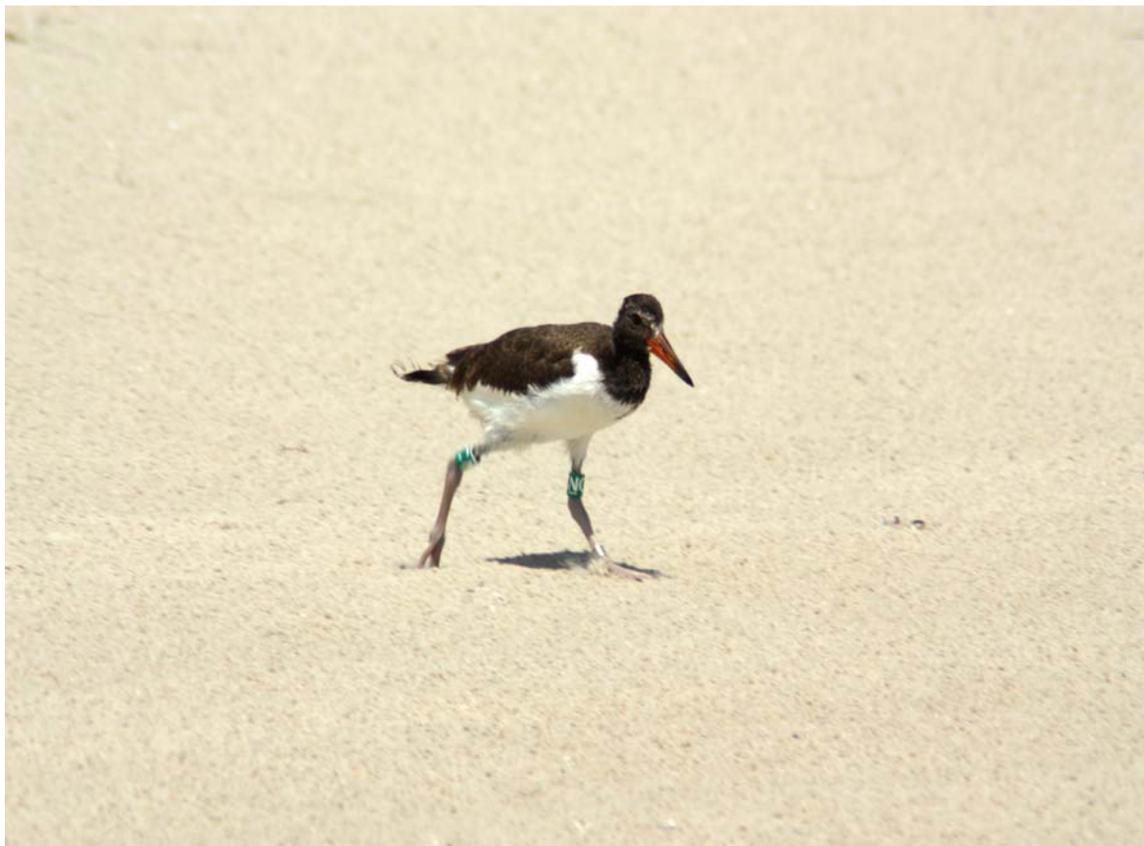


AMERICAN OYSTERCATCHER (*Haematopus palliatus*) MONITORING AT  
CAPE LOOKOUT NATIONAL SEASHORE

2010 SUMMARY REPORT



*A Banded American Oystercatcher Chick. NPS Photo 2010*

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## **Abstract**

There were 62 documented nesting American Oystercatcher pairs throughout the seashore in 2010. North Core Banks had 31 pairs, South Core Banks had 23 pairs, and Shackleford Banks had 8 pairs. Egg-laying was initiated approximately on April 13<sup>th</sup> and a total of 113 nests were documented. Thirty three chicks fledged, 14 from North Core Banks, 17 from South Core Banks, and 2 from Shackleford Banks. South Core Banks was the most productive with a fledge success rate of 0.74, North Core Banks fledge success was 0.45 and Shackleford continues to be the least productive with a fledge success rate of 0.25. Overall the fledge success rate was 0.53 per nesting pair for the seashore.

## **Introduction**

American Oystercatchers are common nesters throughout the park, primarily on the ocean beach. They are listed as a 'Bird of Special Concern' in North Carolina by the North Carolina Wildlife Resource Commission. Their choice of nesting habitat makes them particularly vulnerable to disturbance by park visitors and off-road vehicles.

Monitoring of American Oystercatcher nesting at Cape Lookout National Seashore (CALO) began in 1995. A researcher from Duke University studied nesting on South Core Banks and found low reproductive success. She also documented chick mortality caused by off-road vehicles. Since 1997 researchers from North Carolina State University (NCSU) and park staff have conducted censuses, monitored nesting success and banded birds in the park.

## **Site Description**

Cape Lookout National Seashore is located in the southern Outer Banks of North Carolina between Ocracoke and Beaufort Inlets. With the closing of Old Drum and New Drum Inlets in the spring of 2009, the seashore is currently divided into three barrier islands. The northernmost island, North Core Banks (NCB) is now approximately 23 miles long, extending from Ocracoke Inlet to Ophelia Inlet. South Core Banks (SCB) extends southward from Ophelia Inlet almost 25 miles to Barden Inlet. The Core Banks have a northeast to southwest orientation and exhibit a low profile landscape. The third island, Shackleford Banks (SB) is 9 miles long and has an east-west orientation with a higher dune system and larger areas of vegetation. All islands in the park are subject to constant and dramatic change by the actions of wind and waves.

## **Methods**

Management and monitoring protocols are outlined in the Interim Protected Species Management Plan/ Environmental Assessment (IPSMP/EA) 2006. Weekly surveys of nesting habitat on Core Banks began in April. Nesting on North Core Banks and South Core Banks was monitored seven days a week from April to the end of the nesting season. In 2010, monitoring was primarily conducted by NCSU researchers on SCB and

NCB. This allowed focused monitoring of American Oystercatchers while park staff could closely monitor other protected species. Park staff still provided management actions for oystercatchers. Surveys of Shackleford Banks nesting birds were once a week beginning in April by park staff.

The area around the nest was closed with “Bird Sanctuary” signs if the nest was in danger of being run over by off-road vehicles or stepped on by pedestrians. Generally, nests found in the dunes were not posted. There is some concern that predators might learn to associate posts with nests. Small posted areas may also unnecessarily attract curious park visitors and cause disturbance. Nest locations were marked with either a stake or objects like sticks or shells to facilitate follow up checks.

Additional nest protection was initiated in 2009 and continued in 2010. A 600 foot buffer was established around each nest that allowed traffic to pass by on the beach, but prevented stopping, parking, or camping near the nest. Two sets of 18” X 18” yellow signs were placed on each side of a nest that defined the buffer zone. Pedestrian traffic was allowed along the ocean shoreline.

The locations of the nests were recorded using a GPS and the park’s mile marker system. Information about the habitat type was also noted. If one or both adults were banded, that information was recorded on the nest data sheet (Appendix 2).

Nests were checked regularly, 1 to 3 days, to monitor the status of incubation and document losses. One day before the expected time of hatch, the ocean beach in that area was closed to vehicles with traffic routed to the backroad. In areas where there is no backroad, signs warned of the presence of flightless chicks and reduced the speed limit to 15mph were placed on the beach. Chicks were monitored daily until they fledged or were lost.

## Results

Sixty two pairs of American oystercatchers nested at CALO (Table 1). Counts were for pairs on or near the ocean beach and did not include marsh islands.

Table 1. American Oystercatcher Nesting Pairs- 2010

North Core Banks	31 pairs
South Core Banks	23 pairs
Shackleford Banks	8 pairs

Nesting pairs were spread throughout most of the ocean beach habitat in the park (Figures 1 & 2). The birds did not use areas adjacent to buildings and concentrations of people.

## Hatch and Fledge Success

One hundred thirteen nests were found of which 27 hatched at least one egg. Thirty three chicks were known to survive to fledge (Table 2). Of the nests that failed, 35 nests failed due to unknown causes, 28 were lost to predation, 16 were lost to weather events, 5 abandoned and 2 were lost to human disturbance (Table 3). Raccoons (24), cat (1), ghost crab (1), mink (1) and undetermined mammalian (1) were found to be the main predators of oystercatcher eggs. Table 4 summarizes the reproductive success over the last 15 years. Table 4 data was reviewed and updated for this current report and differs slightly from past report summaries. Note that fledgling success is calculated using the known nesting pairs not breeding pairs. This allowed for cross year comparisons with variable monitoring efforts and other unknowns. In 2010, sixty two known nesting pairs produced thirty three fledglings for a fledge success rate of 0.53. Individual nest data are found in Appendix 1. Tables 5, 6, 7, and 8 summarize the reproductive success by island with known and comparable data.

Table 2. Oystercatcher Nesting by Island 2010

<b>Island</b>	<b># pairs</b>	<b>#Nests</b>	<b># Nests Hatched</b>	<b># Chicks Fledged</b>
North Core Banks	31	58	14 (24%)	14
South Core Banks	23	43	11 (25%)	17
Shackleford Banks	8	12	2 (17%)	2
CALO Total	62	113	27 (24%)	33

Table 3. 2010 Causes of Nest Failure

<b>Island</b>	<b>Predation</b>	<b>Flooding/ Storms</b>	<b>Human Disturbance</b>	<b>Abandoned</b>	<b>Unknown</b>
North Core Banks	18	11	0	4	11
South Core Banks	10	3	0	1	18
Shackleford Banks	0	2	2	0	6
CALO total	28	16	2	5	35

Table 4. Summary of Seashore Oystercatcher Reproductive Success Data, 1995-2010

<b>Year</b>	<b>Island</b>	<b>#Nests</b>	<b>#Nests Hatched</b>	<b># Pairs (nesting)</b>	<b>#Chicks fledged</b>
1995	South Core Banks	36	12 (33%)	20	7 (0.35)
1997	South Core Banks	34	4 (12%)	23	2 (0.08)
1998	North & South Core Banks	98	12 (12%)	58	7 (0.12)
1999	North & South Core Banks	114	16 (14%)	67	6 (0.09)
2000	North & South Core Banks	74	25 (34%)	54	7 (0.13)
2001	North & South Core Banks	109	20 (18%)	56	2 (0.03)
2002	North & South Core Banks	89	8 (10%)	46	6 (0.13)
2003	Cape Lookout N.S.	105	17 (16%)	54	8 (0.15)
2004	Cape Lookout N.S.	71	38 (54%)	52	45 (0.86)
2005	Cape Lookout N.S.	66	26 (39%)	54	18 (0.33)
2006	Cape Lookout N.S.	70	23 (33%)	52	26 (0.50)
2007	Cape Lookout N.S.	99	21(21%)	61	31 (0.51)
2008	Cape Lookout N.S.	91	17 (19%)	57	15 (0.26)
2009	Cape Lookout N.S.	83	20(24%)	61	21 (0.34)
2010	Cape Lookout N.S	113	27 (24%)	62	33 (0.53)

Table 5. Summary of North Core Banks Oystercatcher Reproductive Success Data, 1998-2010

<b>Year</b>	<b>Island</b>	<b>#Nests</b>	<b>#Nests Hatched</b>	<b># Pairs (nesting)</b>	<b>#Chicks fledged</b>
1998	North Core Banks	72	5 (7%)	38	4 (0.10)
1999	North Core Banks	62	11 (18%)	39	5 (0.13)
2000	North Core Banks	36	7 (19%)	29	1 (0.03)
2001	North Core Banks	53	12 (22%)	29	1 (0.03)
2002	North Core Banks	46	4 (9%)	23	5 (0.22)
2003	North Core Banks	36	7 (19%)	20	2 (0.10)
2004	North Core Banks	25	20 (80%)	21	31 (1.48)
2005	North Core Banks	20	11 (55%)	16	6 (0.38)
2006	North Core Banks	18	8 (44%)	14	5 (0.36)
2007	North Core Banks	32	8 (25%)	17	14 (0.82)
2008	North Core Banks	22	4 (18%)	14	3 (0.21)
2009*	North Core Banks *	40	7 (18%)	29	8 (0.28)
2010*	North Core Banks*	58	14 (24%)	31	14 (0.45)

\* Includes former Middle Core Banks and Ophelia Island.

Table 6. Summary of former Middle Core Banks and Ophelia Island, Mile 19 to Mile 22.5, Oystercatcher Reproductive Success Data from 2004 to 2010.

<b>Year</b>	<b>Island</b>	<b>#Nests</b>	<b>#Nests Hatched</b>	<b># Pairs (nesting)</b>	<b>#Chicks fledged</b>
2004	MCB	5	4 (80%)	5	7 (1.40)
2005	MCB	9	5 (55%)	7	9 (1.28)
2006	MCB and OI	10	8 (80%)	10	10 (1.00)
2007	MCB and OI	14	9 (64%)	13	13 (1.00)
2008	MCB and OI	8	5 (62%)	8	7 (0.88)
2009	MCB and OI	13	3 (23%)	10	1 (0.10)
2010	MCB and OI	24	4 (17%)	13	2 (0.15)

Table 7. Summary of South Core Banks Oystercatcher Reproductive Success Data from 1995 to 2010

<b>Year</b>	<b>Island</b>	<b>#Nests</b>	<b>#Nests Hatched</b>	<b># Pairs (nesting)</b>	<b>#Chicks fledged</b>
1995	South Core Banks	36	12 (33%)	20	7 (0.35)
1997	South Core Banks	34	4 (11%)	23	2 (0.09)
1998	South Core Banks	26	7 (27%)	20	3 (0.15)
1999	South Core Banks	52	5 (10%)	28	1 (0.04)
2000	South Core Banks	38	18 (47%)	25	6 (0.24)
2001	South Core Banks	56	8 (14%)	27	1 (0.04)
2002	South Core Banks	43	4 (9%)	23	1 (0.04)
2003	South Core Banks	59	9(15%)	27	6 (0.22)
2004	South Core Banks	33	13 (39%)	20	6 (0.30)
2005	South Core Banks	27	9 (33%)	22	3 (0.14)
2006	South Core Banks	31	6(19%)	19	10 (0.53)
2007	South Core Banks	41	4(21%)	21	4 (0.19)
2008	South Core Banks	44	5 (11%)	24	5 (0.21)
2009	South Core Banks	30	11(37%)	22	11 (0.50)
2010	South Core Banks	43	11 (25%)	23	17 (0.74)

Table 8. Summary of Shackleford Banks Oystercatcher Reproductive Success Data from 2003 to 2010

Year	Island	#Nests	#Nests Hatched	# Pairs (nesting)	#Chicks fledged
2003	Shackleford Banks	10	1 (10%)	7	0 (0.00)
2004	Shackleford Banks	8	1 (14%)	6	1 (0.17)
2005	Shackleford Banks	10	1 (10%)	9	0 (0.00)
2006	Shackleford Banks	11	1 (9%)	9	1 (0.11)
2007	Shackleford Banks	12	0 (0%)	10	0 (0.00)
2008	Shackleford Banks	17	3 (18%)	11	0 (0.00)
2009	Shackleford Banks	13	2 (15%)	10	2 (0.20)
2010	Shackleford Banks	12	2 (17%)	8	2 (0.25)

### Banding

Thirty one chicks were captured and banded in the park by NCSU researchers. Two chicks were lost after banding and 4 fledged without bands. Park staff and researchers recorded band re-sights of individuals and nesting pairs in the seashore throughout the summer. Of the 62 nesting pairs 42 pairs had at least one of the pair banded, while 20 pairs were unbanded. NCB had 22 pairs banded and 9 pairs unbanded. SCB had 17 pairs banded and 6 pairs unbanded. SB had three pairs banded and 5 unbanded pairs. See appendix 1 for nesting pair re-sight data and 2010 chick band data. Details on oystercatcher band combinations can be found at the website:

<http://www.ncsu.edu/project/grsmgis/AMOY/Banding.htm>

### Winter Counts

Winter flock counts of roosting American Oystercatchers were conducted in January of 2010 with the North Carolina Wildlife Resource Commission. There are two main roost sites on the soundside of Shackleford Banks. One site is at Bottle Run Point and Whale Creek Bay area. On January 5<sup>th</sup>, two observers counted 39 and 41 birds. On January 6<sup>th</sup>, three observers counted 47, 46, and 43 birds. On January 7<sup>th</sup>, two observers counted 43 and 37 birds. During the three day count period four North Carolina bands, two Massachusetts bands, and two Virginia bands were resighted. The other soundside roost site is on the east end of Shackleford. On January 5<sup>th</sup>, two observers both counted 7 birds. On January 6<sup>th</sup>, two observers both counted 8 birds. On January 7<sup>th</sup>, two observers counted 18 and 11 birds. Four bands were re-sighted.

## Discussion

Both Old Drum Inlet and New Drum Inlet remained closed in 2010 and appear stabilized with water movement being handled by nearby Ophelia Inlet. Old Drum and New Drum closed naturally in March 2009. This action joined the previously isolated 3.5 miles of Middle Core Banks and Ophelia Island to North Core Banks and provided for vehicle access down to Ophelia Inlet. The breeding seasons from 2000 to 2008 on Middle Core Banks experienced little recreational disturbance and reduced predation levels as a 3 mile separate island. Ophelia Island, from 2006 to 2008 breeding season, similarly was isolated for three breeding seasons until New Drum Inlet closed. The hatch rates and fledgling success in this area was the highest in the Seashore during those years of isolation, Table 6. In 2008, seven oystercatcher chicks fledged from mile 19 to mile 22.5 while only one chick fledged in 2009 and two chicks fledged in 2010 from this same area. In 2010, four nests hatched 9 chicks. While signs were posted to slow traffic and warn drivers of the presence of bird chicks, the chicks were routinely in tire ruts on the open beach and at the tideline and 7 chicks disappeared over time. One chick was found with the body cavity compressed, a broken wing and a broken leg at the tideline. One other chick was found dead in a tire rut. Currently there is not a backroad in this area to reroute traffic, but a trail may be reestablished upon review.

In late 2008 and early 2009, 149 raccoons were removed from South Core Banks as part of an experimental removal and predator study by North Carolina State University. Raccoons have been a consistent nest predator over the years. This removal appeared to continue to benefit the reproductive success on SCB this year. While the nest hatching success was lower in 2010 (25%) than 2009 (37%) the fledgling rate was higher. A total of 17 fledglings were produced on SCB in 2010 (Table 7). This is the highest number of fledglings for SCB since monitoring began in 1995. Other factors beside predator removal, such as the lack of spring storm loss in 2010 and chick protection from vehicle mortality since 2005, probably contributed to this record high.

North Carolina State University research activity in the seashore continues to study the raccoon population and the American oystercatcher success in 2010. In addition, a separate research project is studying the American oystercatcher response to military over flights over the seashore

Hatch rates in 2010 varied throughout the park. Hatch success rates were 24% on North Core Banks, 25% on South Core Banks and 17% on Shackleford Banks. Predators, flooding, and human disturbance were the known causes of some nest losses. Twenty eight nests were known lost to predators, 18 on North Core Banks and 10 on South Core Banks. Primary predators include raccoons, feral cats, and ghost crabs. Sixteen nests were lost to flooding and /or high wind events. Five nests were abandoned and the cause of failure for 35 nests was unknown. There were two human disturbance related nest failures on Shackleford Banks. On the busy west end of Shackleford Banks two nests had bare footprints at the nests and the eggs apparently were removed (nest 4 and 9).

There were four incidences of chick mortality due to vehicles documented in the seashore in 2010. In addition to the two above mention chick mortalities (nest 20 and 58) in the

former Middle Core area of North Core Banks there was one crushed twitching chick found in an ATV track at mile 0.27 (nest 34). There is not a backroad in this area and the chick hatched onto an open vehicle beach. On South Core Banks nest 31 hatched two days before its expected hatch date and one chick was run over by a truck at the tideline. Unfortunately signs were not posted before the hatch, but traffic was rerouted for the second remaining chick.

At Cape Point in 2010 nest 1 was posted before the hatch. This nest was discovered on April 13<sup>th</sup> on the narrow tip of the point. It hatched three chicks on May 5<sup>th</sup> and the tip of the point was closed to motor vehicles. By May 14<sup>th</sup> the brood had moved out to the tip end of the point. A spring storm prompted them to move to the protection of the dunes on May 25<sup>th</sup>, a distance of about a mile. They were seen on June 3<sup>rd</sup> on both the west and east side of the point. On June 6<sup>th</sup> they were back at the tip and then back in the dunes on June 13<sup>th</sup>. The one chick fledged on June 21<sup>st</sup> at 43 days old. The beach closures expanded and retracted in response to their movements and other protected species in the area. This same pair behaved similarly in 2009 with its chicks. Figure 3 illustrates this movement in 2010 (the DOQQ base layer is 2009).

Fledging success in the park was 0.53 chicks per nesting pair with a large variance by island. Fledgling success rates were 0.74 on SCB, 0.45 on NCB, and 0.25 on SB. Fledge success on SCB was the highest on record and Shackleford Banks continues to have low fledge success (Table 8). The average age of chicks fledging in 2010 from 17 broods was 40 days from the hatch date. This calculation excludes two broods; one with an unknown hatch date and one brood with a questionable fledge date of 56 days. The range of fledging age from the 17 broods was from 37 days to 43 days (appendix 1).

Figure 1.

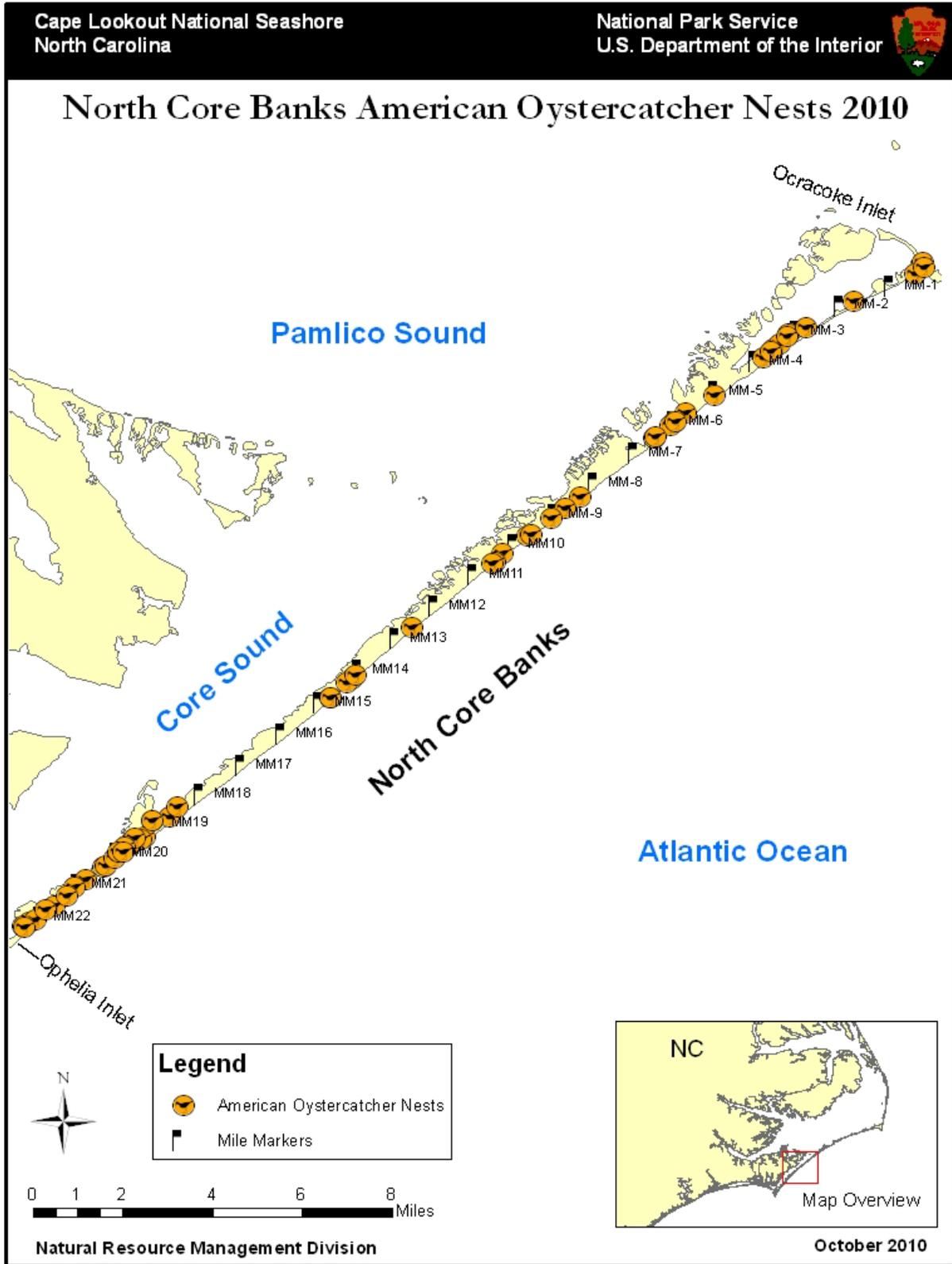


Figure 2.

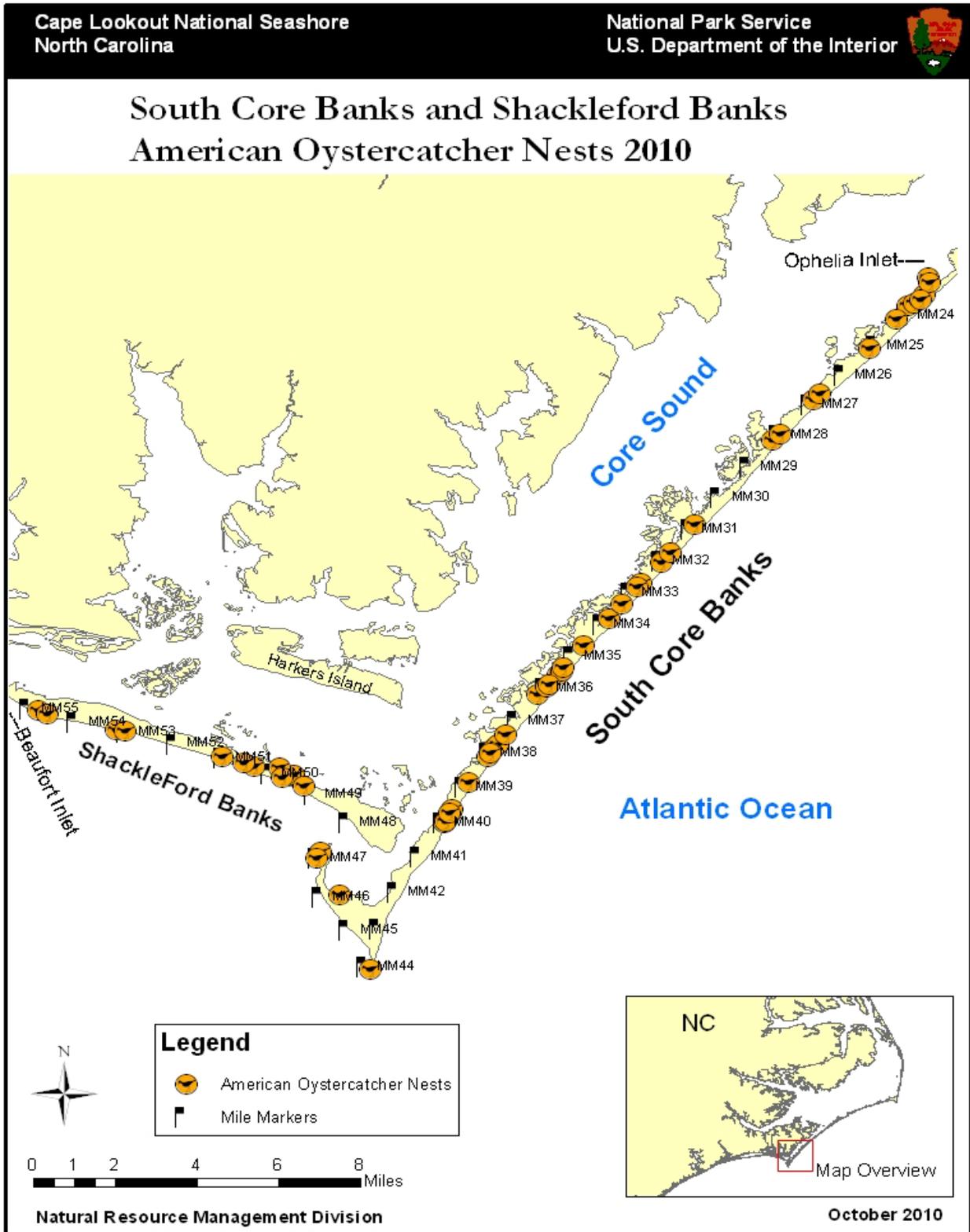
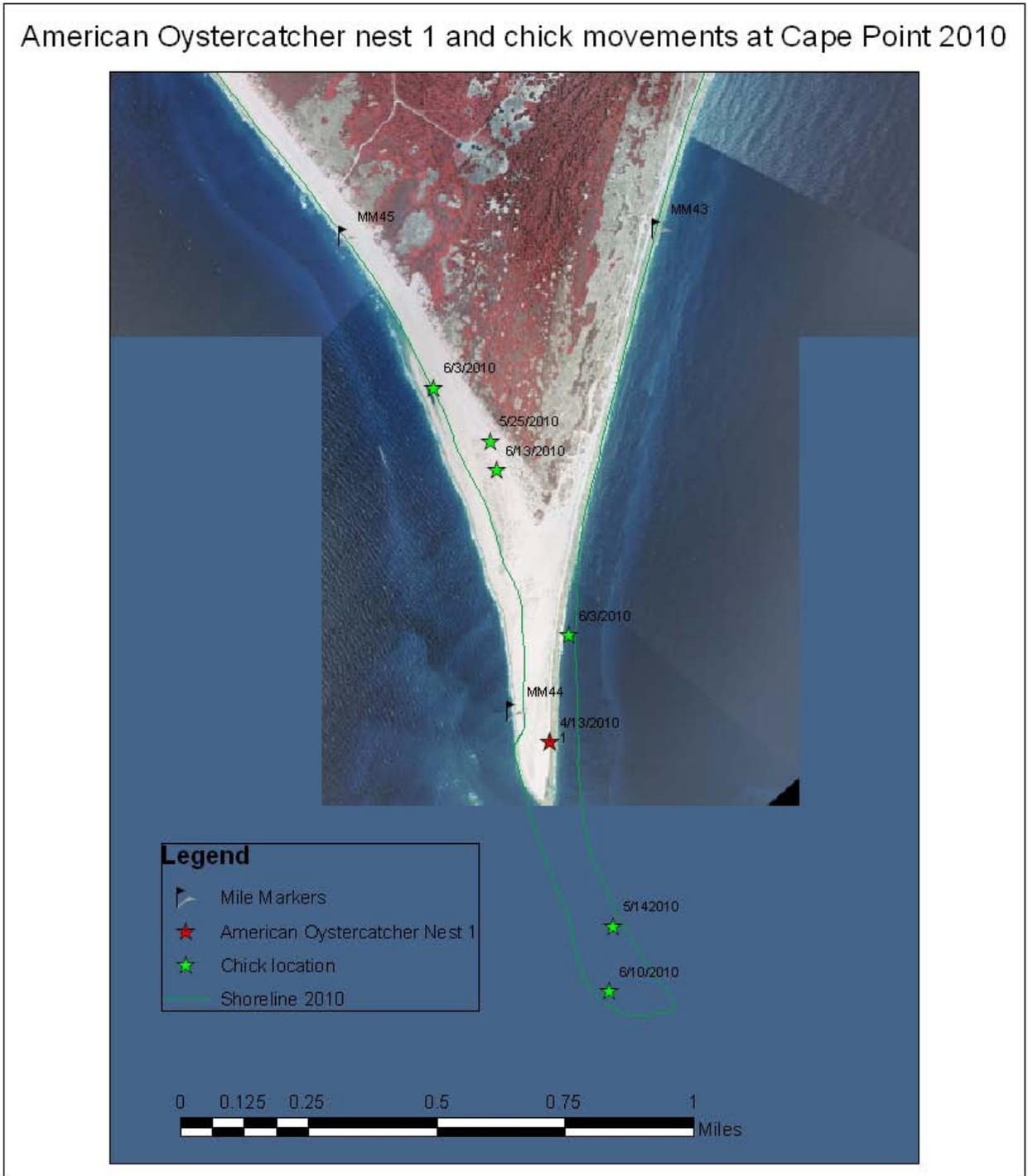


Figure 3.



## APPENDIX 1A

## AMERICAN OYSTERCATCHER NESTS- NORTH CORE BANKS-2010

Nest #	Pair #	BANDS	MILE	LOCATION	FOUND	EGGS	POSTED	COMMENTS
1	1	UNB +UNB	19.17	shell flat	4/21/2010	3	no	4/28 nest lost to unknown predation
2	2	UNB +UNB	19.45	open beach	4/21/2010	3	yes	6/11 chicks confirmed lost, unknown, open ORV beach, 6/4 chick hiding in tire rut
3	3	UNB +UNB	20.5	shell flat	4/21/2010	2	no	4/26 nest lost unknown
4	4	UNB +UNB	19.76	behind dunes	4/23/2010	3	no	5/5 nest lost unknown
5	5	G (EO)+ LL-X,LR- O	14.8	open beach	4/23/2010	2	yes	4/27 nest lost unknown
6	6	G (F6) + UNB	0.14	toe of dune	4/23/2010	3	yes	5/4 nest lost to raccoon
7	7	G (AO) + UL-R, LL-X	6.05	on dune	4/24/2010	3	yes	4/28 nest lost unknown
8	8	G (UW) + UNB	8.4	toe of dune	4/24/2010	3	yes	banded chicks G (TC) and G ( TE), day 41 fledge
9	9	G (UU) +UNB	8.8	toe of dune	4/24/2010	3	yes	banded chicks G(TJ) and G (TF), day 39 fledge
10	10	G (O4) male + G (73) female	9.2	shell flat	4/24/2010	3	yes	banded chick G ( TA), day 38 fledge
11	5	G (EO)+ LL-X,LR- O	14.8	open beach	4/24/2010	1	yes	4/27 nest lost unknown, this 1 egg nest was 5 feet away from nest 5 (2 eggs)
12	11	G(M8) +UNB	19.67	shell flat	4/24/2010	3	yes	5/6 raccoon predation
13	12	G(F3)+G(C1)	5.8	shell flat	4/27/2010	3	yes	1 chick banded G (TH) went missing, fledged chick unbanded, day 38 fledge
14	13	UNB +UNB	19.99	shell flat	4/27/2010	3	no	5/1 nest failed, nutria tracks to nest, eggshell fragments and yolk in sand.
15	3	UNB +UNB	20.4	toe of dune	4/27/2010	3	yes	5/29 nest lost, yolk in nest sand, tracks of raccoon, dig, fox?, and nutria within 5 feet
16	14	G ( 37) + LL-X, LR-B	3.9	shell flat	4/28/2010	2	yes	6/4 G (37) adult found dead in surf , chick banded G ( TK), day 38 fledge
17	15	LL-X, LR-X + UNB	18.8	shell flat	4/29/2010	2	yes	5/23 nest abandoned
18	16	G (F1) + UNB	3.65	shell flat	4/29/2010	3	yes	5/4 eggs buried by sand/ abandoned
19	17	UNB +UNB	22.3	in dunes	4/29/2010	3	yes	banded chick G ( TM), day 41 fledge
20	18	UNB +UNB	20.89	shell flat	4/30/2010	3	yes	2 chicks banded G(TX) and G (TL), G (TL) found dead on 7/5 body cavity compressed, broken leg and wing, at tideline, day 39 fledge
21	19	R (P9) + G (P5)	22.1	shell flat	4/30/2010	2	yes	5/26 nest flooded

22	20	UR-R, LR-X + G (AU)	12.70	toe of dune	4/30/2010	3	yes	chick banded G (?), day 39 fledge
23	21	UNB +UNB	10.36	shell flat	5/1/2010	3	no	chicks banded G(TU) and G ( TP), day 39 fledge
24	22	G (O3) + UNB	3.21	shell flat	5/4/2010	3	yes	5/21 raccoon tracks at nest
25	23	G (M3) + UNB	10.6	open beach	5/4/2010	3	yes	5/26 nest flooded
26	24	G (U4) + UNB	9.75	upper beach	5/5/2010	3	yes	5/26 nest flooded
27	25	G (T6)+G (?H)	5.12	open beach	5/6/2010	2	yes	5/20 cat depredation
28	5	unknown	14.25	open beach	5/7/2010	1	no	5/8 nest lost unknown
29	7	G (AO) + UL-R, LL-X	6.16	shell flat	5/9/2010	3	yes	5/26 nest flooded
30	26	UL-O, LL-X, UR-Y + UNB	0.46	in dunes	5/10/2010	1	no	5/17 raccoon tracks at nests
31	27	G (K2) + UNB	21.1	shell flat	5/12/2010	1	yes	5/22 raccoon depredation
32	13	UNB +UNB	20.16	toe of dune	5/12/2010	3	yes	5/21 raccoon tracks at nest
33	28	G (UT) + UNB	19.53	open beach	5/14/2010	2	yes	5/26 nest flooded
34	6	G (F6) + UNB	0.27	toe of dune	5/15/2010	2	yes	6/14 nest failed, raccoon tracks at nest, 1 hatched chick found twitching in ATV tire track by nests
35	4	UNB +UNB	19.71	behind dunes	5/16/2010	3	yes	5/23 raccoon depredation
36	29	G (EL) + UNB	6.62	shell flat	5/16/2010	3	yes	5/26 nest flooded
37	16	G (F1) + UNB	3.48	shell flat	5/17/2010	3	yes	5/26 nest flooded
38	30	UNB +UNB	22.42	in dunes	5/20/2010	2	yes	6/1 raccoon depredation
39	31	LL-BX, LR-G + UNB	21.69	shell flat	5/21/2010	2	yes	5/26 nest washed over, eggs moved, 5/28 nest abandoned
40	5	G (EO)+ LL-X,LR- O	14.41	open beach	5/24/2010	1	yes	5/26 nest flooded
41	11	G (M8) + UNB	19.6	shell flat	5/24/2010	3	no	6/11 raccoon depredation
42	1	UNB +UNB	19.7	shell flat	5/30/2010	1	no	6/6 nest mammalian predation, raccoon tracks around nest
43	5	G (EO)+ LL-X,LR- O	14.22	open beach	6/1/2010	2	yes	both chicks banded, G ( TY), G (TT), day 37 fledge
44	22	G (O3) + UNB	3.24	shell flat	6/3/2010	1	yes	6/5 nest failed, unknown
45	4	UNB +UNB	19.86	shell flat	6/3/2010	3	no	6/12 nest failed raccoon tracks at nest
46	13	UNB +UNB	20.02	shell flat	6/4/2010	3	no	6/7 nest failed, unknown
47	26	UL-O, LL-X, UR-Y + UNB	1.8	shell flat	6/5/2010	2	yes	6/10 nest failed
48	23	G (M3) + UNB	10.62	toe of dune	6/6/2010	2	yes	6/13 raccoon depredation
49	15	LL-X, LR-X + UNB	18.58	shell flat	6/7/2010	3	yes	7/21 last chick lost, chicks stayed on soundside of old drum
50	29	G (EL) + UNB	6.52	toe of dune	6/7/2010	2	yes	7/7 raccoon predation of hatching eggs

51	22	G (O3) + UNB	2.84	shell flat	6/8/2010	2	yes	7/18 nest failed ,unknown
52	16	G (F1) + UNB	3.69	shell flat	6/8/2010	2	yes	6/17 nest failed raccoon tracks up to nests
53	31	LL-B/X, LR-G +UNB	21.87	shell flat	6/9/2010	2	yes	8/3 nest abandoned after past hatch date
54	7	G (AO) + UL-R, LL-X	6.02	shell flat	6/9/2010	2	yes	6/20 raccoon depredation
55	24	G (U4) + UNB	9.72	open beach	6/10/2010	1	yes	6/14 abandoned
56	27	G (K2) + UNB	21.37	shell flat	6/11/2010	1	yes	7/26 nest abandoned after past hatch date
57	30	UNB +UNB	22.45	open beach	6/14/2010	1	yes	6/23 raccoon depredation
58	13	UNB +UNB	19.95	toe of dune	6/23/2010	2	yes	7/30 found dead in tire rut south of posted closure, seen at wrack line since 7/17

31 nesting pairs, 58 nests, 14 hatched, 14 chicks fledged

## APPENDIX 1B

## AMERICAN OYSTERCATCHER NESTS- SOUTH CORE BANKS-2010

Nest #	Pair #	BANDS	MILE	LOCATION	FOUND	EGGS	POSTED	COMMENTS
1	1	G (I6) + UNB	44	sand flat	4/13/2010	3	yes	chicks roamed from point tip to west side to east side, chick banded G (MY), day 43 fledge
2	2	G(AR)+G(AP)	33.79	open beach	4/16/2010	3	yes	1 chick banded G (KM), day 40 fledge
3	3	G(M1)+G(JO)	35.58	behind dune	4/17/2010	3	no	5/11, lost unknown
4	4	unknown	38.3	toe of dune	4/17/2010	3	no	4/18 lost unknown
5	5	G(AK)+G(AL)	23.41	front of dune	4/19/2010	4	yes	5/18 could not find chicks, never saw any chicks, lost by 5/22
6	6	UL-Y,LL-X ,UR-W+ UNB	23.83	washout flat	4/19/2010	3	yes	5/6, lost unknown, 2nd adult unbanded
7	7	UNB + UNB	40	toe of dune	4/20/2010	2	yes	4/25 lost unknown
8	8	UNB + UR: R	36.2	west of backroad	4/20/2010	3	yes	5/7, lost unknown
9	9	G(AN)+G(AM)	32.7	toe of dune	4/22/2010	3	yes	5/6 ghost crab predation
10	10	G (KO) + UNB	32	toe of dune	4/22/2010	3	yes	G (JC) and G (JA), 2 chicks banded, day 40 fledge
11	11	UNB + UNB	30.9	washout flat	4/24/2010	3	yes	5/19 nest lost, yolk in nest, unknown loss
12	12	UNB + UNB	38.88	toe of dune	4/27/2010	2	yes	chick banded G (RA), day 41 fledge
13	13	UNB + UNB	23.3	sand flat	4/28/2010	3	yes	5/19 nest lost unknown
14	14	UNB +UNB	26.8	washout flat	4/30/2010	3	no	5/23 closed beach, 5/24 chicks with adults on open backroad, 5/25 chicks lost
15	15	UNB + UNB	47.16	on dune	4/30/2010	3	yes	2 banded chicks survived, G (JJ) and G (JH), 56? D.F.
16	16	UL-O, LL-S UR-O : UNB	46	soundside	4/30/2010	3	no	5/15 nest lost unknown, soundside on bight beach
17	17	G (J9) + UNB	38.03	toe of dune	4/30/2010	3	yes	5/17 raccoon predation, tracks at nest
18	18	unknown	39.85	open beach	4/30/2010	3	yes	5/3 nest lost unknown
19	19	UL-O, UR-B, LL-B/S: UNB	28.22	on dune	5/1/2010	3	no	5/7 nest lost unknown
20	20	G (33) + UNB	24.26	washout flat	5/1/2010	1	yes	5/26 nest lost unknown
21	21	G (J3) + G (P4)	25.16	behind dune	5/1/2010	3	no	G (RJ) and G (RE) chicks banded, day 43 fledge
22	22	UNB + G (J6)	34.65	toe of dune	5/3/2010	3	yes	5/21 raccoon tracks nearby
23	4	G(R8)+ UL-O,LL-S, UR-O	38.2	toe of dune	5/6/2010	3	yes	5/26 flooded by full moon tides
24	7	G (UP) + G (UR)	39.9	toe of dune	5/6/2010	3	yes	5/17 raccoon tracks and dried egg yolk at nest
25	18	G (L2) + UNB	39.6	toe of dune	5/13/2010	3	yes	5/20 raccoon tracks leading to nest yolk, in nest

26	9	G (AN)+ G(AM)	32.8	toe of dune	5/17/2010	3	yes	5/26 nest failed- full moon tides overwash
27	6	UNB +UNB	23.68	washout flat	5/19/2010	3	yes	5/24 nest failed, unknown
28	19	UL-O, UR-B, LL-B/S+UNB	28	shell flat	5/19/2010	2	yes	5/26 nest failed, unknown
29	3	G(M1) + G (JO)	35.5	shell flat	5/20/2010	3	yes	5/26 nest failed- full moon tides overwash
30	8	UNB + UR: R	36	behind dune	5/20/2010	3	no	5/30 mammalian predation, unsure of tracks
31	7	G(UP) + G (UR)	39.9	toe of dune	5/28/2010	2	yes	6/24 hatched on open vehicle beach, 1 chick run over by truck, closed beach, 1 remaining chick lost by 7/14
32	17	G (J9) + UNB	37.74	toe of dune	5/29/2010	3	yes	6/2 mammalian predation, unknown species, probably raccoon
33	13	G (UY) + UNB	23.33	on dune	6/1/2010	2	yes	7/2 abandoned
34	18	G ( L2) + UNB	39.6	on dune	6/2/2010	2	yes	6/14 failed nest, unknown
35	11	UNB + UNB	31.95	toe of dune	6/2/2010	3	yes	3 chicks banded, G (NH) , (NK), (NJ), day 43 fledge
36	23	UNB + UNB	47	unknown	na	UNK	yes	G (RA), G ( RF), 2 chicks banded, 1 unbanded
37	4	G(R8)+ UL- O,LL-S, UR-O	38	toe of dune	6/7/2010	3	yes	6/14 nest failed raccoon predation
38	6	UL-Y,LL-X ,UR- W : UNB	23.4	on dune	6/7/2010	3	yes	7/1 nest failed, unknown
39	3	G(M1) + G (JO)	35.5	behind dune	6/8/2010	3	yes	6/26 nest failed mink predation
40	8	UNB + UR: R	35	behind dune	6/8/2010	2	yes	6/29 nest failed no eggs, yolk in nest , unknown
41	14	UNB +UNB	26.5	behind dune	6/8/2010	3	no	6/15 nest failed unknown
42	9	G(AN)+ G (AM)	33.4	toe of dune	6/9/2010	2	yes	7/4 nest failed, raccoon tracks
43	17	G (J9) + UNB	37.5	on dune	6/16/2010	1	yes	6/24 nest failed, unknown

23 nesting pairs, 43 nests, 11 nests hatched, 17 chicks fledged

## APPENDIX 1C

## AMERICAN OYSTERCATCHER NESTS- SHACKLEFORD BANKS-2010

Nest #	Pair #	BANDS	MILE	LOCATION	FOUND	EGGS	POSTED	COMMENTS
1	1	UNB +UNB	53.24	dune cliff	4/20/2010	3	no	lost by 5/15, unknown
2	2	UNB +UNB	50.41	washout flat	4/20/2010	3	no	lost by 5/15, unknown
3	3	UNB +UNB	49.65	soundside islet	4/20/2010	1	no	lost by 4/27, full moon tides, flooded?
4	4	G (E8) + UNB	54.87	washout flat	4/30/2010	3	no	near surfer beach, footprints at nest, nest lost
5	3	UNB +UNB	49.65	soundside islet	5/8/2010	1	no	lost by 5/15, unknown, new scrapes present
6	5	UNB + G (?)	49.92	soundside beach	5/8/2010	3	no	shell mound beach, nest lost unknown
7	6	G (T8) + UNB	49.31	behind dune	5/15/2010	2	no	lost by 5/22
8	7	UNB +UNB	49.79	washout flat	5/15/2010	2	no	lost by 6/16
9	4	G (E8) + UNB	54.67	washout flat	5/22/2010	2	no	1 egg missing 6/1, busy area with footprints near nest, lost by 6/23
10	2	UNB +UNB	50.63	washout flat	5/22/2010	2	no	chick on ocean beach 6/19, lost by 6/23
11	1	UNB +UNB	53.06	dune cliff	6/1/2010	3	no	chicks banded G (NA) and G (NC), day 42 fledge
12	8	UNB +UNB	51.08	toe of dune	6/1/2010	1	no	flooded by high tide 6/9

8 nesting pairs, 12 nests, 2 nests hatched, 2 chicks fledged

