

**Piping Plover 2013 Survey
of the Caminada Headland, Louisiana:
October 9, 2013**



A Report of the:

Barataria-Terrebonne National Estuary Program

By:

**Richard DeMay, Delaina LeBlanc, Donald Norman,
Daniel O'Malley, Tori Bacheler, Erik Johnson, and Blaire Hutchison**

Prepared for the:

Coastal Protection and Restoration Authority

**Piping Plover 2013 Survey of the Caminada Headland, Louisiana:
October 9, 2013**

Table of Contents

Introduction.....3

Survey Methodology.....6

Survey Results.....9

Acknowledgements.....12

Appendix D.....13

Data.....20

Photo Credits: Richard DeMay and Delaina LeBlanc



Introduction

Louisiana's wetland loss crises mean serious troubles for our coastal citizens, their property and livelihoods, and the productive ability of this bountiful natural system. Decades of wetland and barrier island losses are blamed for larger and larger storm surges associated with tropical storms that now routinely wreak havoc on homes and infrastructure. That same loss is also attributed to likely declines for some species of terrestrial and aquatic animals, particularly nesting seabirds. For these reasons and a myriad of others, numerous efforts have been undertaken to understand and reverse these trends if possible. Initially, it started with regional plans such as the Barataria Basin Plan followed soon after by the Barataria-Terrebonne National Estuary Program's Plan in 1996. Later, planners began looking at the coast as a whole. Published in 1998, Coast 2050 was one of the first larger scale plans to address each of the State's coastal basins. Today, years later, we're now seeing the development of the Louisiana Coastal Master Plan, last updated in 2012. Hereto this plan addresses all of the State's coastal waters and wetland habitats.

Almost occurring simultaneously with these planning efforts was the initiation of funding streams designed to provide the monetary resources needed to combat Louisiana's wetland loss problem. The Coastal Wetlands Trust Fund followed by the Coastal Wetlands Planning, Protection, and Restoration Act were the precursors to the Coastal Impact Assessment Program, Gulf of Mexico Energy Security Act of 2006 and now the Restore Act of 2012. Due to these ever increasing funding streams, Louisiana now seems poised to construct many large-scale restoration projects. While most see these projects as providing positive benefits to people and animals, short term impacts associated with active ongoing restoration efforts may pose temporary short-term problems for certain species. This project attempts to document impacts, if any, to Piping Plover and a small suite of other shorebirds that may directly result from construction activities of the CPRA's Caminada Beach and Dune Restoration Project (BA-45).

Caminada Headland Beach and Dune Restoration Project (BA-45)

Soon, the Caminada Headland Beach and Dune Restoration Project (BA-45) will be in the construction phase. Expected to begin in early 2013, the goal of this project is to protect and preserve the structural integrity of the barrier shoreline and provide for restoration of hydrologic conditions, ecosystem processes, and habitats of the Caminada Headland (Figure 1).

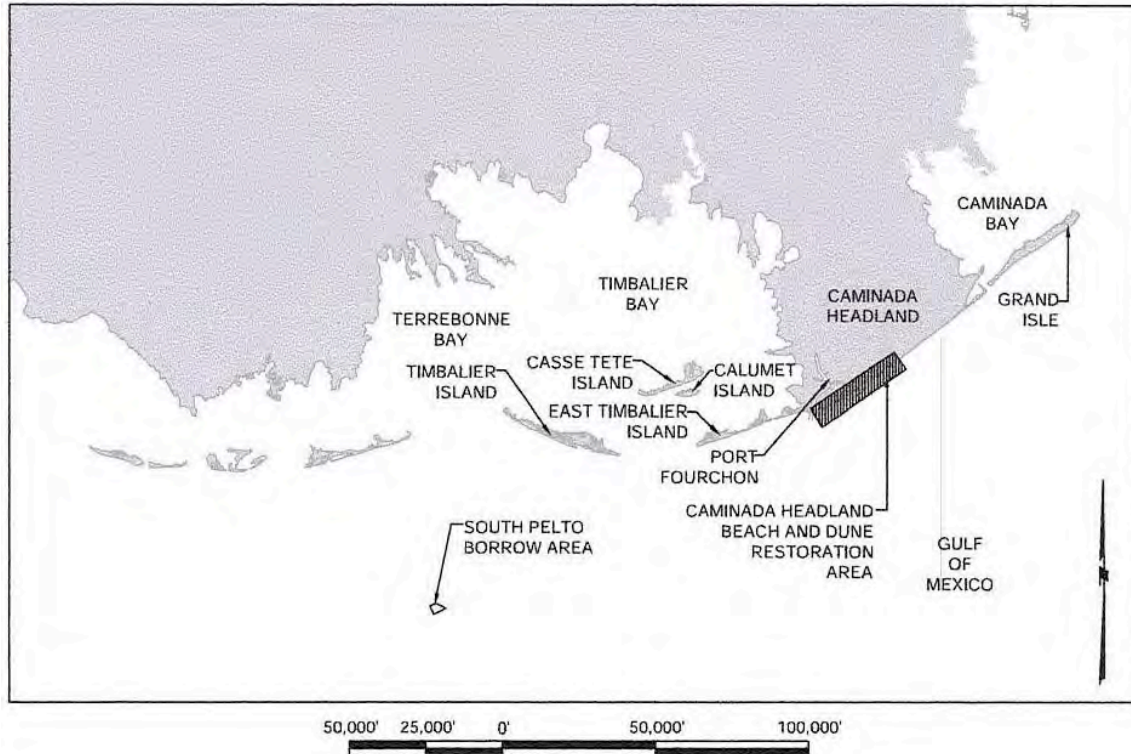


Figure 1. Location of the Caminada Headland Project.

Benefits of restoration of the headland shoreline would protect and sustain significant and unique coastal habitats important to foraging and nesting terns, plovers, gulls, and many other bird species including the endangered Piping Plover (*Charadrius melodus*). Both spring/summer breeding bird surveys of nesting Wilson's Plover (*Charadrius wilsonia*) and Least Tern (*Sternula antillarum*) along with winter surveys of Piping Plover have shown the Caminada Headland to be important nesting/foraging areas for these and other birds.

In addition, the Gulf of Mexico is a key wintering area for Piping Plover with much of it designated as critical habitat under the Endangered Species Act (ESA). Data from the International Piping Plover Survey, conducted every five years since 1991, indicate that 73-93% of all wintering plovers counted have been on the shores of the Gulf of Mexico. Therefore protection and restoration of these critical habitats are warranted. Figure 2 defines both the breeding range and wintering range for this species. Figure 3 defines critical habitat for Piping Plover in the Port Fourchon area of Louisiana.



Figure 2. Piping Plover Breeding and Winter Range (courtesy of Cornell Laboratory of Ornithology).

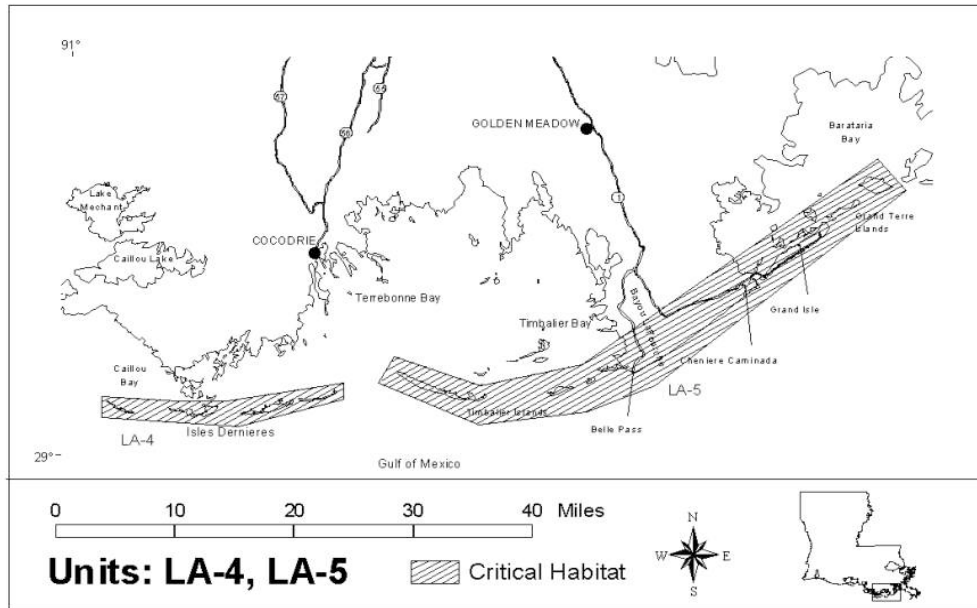


Figure 3. Critical Habitat Designated for Piping Plover along the lower Louisiana coastline.

A condition of the 404 and Coastal Use permit for the Caminada Headland Beach and Dune Restoration Project requires both winter surveys for Piping Plover and breeding bird surveys in the spring. An ongoing series of surveys/reports will be undertaken/developed prior to, during, and post construction. These reports will present the findings of the numerous surveys conducted throughout the life of the project.

Survey Methodology

Permit requirements necessitate Piping Plover surveys both prior to construction and during construction of the project following methods outlined within the Louisiana Piping

Plover Non-Breeding Season Survey Guidelines with observations recorded on provided field census forms (Appendix D, FWS, 2010).

The first pre-construction survey was conducted on September 28, 2012 by a team of qualified observers who surveyed all suitable open habitats (beach, algal flat, wrack line, and other intertidal and sub-tidal flats) in an attempt to identify all Piping Plover across much of the Caminada Headland. The September 2012 survey covered approximately 11 miles of beachfront from Belle Pass (mouth of bayou Lafourche) east to the Elmer's Island entrance road. Subsequent surveys conducted on October 30, 2012, November 28, 2012, January 11, 2013, January 24, 2013, February 6, 2013, February 20, 2013, March 7, 2013, March 20, 2013, April 5, 2013, July 29, 2013, August 12, 2013, August 28, 2013, September 11, 2013, and September 25, 2013 employed the same methodology as previous surveys. The geographic extent of these more recent surveys may have covered more beachfront habitats. Surveys conducted prior to July 2013 were pre-construction surveys while all subsequent surveys were during the construction phase of the restoration project.

This survey, completed on October 9, 2013, also utilized the same methodology as previous surveys. Coverage for this fifteenth survey included the geographic area between Belle Pass on the west to Caminada Pass on the east including Elmer's Island and additionally several miles that comprise West Belle Pass beach; a total distance of 16 miles (Figure 4).

The study site was divided up into 4 - 5 sections and was surveyed on foot. Surveyors walked the length of each section, using binoculars and spotting scopes to identify target species and document band combinations. Parts of the survey site were expansive and surveyors had to spread out across the beach to account for birds located among the various habitats.

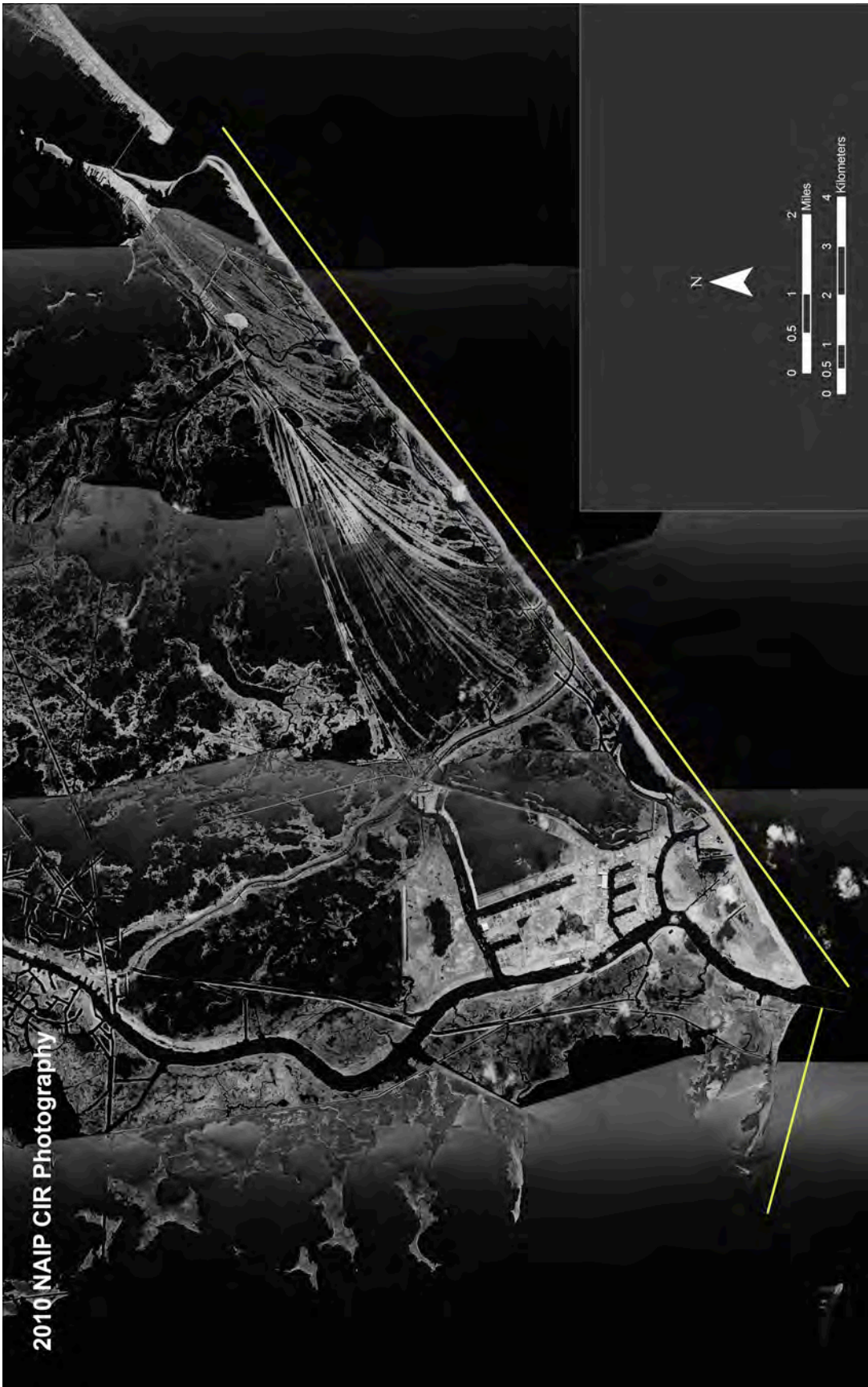


Figure 4. Green line represents the geographic extent of the survey.

Each surveyor collected the following: coordinates, number of individuals, color band combinations if applicable, and photo documentation if possible. Additional data collected included: 1) location on the beach (bay, gulf shoreline or open beach) and 2) behavioral activity (loafing, foraging, aggressive behavior, and/or flying.)

Surveyors collected this information for Piping Plovers (*Charadrius melodus*), Snowy Plovers (*Charadrius nivosus*), Wilson's Plover (*Charadrius wilsonia*), and Red Knot (*Calidris canutus*), and counted and identified any other bird species encountered.

Survey Results

The survey conducted on October 9, 2013 resulted in the detection of 83 Piping Plover, nine Snowy Plover, twenty-eight Wilson's Plover, and zero Red Knot. Figure 5 depicts the distribution of birds for this particular survey.

High tide occurred close to midnight the morning of the survey with a low tide around noon that same day. During the survey, tides appeared relatively low and larger expanses of mudflats were exposed as compared to more recent surveys. These low tides were likely due to a cool front that passed through several days in advance of the survey. Piping Plover appeared to be more evenly split as compared with more recent surveys, foraging along the gulf shoreline, open areas, and the back areas/mud flats behind the dunes. Figure 6 provides data from a nearby water gauge showing tidal range during the survey period.

This survey and subsequent detection of these birds followed just days after the approach of a Tropical Storm Karen that skirted just offshore of Terrebonne and Barataria Bay. Surveyors noted considerable erosion of the gulf shoreline exposing areas long ago covered with sand. It is likely that this storm event caused some birds to move elsewhere as there was a difference of 32 Piping Plover between this survey and the last survey just two weeks earlier.

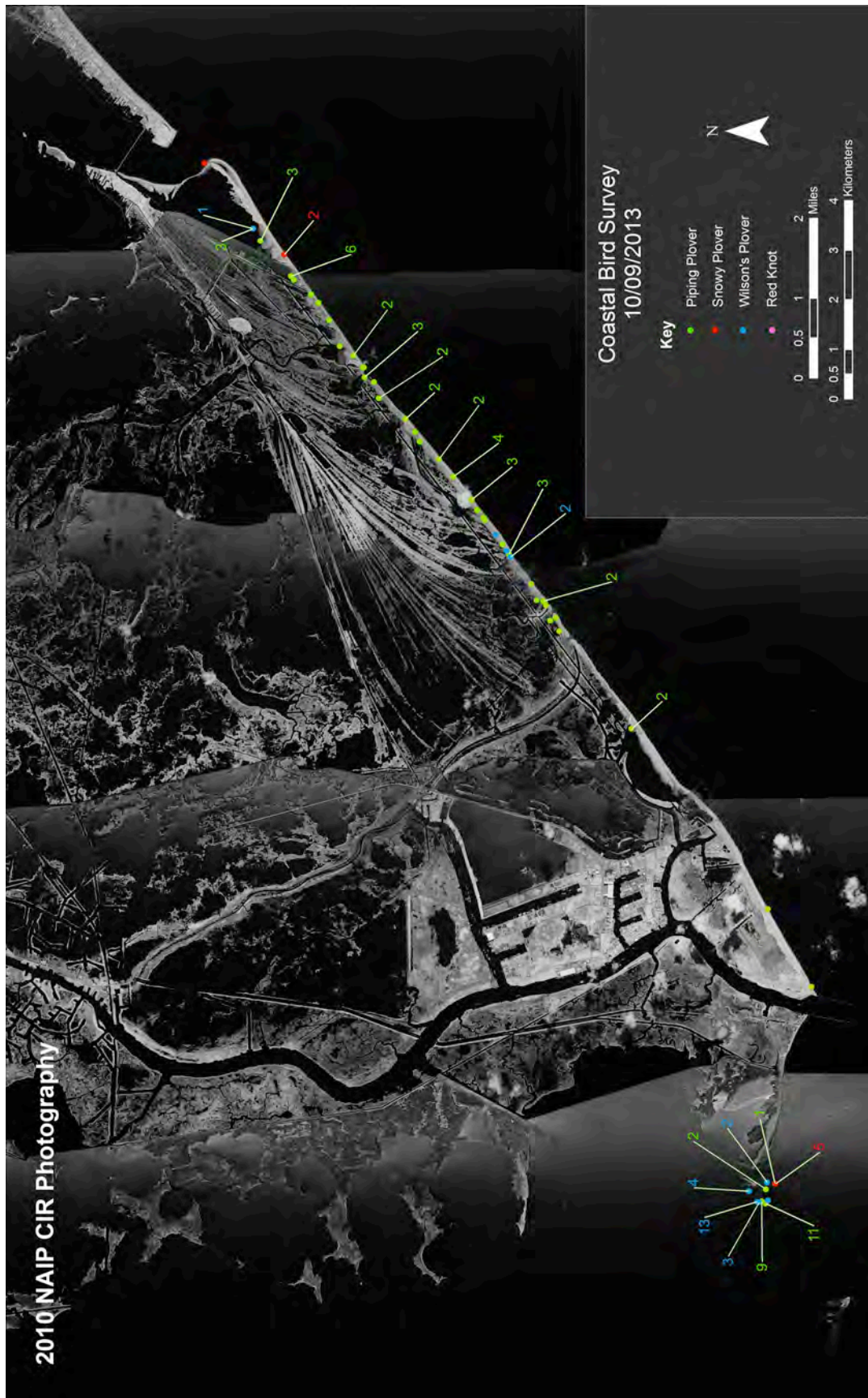


Figure 5. Locations and abundance of select shorebird species.

Of the 83 Piping Plovers encountered, 24 individuals were color banded. Seventeen and possibly up to one other were observed during previous surveys.



Figure 6. Predicted Tidal Range and Water Levels prior to and during the day of the survey.



Figure 7: Banded Wilson's Plover observed during October 9, 2013 survey.

Acknowledgments:

We thank the Coastal Protection and Restoration Authority for funding this project. We thank the Wisner Foundation for their support of this project and their approval to access their property. We also would like to thank the following surveyors who helped to make this project possible. They include Delaina LeBlanc, Dan O'Malley, Donald Norman, Tori Bacheler, Dave Patton, Donna Dittmann, Steve Cardiff, Michael Plauchè, Lori Booth, Jeff Leichty, Nicole Norrelli, Heather Fraser, Natalie Waters, Katarina Hashagen, Michael Massimi, and Erik Johnson. We also thank Robbie Smith (Greater Lafourche Port Commission) and Forrest Trvirca, III (Wisner Foundation) for providing logistical support.

APPENDIX D

Non-breeding Piping Plover Survey Guidelines

Louisiana Piping Plover Non-Breeding Season Survey Guidelines

The purpose of these guidelines is to assess and/or monitor piping plover use of coastal restoration features related to the Barataria Basin Barrier Shoreline Restoration Project. Survey locations should include the coastal restoration features plus adjacent suitable shorebird habitat (i.e., intertidal beaches, mud flats, sand flats, algal flats, wash-over passes, and associated dunes and flats above annual high tide). Monitoring should be conducted July 15 through May 15 to follow the International Shorebird Survey (ISS) census dates listed below. The ISS schedule usually results in three surveys per month. If this is not feasible, try to do at least two surveys per month on the ISS census dates. Surveys should be conducted on ISS dates plus or minus two days. For example, a survey scheduled for the 15th could be conducted on any day between the 13th through the 17th of that month.

Spring Migration

February 25

March 5

March 25

April 5

April 15

April 25

May 5

May 15

Fall Migration

July 15

July 25

August 5

August 15

August 25

September 5

September 15

September 25

October 5

Winter

October 15

October 25

November 5

November 15

November 25

December 5

December 15

December 25

January 5

January 15

January 25

February 5

February 15

To the extent possible, surveys should be conducted when birds are foraging. The best time is at low tide, but surveys can also be conducted on a falling or rising tide provided that the foraging areas are not completely covered. During high tide, birds will be roosting. Although Piping Plovers often roost near foraging areas, the birds will be more difficult to locate. Avoid conducting surveys during poor weather conditions (e.g. high winds, rain).

Methods

In most cases surveys will be conducted by foot. All terrain vehicles (ATVs) may be used to expedite the transport of observers over long stretches of linear routes (“leapfrogging” teams down a beach in 0.5 to 1 mile increments), but all bird counting will be conducted while walking. **(Driving on vegetated areas shall not be permitted. Any ATV use should be coordinated with the Louisiana Department of Wildlife and Fisheries’ Isles Dernieres Wildlife Refuge management staff.)** Birds on exposed mudflats that may be inaccessible by foot should be counted from boats. Each survey crew should use their best professional judgment on the most efficient way to conduct the survey and should document in detail if any deviations to these guidelines are deemed necessary.

Observers should work in teams of two to four people, depending on the width of the beach and beach/tidal interface. Wide coastal beaches will require a greater number of observers in order to assure that birds are not missed on the back (aft) side of the dune. Observers working on beaches that contain moderate to high dunes should climb them every 0.5 to 1 mile and look for wash-over flats and pools that may not be visible from the beach. Coastal islands will be surveyed on both the gulf and bay sides (this may require multiple teams of observers in order to finish the surveys in a timely manner).

Piping Plover locations will be recorded with global positioning system (GPS) units. GPS locations will be recorded in universal transverse Mercator (UTM) map datum NAD 83 CONUS. Each survey team should carry aerial photography of the survey route so that new breaks (cuts) in the beach or island can be noted on the survey maps. Habitat

data will also be collected and will include foraging substrate, portion of the beach used and side of the island on which the birds are found (see attached data sheet). These habitat criteria have been adapted from the 2006 International Winter Piping Plover Census organized by the U.S. Geological Survey. Behavioral data (e.g., foraging, roosting, preening, bathing, flying, aggression, walking) of Piping Plovers when seen should also be documented.

Negative data is as important as positive data. Indicate when surveys have been done and no birds were observed. Although Piping Plovers are the target species, any additional observations of other species would help the U. S. Fish and Wildlife Service to identify shorebird concentration areas and management needs.

Louisiana Piping Plover Survey Form

(Note: Most criteria adopted from the 2006 Wintering Piping Plover Census Form)

A. Total # Piping Plovers Observed: 83

B. Location Description (Name): Caminada Headland

1 Parish: Lafourche and Jefferson

2 UTM location NAD 83 CONUS (center):

3 Northing _____ Easting _____

4 Land Ownership: Federal State Municipal Private County Tribal

C. Date of survey: October 9, 2013 Time survey conducted: 8:30AM to 2:30PM

D. Weather Conditions:

1 Tide stage(s): Low Mid High (Rising / Falling)

2 General weather: Sunny Partly cloudy Overcast Rain Fog Other

3 Approximate temperature: 70s - 80s Fahrenheit

4 Wind speed: 5 miles/hr Wind direction: NE

E. Description of Habitat Surveyed (check as many as apply). The Code designation will be used in Section F table below:

· **Body of Water Type:** I. Ocean II. Protected bay, harbor, cove, lagoon III. Gulf of Mexico IV. Ocean Inlet V. Other describe) _____

· **Shoreline Type:**
 A. Mainland B. Barrier Island C. Spoil Island D. Bar
 E. Other Island F. Washover area G. Other (describe) _____

· **Specific Description:**
 1. Sand beach 2. Sand spit 3. Sand flat 4. Sand bar
 5. Salt flat 6. Gravel shore 7. Oyster reef 8. Mudflat
 9. Vegetation (algal) mat 10. Vegetated shoreline
 11. Other (describe) _____

· **Location Description** (criteria for islands only):
 i. Gulf-side of island ii. Bay-side of island
 a. Tidal interface b. Fore dune c. Top of dune d. Aft dune

F. Numbers, behaviors, habitat types, and GPS location(s) of Piping Plovers observed (mark on map if possible).

Number of Plovers Observed	Behavior Displayed <i>(e.g., foraging, roosting, preening, walking, flying, aggression, etc.)</i>	Habitat Type where Plovers were found <i>Use designations from Section E above, e.g., IIC8ii, IIB9ia</i>	UTM Location <i>Northing</i>	UTM Location <i>Easting</i>

G Mode(s) of transportation:
 Foot Car/Truck ATV Boat Airboat Other _____

H. Habitat (shoreline) covered: 16 miles (please calculate using aerial photograph's scale)

I. Observers: Delaina Leblanc, Richard DeMay, Erik Johnson, Tori Bacheler, Dan O'Malley, Michael Massimi, Natalie Waters, Donald Norman, Jeff Leichty, and Katarina Hashagen

J. Additional comments or notes: _____

K. Additional species encountered (for flying flocks lump as peeps and estimate number). Species of special interest are listed below; please add any additional species.

OTHER SPECIES	TOTAL#	OTHER SPECIES	TOTAL#
Reddish Egret	16		
Marbled Godwit	3		
Red Knot	0		
Western Sandpiper	161		
Stilt Sandpiper	0		
Short-billed Dowitcher	0		
Snowy Plover	9		
Wilson's Plover	28		
Long-billed Curlew	1		
American Oystercatcher	0		

TARGET BIRDS OBSERVED:

DATE	OBSERVER	SPECIES	COORDINATES	#	BANDS/FLAGS				
					UL	LL	UR	LR	
10/9/13	NW	PIPL	29.09470 -90.26220	1	-	-	-	-	
10/9/13	NW	PIPL	29.09653 -90.26626	11	G - Flag	R/W	-	B/G	
10/9/13	NW	PIPL	29.09653 -90.26626	-	G - Flag	W/B	-	W/Y	
10/9/13	NW	PIPL	29.09653 -90.26626	-	LB - Flag	G/Y	S	K/W or A	
10/9/13	NW	PIPL	29.09653 -90.26626	-	S	Y/G	LB - Flag	R/K	
10/9/13	NW	PIPL	29.09722 -90.26578	9	O - Flag	LG/LG or W	S	LB	
10/9/13	NW	PIPL	29.09646 -90.26330	2	G - Flag	W/Y	-	G/Y	
10/9/13	MM	PIPL	29.09486 -90.20526	1	-	-	-	-	
10/9/13	MM	PIPL	29.08727 -90.22157	1	-	-	-	-	
10/9/13	DO & TB	PIPL	29.13567 -90.14016	1	-	-	-	-	
10/9/13	DO & TB	PIPL	29.13324 -90.14448	1	-	-	-	-	
10/9/13	DO & TB	PIPL	29.13164 -90.14669	1	-	-	-	-	
10/9/13	DO & TB	PIPL	29.11898 -90.16724	2	-	-	-	-	
10/9/13	JL & KH	PIPL	29.14606 -90.12117	1	-	-	-	-	
10/9/13	JL & KH	PIPL	29.14492 -90.12282	1	-	-	-	-	
10/9/13	JL & KH	PIPL	29.14469 -90.12330	1	LB - Flag	G/K	S	Y/S	
10/9/13	JL & KH	PIPL	29.14160 -90.12843	1	-	-	-	-	
10/9/13	JL & KH	PIPL	29.14070 -90.13003	1	Y# - Flag	Y/K	S	B/O	
10/9/13	JL & KH	PIPL	29.14045 -90.13058	3	S	-	Y# - Flag	-	
10/9/13	JL & KH	PIPL	29.13655 -90.13681	1	-	-	-	-	
10/9/13	JL & KH	PIPL	29.13443 -90.14040	2	-	-	-	-	

DATE	OBSERVER	SPECIES	COORDINATES	#	BANDS/FLAGS				
					UL	LL	UR	LR	
10/9/13	JL & KH	PIPL	29.13396 -90.14124	1	-	-	-	-	
10/9/13	JL & KH	PIPL	29.13223 -90.14389	1	Y# - Flag	-	S	-	
10/9/13	DN	PIPL	29.16601 -90.09313	3	S	R/W	G - Flag	-	
10/9/13	DN	PIPL	29.16347 -90.09752	2	-	-	-	-	
10/9/13	DN	PIPL	29.15621 -90.10672	1	-	-	-	-	
10/9/13	RD	PIPL	29.16790 -90.08853	2	-	-	-	-	
10/9/13	RD	PIPL	29.16621 -90.09107	1	-	-	-	-	
10/9/13	RD	PIPL	29.16605 -90.09108	1	S	K/K	Y - Flag	P	
10/9/13	RD	PIPL	29.16424 -90.09416	1	-	-	-	-	
10/9/13	RD	PIPL	29.15872 -90.10190	2	-	-	-	-	
10/9/13	RD	PIPL	29.15702 -90.10472	1	-	-	-	-	
10/9/13	RD	PIPL	29.15279 -90.11044	2	LB - Flag	R/R	-	P/W	
10/9/13	RD	PIPL	29.15024 -90.11413	4	-	P/G	Y# - Flag	LB/LB	
10/9/13	RD	PIPL	29.14700 -90.11902	3	Y# - Flag	LB/R	S	Y/K	
10/9/13	RD	PIPL	29.14700 -90.11902	-	Y - Flag	P w/ Y vert stripe	S or A	P/K	
10/9/13	RD	PIPL	29.17535 -90.07565	1	-	-	-	-	
10/9/13	RD	PIPL	29.17399 -90.07747	1	S	B/K	G - Flag	-	
10/9/13	RD	PIPL	29.17211 -90.08114	1	G - Flag	G/Y	-	B/G	
10/9/13	DN	PIPL	29.17033 -90.08653	1	-	-	-	-	
10/9/13	EJ	PIPL	29.17840 -90.07259	1	S	R/R	-	A/R	
10/9/13	EJ	PIPL	29.17894 -90.07178	6	Y# - Flag	W/P	-	Y/K	

DATE	OBSERVER	SPECIES	COORDINATES		#	UL	BANDS/FLAGS		
							LL	UR	LR
10/9/13	EJ	PIPL	29.17894	-90.07178	-	G - Flag	B/G	S	W/W
10/9/13	EJ	PIPL	29.17894	-90.07178	-	S	-	Y - Flag	-
10/9/13	EJ	PIPL	29.18557	-90.06174	3	S	K	Y - Flag	-
10/9/13	EJ	PIPL	29.18431	-90.06432	3	G - Flag	Y/Y	-	B/G
10/9/13	NW	SNPL	29.09613	-90.26569	1	-	-	-	-
10/9/13	DL	SNPL	29.09469	-90.26220	5	-	-	-	-
10/9/13	EJ	SNPL	29.18005	-90.06727	1	-	-	-	-
10/9/13	EJ	SNPL	29.19413	-90.04795	1	-	-	-	-
10/9/13	NW	WIPL	29.09769	-90.26596	3	-	-	-	-
10/9/13	NW	WIPL	29.09621	-90.26185	2	G	A/W	-	G
10/9/13	NW	WIPL	29.09950	-90.26361	4	-	-	-	-
10/9/13	DL	WIPL	29.09612	-90.26561	1	-	-	-	-
10/9/13	DL	WIPL	29.09806	-90.26586	13	-	-	-	-
10/9/13	JL & KH	WIPL	29.14278	-90.12635	1	-	-	-	-
10/9/13	JL & KH	WIPL	29.14087	-90.12979	1	-	-	-	-
10/9/13	JL & KH	WIPL	29.14018	-90.13107	2	-	-	-	-
10/9/13	EJ	WIPL	29.18559	-90.06175	1	-	-	-	-

TOTAL PIPL: 83

TOTAL BANDED PIPL: 24

MINIMUM # PIPL RESIGHTED FROM EARLIER SURVEYS: 17

MAXIMUM # PIPL RESIGHTED FROM EARLIER SURVEYS: 18

TOTAL REKN: 0

TOTAL SNPL: 9

TOTAL WIPL: 28

SPECIES: PIPL – Piping Plover, SNPL – Snowy Plover, WIPL – Wilson’s Plover, REKN - Red Knot

BAND/FLAG Colors: LB-Light Blue, G-Green, Y-Yellow, P-Pink, HP-Hot Pink, LG-Light Green, W-White, A-Gray, K-Black, B-Blue, R-Red, S-Metal, MG-Mint Green, O=Orange, T=Tan, V=Violet

BAND/FLAG Positions: UL-Upper Left, LL-Lower Left, UR-Upper Right, LR-Lower Right

OBSERVERS: DL-Delaina Leblanc, EJ-Erik Johnson, TB-Tori Bacheler, NW-Natalie Waters, RD-Richard DeMay, DO-Dan O’Malley, MM-Michael Massimi, JL-Jeff Leichty, KH-Katarina Hashagen, DN-Donald Norman

TOTAL BIRDS OBSERVED:

	9-Oct-13						TOTAL
	Delaina LeBlanc & Natalie Waters	Michael Massimi	Dan O'Malley, Tori Bacheler, Jeff Leichthy & Katarina Hashagen	Richard DeMay & Donald Norman	Richard DeMay & Donald Norman	Erik Johnson	
	West Belle Pass	East Belle Pass to 3090	Bay Champagne to Bayou Moreau	Parish Line to Elmer's Island Entrance	Bayou Moreau to Parish Line	Elmer's Island	
Snow Goose	0	0	0	0	0	0	0
Gadwall	0	0	0	0	0	0	0
Mottled Duck	3	0	0	0	0	2	1
Blue-winged Teal	4	0	29	0	0	0	7
Green-winged Teal	0	0	0	0	0	0	0
Redhead	0	0	0	0	0	0	0
Ring-necked Duck	0	0	0	0	0	0	0
Lesser Scaup	0	0	0	0	0	0	0
Aythya sp.	0	0	0	0	0	0	0
Black Scoter	0	0	0	0	0	0	0
Bufflehead	0	0	0	0	0	0	0
Hooded Merganser	0	0	0	0	0	0	0
Red-breasted Merganser	0	0	0	0	0	0	0
Duck sp.	0	2	0	0	0	0	0
Magnificent Frigatebird	0	0	0	0	0	0	0
Common Loon	0	0	0	0	0	0	0
Pied-billed Grebe	0	0	0	0	0	0	0
Northern Gannet	0	0	0	0	0	0	0
Double-crested Cormorant	7	3	46	9	5	34	104
American White Pelican	270	0	40	0	18	92	420
Brown Pelican	102	181	58	229	46	267	883
Least Bittern	0	0	0	0	0	0	0
Great Blue Heron	8	0	12	2	10	6	38
Great Egret	12	0	12	1	10	4	39
Snowy Egret	11	0	10	2	8	17	48
Little Blue Heron	1	0	1	0	0	0	2
Tricolored Heron	4	0	9	0	4	7	24

Reddish Egret	4	0	7	0	2	3	16
Cattle Egret	0	0	0	0	0	0	0
Green Heron	0	0	0	0	0	0	0
Black-crowned Night-Heron	1	0	2	0	0	0	3
Yellow-crowned Night-Heron	0	0	0	0	0	1	1
White Ibis	4	0	5	0	5	1	15
Plegadis	0	0	0	1	0	0	1
Roseate Spoonbill	1	0	33	0	0	13	47
Osprey	1	0	5	0	2	3	11
Northern Harrier	0	0	0	1	1	0	2
Rough-legged Hawk	0	0	0	0	0	0	0
Cooper's Hawk	0	0	0	0	0	0	0
Clapper Rail	8	0	14	1	7	9	39
Black-bellied Plover	6	1	40	10	17	18	92
American Golden-Plover	0	0	0	0	0	0	0
Snowy Plover	6	0	0	0	0	3	9
Wilson's Plover	23	0	4	0	0	1	28
Semipalmated Plover	36	2	21	1	22	30	112
Piping Plover	23	2	18	4	23	13	83
Killdeer	0	0	0	4	0	0	4
American Oystercatcher	0	0	0	0	0	0	0
Black-necked Stilt	0	0	0	0	0	0	0
American Avocet	1	0	0	0	0	0	1
Spotted Sandpiper	0	0	0	0	0	0	0
Greater Yellowlegs	2	0	5	2	1	0	10
Solitary Sandpiper	0	0	0	0	0	0	0
Willet	2	4	55	6	7	8	82
Lesser Yellowlegs	0	0	0	0	0	0	0
Greater/Lesser Yellowlegs	0	0	0	0	0	0	0
Whimbrel	0	0	0	0	0	0	0
Long-billed Curlew	1	0	0	0	0	0	1
Marbled Godwit	3	0	0	0	0	0	3
Ruddy Turnstone	1	0	26	1	2	5	35
Red Knot	0	0	0	0	0	0	0
Sanderling	76	33	198	28	42	113	490
Semipalmated Sandpiper	0	0	0	0	0	0	0

Western Sandpiper	14	9	10	8	0	120	161
Semipalmated/Western Plover	0	0	1	0	0	0	1
Least Sandpiper	1	12	45	13	4	21	96
Pectoral Sandpiper	0	0	0	0	0	0	0
Baird's Sandpiper	0	0	0	0	0	0	0
Dunlin	1	0	0	0	2	4	7
Buff-breasted Sandpiper	0	0	0	0	0	0	0
Stilt Sandpiper	0	0	0	0	0	0	0
peep sp.	0	0	0	0	0	0	0
Short-billed Dowitcher	0	0	0	0	0	0	0
Long-billed Dowitcher	0	0	0	0	0	0	0
Short-billed/Long-billed Dowitcher	0	0	0	0	0	0	0
shorebird sp.	0	0	0	0	0	0	0
Bonaparte's Gull	0	0	0	0	0	0	0
Laughing Gull	44	67	48	0	204	725	1088
Ring-billed Gull	1	0	1	1	0	0	3
Herring Gull	65	1	3	0	5	5	79
Lesser Black-backed Gull	1	0	0	1	0	0	2
Glaucous Gull	0	0	0	0	0	2	2
Gull sp.	0	0	0	0	0	0	0
Least Tern	0	0	0	0	0	0	0
Gull-billed Tern	0	0	0	0	0	0	0
Caspian Tern	62	3	50	6	98	115	334
Black Tern	0	0	0	0	0	0	0
Common Tern	0	0	0	0	0	0	0
Forster's Tern	0	0	3	0	2	9	14
Royal Tern	380	10	60	0	37	190	677
Sandwich Tern	0	0	1	0	0	0	1
Tern sp.	0	0	0	0	0	0	0
Black Skimmer	215	0	0	0	0	20	235
Eurasian Collared-Dove	0	0	0	0	0	0	0
Mourning Dove	0	0	2	0	0	1	3
Short-eared Owl	0	0	0	0	0	0	0
Yellow-billed Cuckoo	0	0	0	0	0	0	0
Chimney Swift	0	0	0	0	0	0	0

Ruby-throated Hummingbird	0	0	0	0	0	0	0	0
Belted Kingfisher	0	0	8	0	0	0	1	9
American Kestrel	1	0	0	0	0	0	0	1
Merlin	0	0	0	0	0	0	0	0
Peregrine Falcon	3	0	0	0	0	0	1	4
Eastern Phoebe	0	0	0	0	0	0	0	0
Eastern Wood-Pee-wee	0	0	0	0	0	0	0	0
Red-eyed Vireo	0	0	0	0	0	0	0	0
Eastern Kingbird	0	0	0	0	0	0	0	0
Loggerhead Shrike	0	0	0	0	0	0	0	0
American Crow	0	0	0	0	0	0	0	0
Common Nighthawk	0	0	0	0	0	0	0	0
Yellow-bellied Flycatcher	0	0	0	0	0	0	0	0
Purple Martin	0	0	0	0	0	0	0	0
Northern Rough-winged Swallow	1		0	0	0	0		
Tree Swallow	0	0	0	0	0	0	0	0
Bank Swallow	0	0	0	0	0	0	0	0
Barn Swallow	5	2	4	0	0	0	1	12
Cliff Swallow	0	0	0	0	0	0	0	0
Swallow sp.	0	0	0	0	0	0	0	0
Sedge Wren	0	0	0	0	0	0	0	0
Marsh Wren	0	0	8	1	14	0	0	23
Ruby-crowned Kinglet	0	0	0	0	0	0	0	0
Wood Thrush	0	0	0	0	0	0	0	0
Gray Catbird	0	0	0	0	0	0	0	0
Northern Waterthrush	0	0	0	0	0	0	0	0
American Redstart	0	0	0	0	0	0	0	0
Orange-crowned Warbler	0	0	0	0	0	0	0	0
Prothonotary Warbler	0	0	0	0	0	0	0	0
Kentucky Warbler	0	0	0	0	0	0	0	0
Tennessee Warbler	0	0	1	0	0	0	0	1
Common Yellowthroat	0	0	2	1	3	0	0	6
Magnolia Warbler	0	0	0	0	0	0	0	0
Chestnut-sided Warbler	0	0	0	0	0	0	0	0
Black-throated Green Warbler	0	0	0	0	0	0	0	0
Palm Warbler	0	0	7	0	0	0	2	9

Yellow-rumped Warbler		0	0	0	0	0	0	0	0
Prairie Warbler		0	0	0	0	0	0	0	0
Yellow Warbler		0	0	1	0	0	0	0	1
Warbler sp.		1	0	0	0	0	0	0	1
Savannah Sparrow		0	0	0	0	1	2	3	
Nelson's Sparrow		0	0	8	0	16	0	24	
Seaside Sparrow		0	0	48	10	74	3	135	
Swamp Sparrow		0	0	0	0	0	0	0	
White-crowned Sparrow		0	0	0	0	0	0	0	
Ammodramus sp.		1	0	0	0	0	0	1	
Dickcissel		0	0	1	0	0	0	1	
Scarlet Tanager		0	0	0	0	0	0	0	
Indigo Bunting		0	0	0	0	0	2	2	
Red-winged Blackbird		0	0	25	0	52	13	90	
Orchard Oriole		0	0	0	0	0	0	0	
Boat-tailed Grackle		0	0	0	0	0	0	0	