-02, LA-642-01, LA-643-01, and LA-644-01).

Mississippi NPS Islands

Dauphin Island

Santa Rosa Island



Terrebonne Bay

APPENDIX B

SUMMARY OF BIRD CARCASSES USED IN CARCASS PERSISTENCE STUDY

BBS Transect ID	Bird ID	Weight	Size	Distance From Start Of Transect (M)	Position On Beach
AL-07-02	25/26	277	M	267	low
AL-07-02	123/124	1060	L	1277	low
AL-08-02	57/58	481	M	725	upper
AL-08-02	103/104	1760	L	1584	upper
AL-08-02	55/56	44	S	1619	low
AL-08-02	106/105	1113	L	1626	upper
AL-08-02	64/63	430	M	1852	wrack
AL-08-02	67/68	330	M	2000	low
AL-08-04	89/90	347	M	782	low
AL-08-04	51/82	335	M	971	upper
AL-08-04	107/108	1185	L	1018	low
AL-08-04	17/18	318	M	1733	low
AL-23-02	119/120	1020	L	237	wrack
AL-23-02	1/2	325	M	560	low
AL-23-02	118/117	1302	L	1672	wrack
AL-23-02	51/52	1091	L	1994	wrack
AL-26-06	115/116	854	L	379	upper
AL-26-06	74/72	540	L	1247	wrack
AL-26-06	73/74	1064	L	1479	low
AL-26-06	71/72	881	L	1518	wrack
AL-26-06	124/125	310	M	1718	wrack
AL-26-06	96/94	713	L	1977	wrack
LA-562-01	48/49	877	L	408	wrack
LA-562-01	3/4	269	M	751	low
LA-562-01	21/22	103	S	1074	upper
LA-562-01	23/24	104	S	1151	low
LA-562-01	91/92	365	M	1868	upper
LA-562-01	28/27	272	M	1891	wrack
LA-562-03	31/32	295	M	392	low
LA-562-03	76/77	305	M	595	upper
LA-562-03	37/38	302	M	1200	wrack
LA-562-03	93/94	363	M	1602	low
LA-562-03	41/42	256	M	1809	upper
LA-642-01	110/11	200	M	96	wrack
LA-642-01	38/39	1580	L	103	low
LA-642-01	84/83	315	M	964	wrack

BBS Transect ID	Bird ID	Weight	Size	Distance From Start Of Transect (M)	Position On Beach
LA-642-01	118/119	329	M	1991	low
LA-643-01	100/125	182	S	201	upper
LA-643-01	95/96	436	M	315	wrack
LA-643-01	32/33	1003	L	723	upper
LA-643-01	41/40	792	L	1464	low
LA-644-01	97/98	392	M	792	low
LA-644-01	34/35	906	L	1116	low
LA-75-06	36/37	1268	L	714	wrack
LA-75-06	80/79	346	M	783	low
LA-75-06	82/81	338	M	1252	upper
LA-75-06	16/15	169	S	1925	wrack
LA-76-06	100/99	311	M	266	wrack
LA-76-06	22/14	997	L	691	wrack
LA-76-06	20/19	291	M	1253	low
MS-06-01	102/103	223	M	126	wrack
MS-06-01	85/86	374	M	1001	low
MS-06-01	121/122	5448	L	1290	low
MS-06-01	61/62	487	M	1338	wrack
MS-13-03	45/46	626	L	471	wrack
MS-13-03	108/109	294	M	580	low
MS-13-03	6/5	848	L	669	low
MS-13-03	121/120	229	M	735	wrack
MS-13-03	53/54	102	S	738	upper
MS-13-03	29/28	1898	L	1032	low
MS-13-05	87/88	333	M	106	upper
MS-13-05	97/98	1633	L	343	wrack
MS-13-05	7/8	313	M	396	wrack
MS-13-05	59/60	100	S	643	low
MS-13-05	65/66	220	M	899	upper
MS-13-05	113/114	2000	L	1530	wrack
WFL-11-01	53/54	1040	L	689	low
WFL-11-01	67/70	953	L	770	wrack
WFL-11-01	35/36	332	M	1277	upper
WFL-11-01	47/48	643	L	1816	upper
WFL-11-01	80/81	346	M	1959	wrack
WFL-15-02	49/50	348	M	473	wrack
WFL-15-02	114/115	457	M	765	wrack
WFL-15-02	101/99	694	L	1221	low
WFL-15-02	67/68	999	L	1410	upper
WFL-15-02	75/47	678	L	1430	wrack
WFL-18-01	109/110	877	L	642	upper

BBS Transect ID	Bird ID	Weight	Size	Distance From Start Of Transect (M)	Position On Beach
WFL-18-01	11/12	330	M	1161	upper
WFL-18-02	69/70	560	L	52	wrack
WFL-18-02	9/10	313	M	984	Upper (just above wrack)
WFL-18-02	93/88	670	L	1270	upper
WFL-18-02	14/13	308	M	1270	wrack
WFL-18-02	30/29	327	M	1745	upper
WFL-18-02	27/26	1218	L	1975	low
WFL-26-04	30/31	1505	L	3	upper
WFL-26-04	89/95	702	L	776	wrack
WFL-26-04	59/60	382	M	975	upper
WFL-26-04	73/71	415	M	1475	upper
WFL-27-02	39/40	329	M	183	upper
WFL-27-02	102/101	3070	L	597	upper
WFL-27-02	78/75	631	L	1426	upper
WFL-27-02	111/112	855	L	1698	wrack
WFL-27-02	41/42	254	M	1999	low
WFL-28-07	33/34	356	M	54	upper
WFL-28-07	62/84	707	L	607	wrack
WFL-28-07	61/83	665	L	991	low
WFL-28-07	45/46	340	M	1200	upper
WFL-38-07	55/56	992	L	1710	low
WFL-38-07	116/117	361	M	1158	low
WFL-38-07	122/123	300	M	1361	wrack
WFL-38-07	90/92	815	L	407	low
WFL-38-07	106/107	330	M	1866	wrack
WFL-39-06	112/113	304	M	145	upper
WFL-39-06	57/58	1036	L	485	upper
WFL-39-06	65/66	919	L	846	wrack
WFL-39-06	85/52	611	L	1990	upper
WFL-41-06	63/64	922	L	692	low
WFL-41-06	18/91	757	L	1496	low
WFL-42-01	76/77	906	L	85	wrack
WFL-42-01	44/50	1216	L	166	low
WFL-42-01	86/87	362	M	1081	upper
WFL-42-01	104/105	602	L	1548	upper
WFL-42-01	78/79	1502	L	1737	upper

Notes:

-Bird 43/42, transect LA-563-02 was not deployed due to a mistake in bagging the birds, and is hence not shown in the table above.

-Bird sizes are listed in the table above based on weights of birds using the specified ranges: <200g for small

BBS Transect ID	Bird ID	Weight	Size	Distance From Start Of Transect (M)	Position On Beach
birds, 200-500g for medium, and >500g for large, not based on the originally specified bird sizes for transects which included many more small birds. -All distances, sizes, and placement characteristics that were changed from original work plan designations are highlighted in yellow. Adjusted placements typically were within 100 meters of the originally-specified location.					

APPENDIX C

RAW DATA, NUMBER OF BIRDS REMAINING PER TRANSECT AFTER EACH DAY

State	Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining[1]													
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
AL	AL-07-02	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1
	AL-08-02	6	4	4	3	3	3	3	3	3	3	3	3	3	3	3
	AL-08-04	4	4	4	3	3	2	2	2	2	2	2	2	2	2	2
	AL-23-02	4	4	4	3	3	3	2	2	2	2	2	2	2	2	2
	AL-26-06	6	6	6	6	6	6	6	6	6	5	5	4	4	4	4
FL	WFL-11-01	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4
	WFL-15-02	5	4	4	4	3	3	3	3	3	3	3	3	3	3	3
	WFL-18-01	2	2	2	2	0										
	WFL-18-02	6	5	2	1	1	1	1	1	1	1	1	1	1	0	
	WFL-26-04	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2
	WFL-27-02	5	3	3	3	3	0									
	WFL-28-07	4	2	2	2	2	2	2	2	2	2	2	2	2	2	1
	WFL-38-07	5	3	2	2	2	2	1	1	1	0	0				
	WFL-39-06	4	1	1	1	1	1	1	1	1	1	0	0			
	WFL-41-06	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	WFL-42-01	5	3	3	3	2	2	2	2	2	2	2	2	2	2	2
LA	LA-562-01	6	4	3	2	n/a	2	2	2	2	2	2	2	1	1	
	LA-562-03	5	5	3	3	n/a	2	1	1	1	1	1	1	1	1	
	LA-642-01	4	3	3	2	2	2	2	2	n/a	n/a	n/a	2	n/a	2	2
	LA-643-01	4	4	3	3	3	3	3	3	n/a	n/a	n/a	3	n/a	3	3
	LA-644-01	2	1	1	1	1	1	1	1	n/a	n/a	n/a	1	n/a	1	1
	LA-75-06	4	4	4	4	4	4	4	4	4	4	4	4	4	4	n/a
	LA-76-06	3	2	2	2	2	1	1	1	1	1	1	1	1	1	n/a

State	Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining[1]													
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
MS	MS-06-01	4	0													
	MS-13-03	6	3	3	2	2	2	2	1	1	1	1				
	MS-13-05	6	1	0												

Notes:

[1]Most birds were deployed on June 12, 2011, with day 1 on June 13, 2011, except for the following exceptions: 1) transects LA-562-01 and LA-562-03, day 1 is June 14, 2011; 2) MS-06-01, for 2 birds, day 1 is June 16, 2011, for 1 bird, day 1 is June 17, 2011, and for 1 bird, day 1 is June 17, 2011; 3) MS-13-03, day 1 is June 16, 2011; and 4) MS-13-05, for 5 birds, day 1 is June 16, 2011 and 1 bird is June 17.

"n/a" indicates that data was not collected on that day.

PERCENTAGE OF BIRDS PER TRANSECT REMAINING AFTER EACH DAY

State	Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining[1]													
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
AL	AL-07-02	2	100%	100%	100%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	AL-08-02	6	67%	67%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	AL-08-04	4	100%	100%	75%	75%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	AL-23-02	4	100%	100%	75%	75%	75%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	AL-26-06	6	100%	100%	100%	100%	100%	100%	100%	100%	83%	83%	67%	67%	67%	67%
FL	WFL-11-01	5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	80%
	WFL-15-02	5	80%	80%	80%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%	60%
	WFL-18-01	2	100%	100%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	WFL-18-02	6	83%	33%	17%	17%	17%	17%	17%	17%	17%	17%	17%	17%	0%	0%
	WFL-26-04	4	100%	75%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	WFL-27-02	5	60%	60%	60%	60%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	WFL-28-07	4	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	25%
	WFL-38-07	5	60%	40%	40%	40%	40%	20%	20%	20%	0%	0%	0%	0%	0%	0%
	WFL-39-06	4	25%	25%	25%	25%	25%	25%	25%	25%	25%	0%	0%	0%	0%	0%
	WFL-41-06	2	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
	WFL-42-01	5	60%	60%	60%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%	40%
LA	LA-562-01	6	67%	50%	33%	n/a	33%	33%	33%	33%	33%	33%	33%	17%	17%	0%
	LA-562-03	5	100%	60%	60%	n/a	40%	20%	20%	20%	20%	20%	20%	20%	20%	0%
	LA-642-01	4	75%	75%	50%	50%	50%	50%	50%	n/a	n/a	n/a	50%	n/a	50%	50%
	LA-643-01	4	100%	75%	75%	75%	75%	75%	75%	n/a	n/a	n/a	75%	n/a	75%	75%
	LA-644-01	2	50%	50%	50%	50%	50%	50%	50%	n/a	n/a	n/a	50%	n/a	50%	50%
	LA-75-06	4	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	n/a
	LA-76-06	3	67%	67%	67%	67%	33%	33%	33%	33%	33%	33%	33%	33%	33%	n/a

State	Transect	Total No. Carcasses Deployed	Percentage of Carcass Remaining[1]													
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10	Day 11	Day 12	Day 13	Day 14
MS	MS-06-01	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
	MS-13-03	6	50%	50%	33%	33%	33%	33%	17%	17%	17%	17%	17%	0%	0%	0%
	MS-13-05	6	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Notes:

[1]Most birds were deployed on June 12, 2011, with day 1 on June 13, 2011, except for the following exceptions: 1) transects LA-562-01 and LA-562-03, day 1 is June 14, 2011; 2) MS-06-01, for 2 birds, day 1 is June 16, 2011, for 1 bird, day 1 is June 17, 2011, and for 1 bird, day 1 is June 17, 2011; 3) MS-13-03, day 1 is June 16, 2011; and 4) MS-13-05, for 5 birds, day 1 is June 16, 2011 and 1 bird is June 17.

"n/a" indicates that data was not collected on that day.

APPENDIX D

STANDARD OPERATING PROCEDURE: IDENTIFYING STUDY TRANSECTS

The Carcass Persistence Study Plan ("Work Plan (Bird Study #1C): Beached Carcass Persistence Study") prescribed up to seven field teams, each assigned roughly four study transects. The exact number of study transects per team would depend on the logistic feasibility of visiting four transects in one day. The number of transects would be lower if the characteristics of a field team's study area required more transit time between transects, while the number could be higher if transit times were relatively short. The total number of study transects was limited to no more than thirty.

The Study Plan also recognized four habitat types in the study area that might influence carcass persistence: undeveloped barrier island, developed barrier island, undeveloped mainland, and developed mainland. However, given the subjective nature of the definitions for "developed" and "undeveloped," these distinctions would not be used to identify study transects a priori. For purposes of classifying study transects into "mainland" and "barrier island," the following definitions are to be used as guidance:

- Barrier island – True island (body of land, smaller than a continent, that is surrounded by water). May be connected to mainland by road bridge.
- Mainland – Non-island bodies of land. Includes peninsulas, as land-based scavengers may use the isthmus to access beaches on peninsulas.

In 2011, some beaches in the study area will be groomed (e.g., raked and cleaned) for the aesthetic purposes of recreational beach users. Such grooming activity would likely remove study carcasses, and this type of carcass removal is not the target of the Carcass Persistence study. Therefore, these beaches are to be avoided when identifying study transects. For the Carcass Persistence study, beaches that would be groomed for aesthetic purposes in 2011 but that were not aesthetically groomed during 2010 will be avoided. For planning the Carcass Persistence study, BP provided some draft information (dated April 28, 2011) on which transects experienced aesthetic grooming in 2010 or is expected to experience aesthetic grooming in 2011 (Exhibit D-A).

Aesthetic grooming is considered to differ from the spill response-related activities of raking, sifting, or skimming beaches to remove oil, due to the much higher frequency of the response activities each day (e.g., many continuous hours of activity of beach skimmer machines moving up and down the beach) compared to aesthetic grooming (e.g., one sweep of a beach raker machine each morning or once every three weeks). Although spill-related carcasses were likely removed from shorelines by response-related grooming, the Carcass Persistence study is not designed to quantify this kind of carcass removal.

Finally, study transects should not be placed on beaches where permission from landowners to access such beaches cannot be obtained.

Steps to identify study transects:

1) Separate the pool of study transects used by the Searcher Efficiency Study (Birds Study #1B) into "Barrier Island" and "Mainland" groupings.
2) Within each grouping, randomly draw 15 transects.
3) Map all 30 potential study transects and identify the geographic territory that will be assigned to each of the seven field teams, considering the transit times within each territory. Evaluate the

geographic distribution of potential study transects in each team territory to ensure that it is feasible for all transects to be visited each day.

   a. Within a field team territory, remove any proposed transect that would not be logistically feasible to visit each day, considering the locations of the majority of the other transects in the territory.
   b. Within a field team territory, ensure there are at least three feasible study transects. Add feasible replacement transects if necessary. Replacement transects are drawn randomly from the remaining transects in the appropriate grouping (i.e., if a mainland transect is discarded, another mainland transect should be drawn).

4) Screen the refined list of proposed study transects to identify which would need access permission, and remove any transects for which permission cannot be gained. A feasible replacement transect can be added, drawn randomly from the remaining transects in the appropriate grouping.

Exhibit D-A: Draft information on aesthetic grooming of beaches

(insert printout of "BP Draft Grooming Dataset_28April2011_for scavenging plan.pdf")

APPENDIX E

RESULTS OF IDENTIFYING STUDY TRANSECTS

The procedures to identify the exact transects on which to conduct the Carcass Persistence Study are described in "Standard Operating Procedure: Identifying Study Transects" (Appendix D of the "End of Study Report for Sandy Beach Avian Carcass Persistence (Bird Study #1C: Beached Carcass Persistence Study)").

The process began with dividing the pool of transects used in the Searcher Efficiency Study (Bird Study #1B) into "Barrier Island" and "Mainland" groupings. From each grouping, 15 proposed study transects were randomly drawn (Table 1).

Mapping the initial randomly drawn proposed transects allowed the identification of the general territories of seven field teams (seven was the maximum number of field teams for which funding was available). The territories were as follows:

1) Western Louisiana
2) Pass Christian area
3) Mississippi Barrier Islands
4) Dauphin Island area
5) Pensacola / Santa Rose area
6) Destin / Panama City area
7) Port Saint Joe area

Table 1: List of randomly-drawn proposed study transects (15 per habitat grouping).

Barrier Island Transect	Field Team Territory	Mainland Transect	Field Team Territory
MS-06-01	MS Barrier Islands	WFL-26-04	Destin / Panama City
WFL-15-02	Pensacola / Santa Rosa	WFL-38-07	Port Saint Joe
AL-08-02	Dauphin Island	WFL-28-07	Destin / Panama City
MS-13-03	MS Barrier Islands	WFL-41-06	Port Saint Joe
MS-13-05	MS Barrier Islands	LA-76-06	Western Louisiana
WFL-44-06	Port Saint Joe	WFL-18-01	Destin / Panama City
AL-26-06	Pensacola / Santa Rosa	WFL-42-01	Port Saint Joe
AL-07-02	Dauphin Island	WFL-39-06	Port Saint Joe
AL-06-01	Dauphin Island	AL-03-01	Dauphin Island
WFL-11-04	Pensacola / Santa Rosa	WFL-18-02	Destin / Panama City
WFL-45-03	Port Saint Joe	MS-05-04	MS Barrier Islands
WFL-11-03	Pensacola / Santa Rosa	MS-20-04	Pass Christian
WFL-32-04	Destin / Panama City	MS-23-03	Pass Christian
WFL-34-04	Destin / Panama City	WFL-27-02	Destin / Panama City
WFL-46-02	Port Saint Joe	AL-25-06	Pensacola / Santa Rosa

The random draw did not produce any transects in Terrebonne Bay area. This would have meant that the Carcass Persistence Study would not have produced any data representative of any of Louisiana's barrier islands. Rather than conduct the study with this significant data gap, a random draw of transects in Terrebonne Bay was added to the list of proposed transects, and one field team was dedicated to the Terrebonne Bay area.

The addition of the Terrebonne Bay area required that one of the original seven field team territories could not be used. The Pass Christian area was the deemed to be the least harmful to the study's data quality if it were not studied. Other mainland areas were included in the study that had similar characteristics (e.g., amount of development, type of scavengers present, etc.) and could be considered at least somewhat representative of the Pass Christian area.

For each field team territory, the potential study transects were evaluated for feasibility, access permissions, and aesthetic grooming, as described below. Final study transects are listed in Table 2.

Western Louisiana

The initial random draw produced one transect in western Louisiana (LA-76-06). Given the distance of this transect from the rest of the study area, one field team would have to be dedicated to this territory. To make including this territory in the Carcass Persistence Study cost-efficient, additional randomly drawn transects were added (LA-75-06, LA-562-01, and LA-562-03). Two transects (LA-75-06 and LA-76-06) can be easily accessible by foot, with beach access near the transects, and roads traveling in a relatively direct route between transects. The other two transects would need to be accessed by all-terrain vehicle, as no roads come close enough to the transects for feasible foot access. No access permissions would be needed. No aesthetic grooming occurred on these transects in 2010 nor is expected to occur in 2011.

Terrebonne Bay

The initial random draw did not produce any transects for the Terrebonne Bay area. To produce data representative of Louisiana barrier islands, the following transects were identified for the Terrebonne Bay area: LA-642-01, LA-643-01, and LA-644-01. These would require access by boat. It should be feasible to access all three daily, excluding weather problems. No special access permissions would be needed. No aesthetic grooming occurred on these transects in 2010 nor is expected to occur in 2011.

Mississippi Barrier Islands

The initial random draw produced three potential study transects (MS-06-01, MS-13-03, and MS-13-05), which are all barrier island beaches. These would require access by boat. It should be feasible to access all three daily, excluding weather problems. The islands would require access permission from the National Park Service, which should be possible to obtain. No further adjustments are needed for this Field Team's assigned group of study transects. No aesthetic grooming occurred on these transects in 2010 nor is expected to occur in 2011.

Dauphin Island area

The initial random draw produced four potential study transects, three of which were barrier island beaches (AL-06-01, AL-07-02, and AL-08-02) and one was a mainland beach (AL-03-01). The mainland beach transect was too far away from the other transects for the field team to reliably check each day, so it was not used as a study transect. The mainland transect AL-08-04 was identified as a replacement

transect. Access to this transect was facilitated by traveling by car ferry across the entrance to Mobile Bay. The ferry schedule allowed the addition of mainland transect AL-23-02. Transect AL-06-01 was not used as access would require a boat, and obtaining a boat for surveying just this one transect was deemed to not be cost-effective. No replacement was added. Access permission may be required from the State of Alabama but should be obtainable. No aesthetic grooming occurred on three of the target transects in 2010 nor is expected to occur in 2011; no data was available for transect AL-23-02.

Pensacola / Santa Rose area

The initial random draw produced five potential study transects, one of which is a mainland transect (AL-25-06) while the rest are barrier island transects (AL-26-06, WFL-11-03, WFL-11-04, and WFL-15-02). The mainland transect AL-25-06 was not used as it was too far away from the rest of the transects to be reliably visited daily. The mainland transect was not replaced. Transects WFL-11-03 and WFL-11-04 were clearly undeveloped barrier island habitats. These were exchanged for nearby WFL-11-01, a beach which is clearly backed by dense development, because the random draw results had not produced but one other developed barrier island transect for inclusion in the study. Transect WFL-11-01 experienced aesthetic grooming in 2010 and is expected to again in 2011, while no data was available for transects AL-26-06 and WFL-15-02. Access permission would be required from the State of Florida and Eglin Air Force Base for transect WFL-15-02 but should be obtainable from at least the State of Florida.

Destin / Panama City area

The initial random draw produced five potential study transects (WFL-18-01, WFL-18-02, WFL-26-04, WFL-27-02, and WFL-28-07), which are all mainland beaches. These should be easily accessible by foot, with beach access very near the transect, and transit between the transects should be facilitated by roads that travel in a relatively direct route between transects. Access permission may be needed for WFL-18-01 from the State of Florida, but permission should be obtainable. Given the ease of accessibility, all five transects were retained in the study. No aesthetic grooming occurred on transect WFL-18-01 in 2010 nor is expected to occur in 2011, while aesthetic grooming did occur on transects WFL-18-02, WFL-26-04, WFL-27-02, and WFL-28-07 and is expect to also occur in 2011.

Port Saint Joe area

The initial random draw produced seven potential study transects, three of which are barrier island beaches (WFL-44-06, WFL-45-03, and WFL-46-02) and four of which were mainland beaches (WFL-38-07, WFL-39-06, WFL-41-06, and WFL-42-01). Access to the barrier island beaches would require a boat, while access to the mainland beaches is facilitated by the nearby road system. It would not have been feasible to visit daily all of these barrier island and mainland transects, and due to the logistical challenges, the barrier island transects were not used in the study. Access permission may be required from the State of Florida but should be obtainable. No aesthetic grooming occurred on transect WFL-39-06 in 2010 nor is expected to occur in 2011, while aesthetic grooming did occur on transects WFL-38-07 and WFL-41-06 and is presumed likely to also occur in 2011. No data on aesthetic grooming was available for transect WFL-42-01.

Table 2: Final list of study transects for the Carcass Persistence Study.

Field Team	Study Transects
Western Louisiana	4 transects: LA-75-06, LA-76-06, LA-562-01, and LA-562-03
Terrebonne Bay	3 transects: LA-642-01, LA-643-01, and LA-644-01
MS Barrier Islands	3 transects: MS-06-01, MS-13-03, and MS-13-05
Dauphin Island	4 transects: AL-07-02, AL-08-02, AL-08-04, and AL-23-02
Pensacola / Santa Rosa	3 transects: AL-26-06, WFL-11-01, and WFL-15-02
Destin / Panama City	5 transects: WFL-18-01, WFL-18-02, WFL-26-04, WFL-27-02, and WFL-28-07
Port Saint Joe	4 transects: WFL-38-07, WFL-39-06, WFL-41-06, and WFL-42-01