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

2017 SUMMARY REPORT

Coyote, Canis latrans, first documented on South Core Banks in 2014.

NATIONAL PARK SERVICE
CAPE LOOKOUT NATIONAL SEASHORE
131 CHARLES STREET
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Abstract

There were 70 American Oystercatcher pairs nesting throughout the ocean beach habitat of the seashore in 2017. North Core Banks had 30 pairs, South Core Banks had 34 pairs, and Shackleford Banks had 6 pairs. Egg-laying was initiated on April 11th and a total of 133 nests were documented. Only 5 nests hatched and zero chicks fledged. Predators were responsible for 59% of failures, which resulted in 0% productivity. This is the lowest productivity at CALO in the past 22 years and the only year with zero productivity.

Introduction

American Oystercatchers are common nesters throughout the park, primarily on the ocean beach. They have been listed since 2008 as a North Carolina Special Concern species by the North Carolina Wildlife Resource Commission (2014). Their choice of nesting habitat makes them particularly vulnerable to disturbance by park visitors and off-road vehicles.

Monitoring 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 (Novick 1996). The research documented chick mortality caused by off-road vehicles. Researchers from North Carolina State University (NCSU) and park staff have also recorded vehicle traffic chick mortality (Schulte and Simons 2015). Since 1997 NCSU and park staff has conducted censuses, monitored nesting success, and banded oystercatchers primarily on the core banks of the seashore. Data in this summary report are presented from the last fourteen breeding seasons, 2004 to 2017, during which all of the seashore was monitored regularly.

Site Description

Cape Lookout National Seashore is located in the southern Outer Banks of North Carolina between Ocracoke and Beaufort Inlets. The seashore was physically divided into four barrier islands during the 2017 breeding season. The northernmost island, North Core Banks (NCB), is 18 miles long, extending from Ocracoke Inlet to Old Drum Inlet. Middle Core Banks (MCB) extends from Old Drum Inlet to Ophelia Inlet at four miles in length. For reporting purposes MCB is treated as part of NCB, representing breeding pairs from Ocracoke Inlet to Ophelia Inlet, mile 0 to mile 22.7. South Core Banks (SCB) extends southward from Ophelia Inlet almost 24 miles to Barden Inlet. The Core Banks have a northeast to southwest orientation and exhibit a low profile landscape. The forth island, Shackleford Banks (SB), is 8 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

The Interim Protected Species Management Plan/ Environmental Assessment (IPSMP/EA) contains management guidelines and monitoring protocols (National Park Service 2006). Following this protocol, park staff conducted surveys of Shackleford Banks for nesting birds twice a week beginning in April. Daily surveys of nesting habitat on North and South Core Banks also began in April and breeding monitoring continued seven days per week until the end of the nesting season.

Management actions for oystercatchers included closing the area around a nest 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.

In addition to the closure around the nest, a 600-foot buffer was established around each nest to reduce disturbance. McGowan and Simons (2006) found evidence that human recreational disturbance can alter incubation behavior. This buffer allowed vehicle and pedestrian traffic to pass by on the lower beach by the ocean shoreline, but prevented stopping, parking, or camping near the nest that could reduce nest attendance by parents. The buffer zone was defined by two sets of 18" X 18" yellow signs placed on each side of a nest.

The locations of the nests were recorded in decimal degrees with a GPS unit and the park's mile marker system. Nest locations were marked inconspicuously with either a stake or objects like sticks or shells to facilitate follow-up checks. Information about the habitat type was also noted. If one or both adults were banded, that information was recorded on the nest data sheet.

Nests were checked every 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, a sand trail behind the primary dunes. In areas where there is no backroad, signs were placed on the beach warning of the presence of flightless chicks and reducing the speed limit to 15mph. Chicks were monitored daily until they fledged or were lost. Based on a standard established by the American Oystercatcher working group in 2010, chicks were to be considered fledged at 35 days old for range wide productivity records. For seashore management purposes, the chicks were to be considered fledged when strong flight was actually observed.

Results

Seventy 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- 2017.

North Core Banks	30 pairs
South Core Banks	34 pairs
Shackleford Banks	6 pairs

Nesting pairs were spread throughout most of the ocean beach habitat in the park (Appendix 1A & B). The birds did not use areas adjacent to buildings and concentrations of people. The Middle Core Banks section is considered part of the North Core Banks for reporting purposes, mile 0 to mile 22.7

Hatch and Fledge Success

Throughout the seashore, 133 nests were found, 5 of which hatched at least one egg. Zero chicks were known to survive 35 days to fledge (Table 2). Of the nests that failed, 76 were lost to predation, 33 nests failed due to unknown causes, 16 were lost to flooding, 1 was lost to human disturbance, and 7 were abandoned (Table 3). Coyote (48), raccoon (21), ghost crab (5), and otter (1) were responsible for depredated oystercatcher nests. There was 1 nest depredated by an undetermined predator. There was 1 documented instance of nest failure due to human disturbance. Table 4 summarizes the reproductive success over the last 14 years of standardized monitoring. The fledgling success is calculated using the known nesting pairs. This allowed for cross-year comparisons with variable monitoring efforts and other unknowns. Figure 1 illustrates the reproductive success over the last 14 years and shows a downward trending fledge success. In 2017, 70 known nesting pairs produced 0 fledglings for a fledge success rate of 0. Individual nest data are found in Appendix 2. Tables 5, 6, 7, and 8 summarize the reproductive success by island with known and comparable data.

Table 2. Oystercatcher reproductive success by island in 2017.

Island	**#Pairs**	**#Nests**	**#Nests Hatched**	**#Chicks Fledged**
North Core Banks	30	56	5 (9%)	0
South Core Banks	34	69	0 (0%)	0
Shackleford Banks	6	8	0 (0%)	0
CALO Total	70	135	5 (4%)	0

Table 3. Causes of nest failure in 2017.

Island	**Predation**	**Flooding/ Storms**	**Human Disturbance**	**Abandoned**	**Unknown**
North Core Banks	27	3	0	6	20
South Core Banks	48	13	0	0	8
Shackleford Banks	1	0	1	1	5
CALO total	76	16	1	7	33

Table 4. Summary of oystercatcher reproductive success data, 2004-2017.

Year	Island	**#Nests**	**#Nests Hatched**	**#Pairs (nesting)**	**#Chicks fledged**
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	28 (25%)	62	34 (0.55)
2011	Cape Lookout N.S	114	29 (25%)	62	37 (0.60)
2012	Cape Lookout N.S.	99	31 (31%)	58	42 (0.72)
2013	Cape Lookout N.S.	104	32 (31%)	63	25 (0.40)
2014	Cape Lookout N.S.	87	39 (37%)	65	40 (0.62)
2015	Cape Lookout N.S.	112	37 (33%)	66	50 (0.76)
2016	Cape Lookout N.S.	121	17 (14%)	70	17 (0.24)
2017	Cape Lookout N.S.	133	5 (4%)	70	0 (0.0)

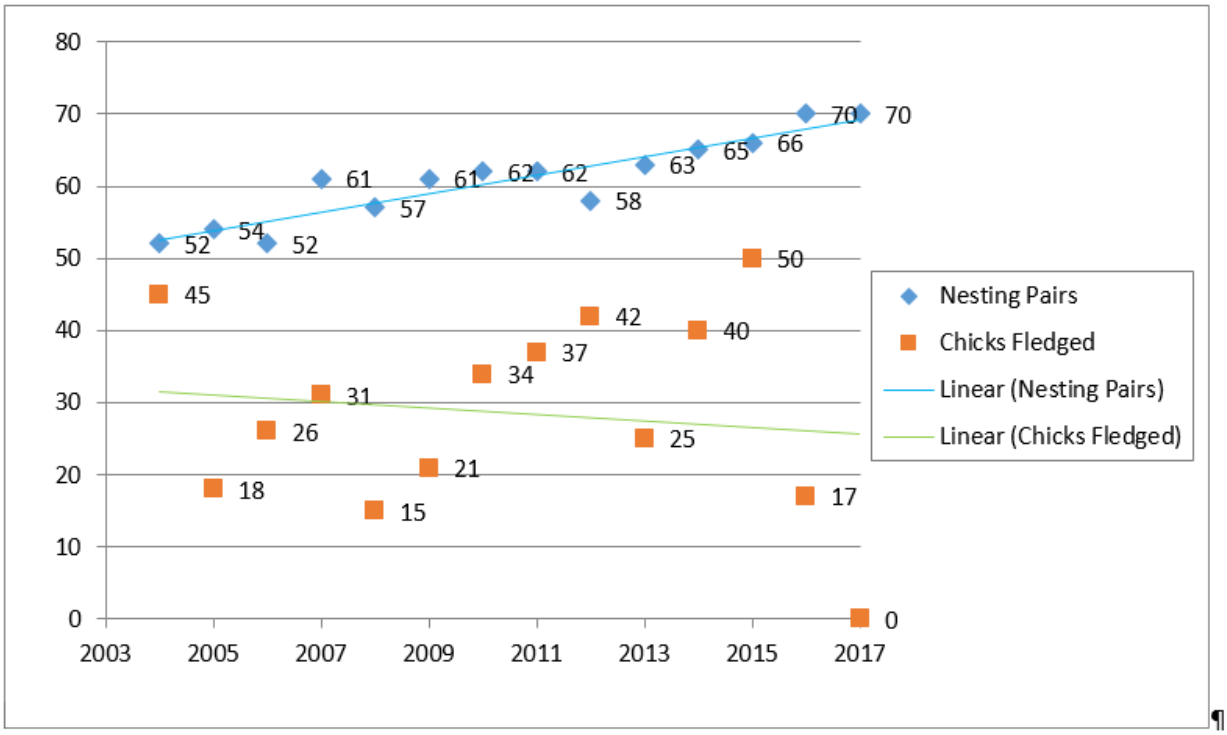

Figure 1. The number of nesting oystercatcher pairs and number of chicks fledged by year at Cape Lookout National Seashore, 2004 to 2017. Lines illustrate the trends in these values over time.

Table 5. Summary of oystercatcher reproductive success on North Core Banks, 2004-2017, Ocracoke Inlet mile 0 to Ophelia Inlet mile 22.7.

Year	Island	**#Nests**	**#Nests Hatched**	**#Pairs (nesting)**	**#Chicks fledged**
2004	North Core Banks	30	24 (80%)	26	38 (1.46)
2005	North Core Banks	29	16 (64%)	23	15 (0.65)
2006	North Core Banks	28	16 (57%)	24	15 (0.62)
2007	North Core Banks	46	17 (37%)	30	27 (0.90)
2008	North Core Banks	30	9 (30%)	22	10 (0.45)
2009	North Core Banks	40	7 (18%)	29	8 (0.28)
2010	North Core Banks	58	15 (26%)	31	15 (0.48)
2011	North Core Banks	54	18 (33%)	32	24 (0.75)
2012	North Core Banks	45	16 (36%)	28	26 (0.93)
2013	North Core Banks	50	12 (24%)	30	13 (0.43)
2014	North Core Banks	44	11 (25%)	31	10 (0.32)
2015	North Core Banks	49	13 (27%)	29	17 (0.59)
2016	North Core Banks	49	8 (16%)	31	13 (0.42)
2017	North Core Banks	56	5 (9%)	30	0 (0.0)

Table 6. Summary of oystercatcher reproductive success on the Middle Core Bank Section of North Core Banks, 2004 to 2017, Old Drum Inlet mile 18.85 to mile 22.7 Ophelia Inlet.

Year	Island	**#Nests**	**#Nests Hatched**	**#Pairs (nesting)**	**#Chicks fledged**
2004	Middle Core Banks	5	4 (80%)	5	7 (1.40)
2005	Middle Core Banks	9	5 (55%)	7	9 (1.28)
2006	Middle Core Banks	10	8 (80%)	10	10 (1.00)
2007	Middle Core Banks	14	9 (64%)	13	13 (1.00)
2008	Middle Core Banks	8	5 (62%)	8	7 (0.88)
2009	Middle Core Banks	13	3 (23%)	10	1 (0.10)
2010	Middle Core Banks	24	4 (17%)	13	2 (0.15)
2011	Middle Core Banks	23	8 (35%)	14	12 (0.86)
2012	Middle Core Banks	19	7 (37%)	13	12 (0.92)
2013	Middle Core Banks	17	7 (39%)	13	9 (0.69)
2014	Middle Core Banks	18	4 (22%)	13	5 (0.38)
2015	Middle Core Banks	24	2 (8%)	13	1 (0.08)
2016	Middle Core Banks	19	2 (10%)	13	6 (0.46)
2017	Middle Core Banks	21	0 (0%)	13	0 (0.0)

Table 7. Summary of oystercatcher reproductive success on South Core Banks, 2004 to 2017.

Year	Island	**#Nests**	**#Nests Hatched**	**#Pairs (nesting)**	**#Chicks fledged**
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)
2011	South Core Banks	51	9 (18%)	24*	12 (0.50)
2012	South Core Banks	41	15 (36%)	22	16 (0.73)
2013	South Core Banks	46	19 (41%)	27	12 (0.44)
2014	South Core Banks	35	23 (66%)	27	26 (0.96)
2015	South Core Banks	54	20 (37%)	30	28 (0.93)
2016	South Core Banks	64	7 (11%)	33	3 (0.09)
2017	South Core Banks	69	0 (0%)	34	0 (0.0)

*Shackleford and South Core shared a nesting pair

Table 8. Summary of oystercatcher reproductive success on Shackleford Banks, 2004 to 2017.

Year	Island	**#Nests**	**#Nests Hatched**	**# Pairs** (nesting)	**#Chicks fledged**
2004	Shackleford Banks	8	1 (12%)	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)
2011	Shackleford Banks	9	2 (22%)	7*	1 (0.14)
2012	Shackleford Banks	13	0 (0%)	8	0 (0.00)
2013	Shackleford Banks	8	1 (12%)	6	0 (0.00)
2014	Shackleford Bands	8	4 (50%)	7	4 (0.57)
2015	Shackleford Banks	9	4 (44%)	7	5 (0.71)
2016	Shackleford Banks	8	2 (25%)	6	1 (0.17)
2017	Shackleford Banks	8	0 (0%)	6	0 (0.0)

*Shackleford and South Core shared a nesting pair

Banding

Zero chicks were captured and banded along the seashore in 2017, as none of the hatched chicks survived to banding age. Park staff recorded band re-sights of individuals and nesting pairs on the seashore throughout the summer. Of the 70 nesting pairs, 48 pairs (69%) had at least one individual of the pair banded, while 15 pairs (21%) were unbanded and seven pairs (10%) were undetermined. NCB had 17 banded pairs, 11 unbanded pairs, and two unconfirmed pairs. SCB had 31 banded pairs and three unbanded pairs. SB had no confirmed banded pairs, with two confirmed unbanded pairs, and four pairs that were not identified. There were 133 total documented individuals nesting across all sites, with one instance of mate switching occurring on SCB. There were 65 (49%) banded individual adults, 58 (44%) individuals that were unbanded, and 10 (7%) unknown individuals in the nesting population in 2017. See Appendix 2 for nesting pair re-sight data and 2017 chick band data. Details on oystercatcher band combinations can be found at the website: http://www.amoywg.org/banding-re-sighting/.

Discussion

Hatch success rates were 9% on North Core Banks, 0% on South Core Banks and 0% on Shackleford Banks. The total hatch success, at 4%, was the lowest on record on the seashore for the past 14 years and since monitoring began 22 years ago. Predators (76), weather (16), human disturbance (1), and abandonment (7) were responsible for nest losses. There were 33 total nests lost to unknown causes; 20 on NCB, 8 on SCB, and 5 on SB. On SCB, coyote was the prominent known cause of nest loss, responsible for depredating at least 47 nests. One instance of river otter depredation was also recorded. Coyote tracks indicated that multiple individual coyotes roamed the length of the island and had learned to prey on American Oystercatcher and tern nests. In fact, 12 coyote individuals were removed from SCB after the breeding season with a few still remaining after the trapping effort was complete in September. Coyote predation was limited to SCB in 2017 and was largely responsible for the record low nest success on the seashore. Raccoon predation accounted for 21 nest losses on NCB. Five instances of ghost crab depredation were also recorded. Table 9 shows the increased predation rate for the past three years since coyotes have become established on SCB. Coyotes are present on SB, but no known predation was recorded. This could be the result of only conducting nest checks twice weekly on SB. One nest on SB (SB 2) appeared to have been lost due to human disturbance over the busy weekend preceding Memorial Day. The nest site was approximately 20 feet from campers.

Table 9. Causes of American Oystercatcher Nest Failure at Cape Lookout National Seashore 2013-2017.

Year	Total Nests	Nests Lost	Predation	Flooding /Storms	Human Disturbance	Abandoned	Unknown
2013	104	72	21 (29%)	3	1	1	46
2014	87	49	15 (30%)	6	0	1	27
2015	112	75	41 (54%)	0	0	4	30
2016	121	104	68 (65%)	2	2	2	30
2017	133	128	76 (59%)	16	1	7	33

Fledge success in the park was 0.0 chicks per nesting pair. Productivity in the seashore was the lowest in the past 14 years. Zero fledglings were produced. Though the number of fledglings was the lowest documented, the seashore matched the previous year's record number of nesting pairs. The number of pairs is trending upward. MCB continues to show the highest concentration of oystercatcher pairs along the seashore at 3.4 pairs per mile (mile 18.85-22.7), while NCB (mile 0-18.85), SCB, and SB have approximately 1 pair per mile.

There were seven new breeding birds identified by their unique leg bands. Dark Green CAN, CHL, CFE, CRJ, YM, CMP and Red AHT were new nesters along the shoreline. All of these birds fledged from Cape Lookout in 2011-2013, except dark green CJR and CMP and Red AHT, and have since established their own breeding territories along the seashore. Dark Green CJR fledged from Wrightsville Beach, NC in 2013 and dark green CMP fledged from Hatteras Island, NC in 2014. Red AHT was banded in 2016 in Georgia while on the wintering grounds.

Conclusions and Recommendations

American oystercatcher productivity in 2017 was the lowest on record of the past 14 breeding seasons. Coyote predation on South Core Banks and raccoon predation on North Core Banks severely limited hatch success and chick survival. Productivity across all islands was lower in 2017 than in both 2004 and 2005, when chicks did not have the protection of vehicle free zones and vehicle chick mortality was documented. Predator management of coyotes and raccoons prior to the 2018 breeding season is recommended to prevent a long term population decline of these high quality breeding sites. First nesting attempt failures lead to multiple re-nesting attempts, which in turn increase the energy resources expended by breeding pairs, and can lengthen the breeding season. Successful first nesting attempts minimize the length of the breeding season as well as the staff work load; multiple nesting attempts equate to more nest sign maintenance, posting, and removal. Minimal field staffing levels of four, six-month Biological Science Technicians is recommended to monitor and manage American oystercatchers on the Core Banks. The long term banding effort of adults and chicks should continue. Banded individuals allow for the accurate monitoring of breeding birds and productivity.

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Literature Cited

McGowan, C. P., and T. R. Simons, 2006. Effects of human recreation on the incubation behavior of American Oystercatchers. The Wilson Journal of Ornithology 118:485-493.

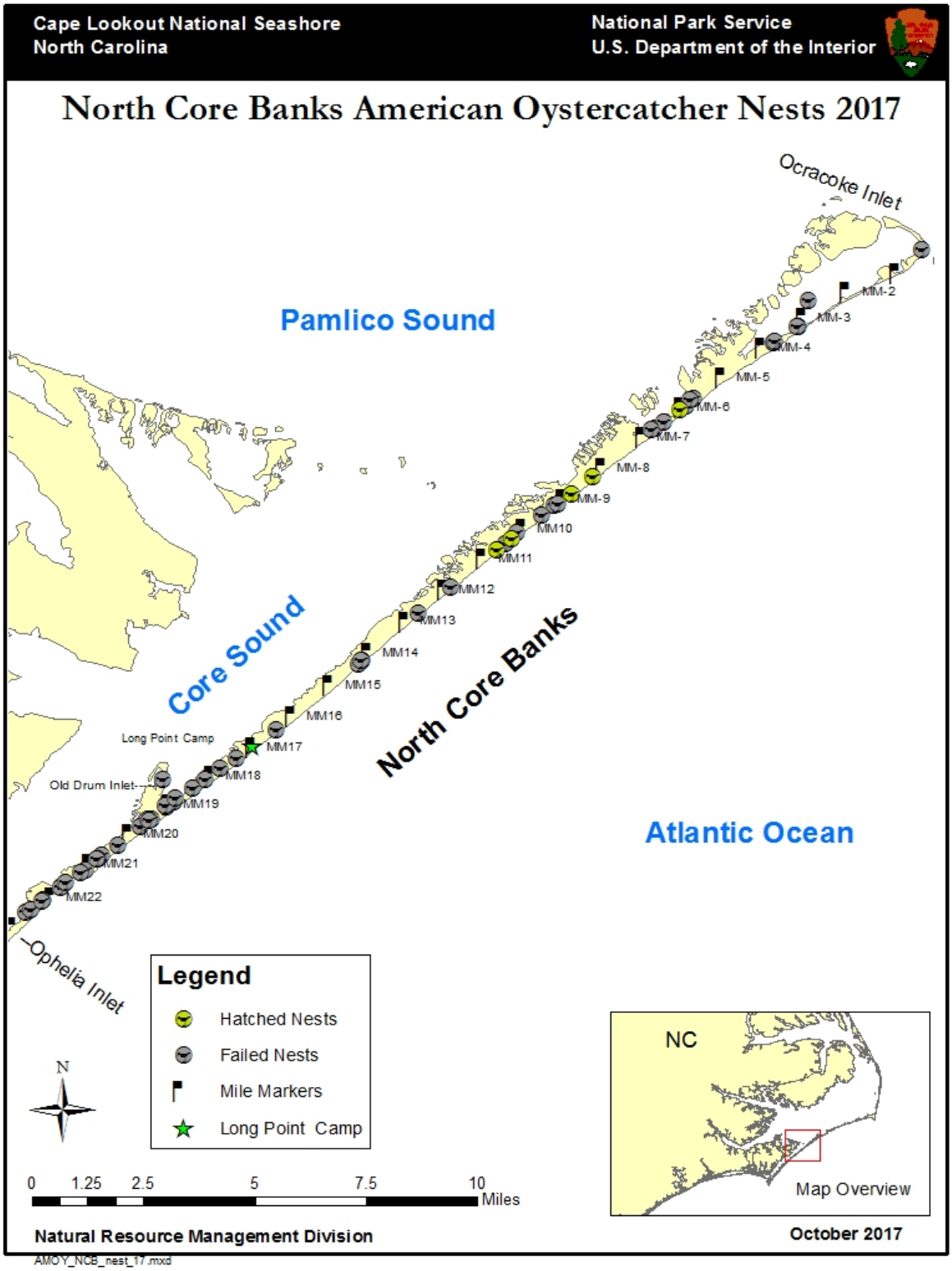
National Park Service. 2006. Interim Protected Species Management Plan/ Environmental Assessment. Cape Lookout National Seashore, North Carolina.

N.C. Wildlife Resources Commission. 2014. Protected Wildlife Species of North Carolina. http://www.ncwildlife.org/Portals/0/Conserving/documents/protected_species.pdf.

Novick, J. S. 1996. An analysis of human recreational impacts on the reproductive success of American Oystercatchers (Haematopus palliatus): Cape Lookout National Seashore, North Carolina. M.S. Thesis, Duke University, Durham, North Carolina, USA.

Schulte, S. A., and T. R. Simons. 2015. Factors affecting the reproductive success of American Oystercatchers (*Haematopus palliatus*) on the Outer Banks of North Carolina. Marine Ornithology 43:37–47.

APPENDIX 1A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U.S. Department of the Interior
North Core Banks American Oystercatcher Nests 2017
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Core Sound
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Long Point Camp
Old Drum Inlet
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Map Overview
Natural Resource Management Division
October 2017
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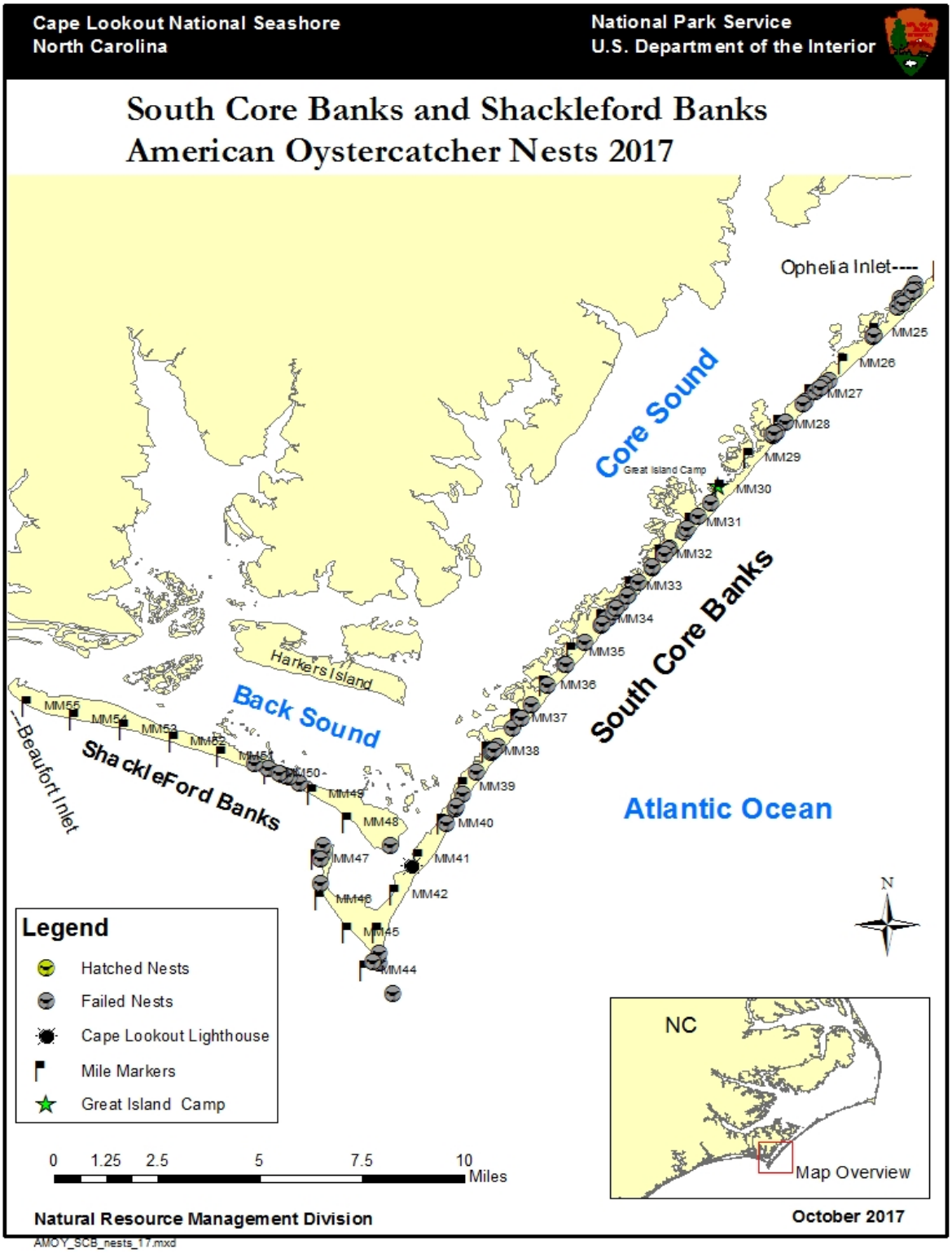
APPENDIX 1B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South Core Banks and Shackleford Banks
American Oystercatcher Nests 2017
Ophelia Inlet----
Core Sound
Great Island Camp
Harkers Island
Back Sound
South Core Banks
Beaufort Inlet
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Map Overview
Natural Resource Management Division
October 2017
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APPENDIX 2A AMERICAN OYSTERCATCHER NESTS- NORTH CORE BANKS-2017

Nest #	Pair #	Adult Band	Adult Band	Mile	Found	Eggs	Closure	Comments (Abbreviated)
1	1	UNB	UNB	14.27	4/18/2017	3	600' buffer	FAILED- raccoon
2	2	DG(73)	DG(RR)	9.59	4/18/2017	3	600' buffer	FAILED- ghost crab
3	3	DG(CFX)	DG(CY)	3.82	4/18/2017	3	600' buffer	FAILED- Storm tide wash over
4	4	UNB	UNB	6.75	4/19/2017	3	600' buffer	FAILED- Storm tide wash over
5	5	DG(T3)	DG(CE1)	10.51	4/20/2017	3	600' buffer	FAILED- raccoon
6	6	UNB	UR-red	11.92	4/21/2017	1	600' buffer	FAILED- Storm tide wash over
7	7	DG(CCE)	UNB	8.32	4/22/2017	3	600' buffer	FAILED- Unknown cause for chick, Avian depredation for 2 eggs
8	8	DG(CE)	UNB	17.77	4/26/2017	3	600' buffer	FAILED- ghost crab
9	9	DG(CMP)	DG(F3)	5.77	4/26/2017	1	600' buffer	FAILED- abandoned, unknown cause
10	10	UNB	UL-orange, UR-black	18.96	4/27/2017	1	interior	FAILED- raccoon
11	11	DG(MO)	UNB	19.13	4/27/2017	1	interior	FAILED- abandoned, unknown cause
12	12	DG(P5)	UNB	22.25	4/28/2017	3	interior	FAILED-raccoon
13	13	UNB	UNB	20.75	4/28/2017	1	none	FAILED-unknown

Nest #	Pair #	Adult Band	Adult Band	Mile	Found	Eggs	Closure	Comments (Abbreviated)
14	14	DG(CE3)	UNB	6.52	4/30/2017	3	600' buffer	FAILED- unknown cause
15	15	DG(CA)	UNB	9.13	5/1/2017	2	600' buffer	FAILED-unknown cause, chicks disappeared at day 30, 6/26
16	16	UNB	UNB	19.77	5/3/2017	2	none	FAILED-abandoned, unknown cause
17	17	DG(TF)	UNB	21.76	5/3/2017	2	interior	FAILED-unknown
18	18	DG(T6)	UNB	14.23	5/4/2017	3	600' buffer	FAILED-raccoon
19	2	DG(73)	DG(RR)	9.28	5/6/2017	3	600' buffer	FAILED-ghost crab
20	3	DG(CFX)	DG(CY)	3.25	5/6/2017	2	interior	FAILED-ghost crab
21	8	DG(CE)	UNB	18.18	5/9/2017	3	600' buffer	FAILED-raccoon
22	19	DG(CFL)	DG(TN)	18.94	5/9/2017	2	interior	FAILED-unknown
23	11	DG(MO)	UNB	19.51	5/9/2017	1	none	FAILED-unknown
24	13	UNB	UNB	20.84	5/9/2017	1	none	FAILED-raccoon
25	5	DG(CE1)	DG(T3)	10.73	5/10/2017	3	600' buffer	FAILED-unknown; 1 chick dead in nest cup, 2 chicks survived until 6/28 at day 19
26	20	UNB	UNB	10.2	5/10/2017	2	600' buffer	FAILED-raccoon
27	9	DG(CMP)	DG(F3)	5.98	5/10/2017	1	600' buffer	FAILED-raccoon

Nest #	Pair #	Adult Band	Adult Band	Mile	Found	Eggs	Closure	Comments (Abbreviated)
28	6	UR-red	UNB	12.75	5/10/2017	2	600' buffer	FAILED-raccoon
29	21	DG(TL)	DG(W5)	10.34	5/11/2017	2	600' buffer	FAILED-unknown cause, 2 chicks lost, 1 chick survived until 7/4 at day 28
30	14	DG(CE3)	UNB	6.11	5/13/2017	3	600' buffer	FAILED-unknown; 2 eggs abandoned, 1 chick hatched and was lost on day 2
31	22	UNB	UNB	0.35	5/15/2017	2	600' buffer	FAILED-raccoon
32	23	DG(M8)	UNB	19.57	5/16/2017	3	none	FAILED-raccoon
33	24	UNB	UNB	22.65	5/16/2017	3	interior	FAILED-unknown
34	1	UNB	UNB	14.35	5/19/2017	2	600' buffer	FAILED-unknown
35	3	DG(CFX)	DG(CY)	3.26	5/21/2017	2	600' buffer	FAILED-unknown
36	25	UNB	UNB	16.46	5/21/2017	2	600' buffer	FAILED-unknown
37	12	DG(P5)	UNB	22.54	5/27/2017	2	interior	FAILED-unknown
38	11	DG(MO)	UNB	19.1	5/27/2017	1	interior	FAILED-unknown
39	26	UNB	UNB	21.18	5/27/2017	2	none	FAILED-unknown
40	27	UNB	UNB	19.14	5/27/2017	2	interior	FAILED-raccoon
41	17	DG(TF)	UNB	21.79	5/29/2017	3	none	FAILED-raccoon

Nest #	Pair #	Adult Band	Adult Band	Mile	Found	Eggs	Closure	Comments (Abbreviated)
42	13	UNB	UNB	20.88	5/29/2017	2	none	FAILED-unknown
43	8	DG(CE)	UNB	17.39	5/30/2017	2	600' buffer	FAILED-raccoon
44	9	DG(CMP)	DG(F3)	5.81	6/1/2017	1	600' buffer	FAILED-raccoon
45	1	UNB	UNB	14.25	6/5/2017	2	600' buffer	FAILED-unknown
46	4	UNB	UNB	6.8	6/7/2017	2	600' buffer	FAILED-raccoon
47	2	DG(73)	DG(RR)	9.2	6/9/2017	3	600' buffer	FAILED-raccoon
48	28	UNB	UNK	2.81	6/9/2017	1	interior	FAILED-ghost crab
49	3	DG(CFX)	DG(CY)	3.78	6/9/2017	3	600' buffer	FAILED-raccoon
50	29	UNK	UNK	18.89	6/10/2017	1	interior	FAILED-abandoned (as found)
51	17	DG(TF)	UNB	21.65	6/13/2017	2	interior	FAILED-raccoon
52	26	UNB	UNB	21.28	6/16/2017	1	none	FAILED-abandoned
53	12	DG(P5)	UNB	22.28	6/16/2017	1	interior	FAILED-unknown
54	8	DG(CE)	UNB	18.49	6/19/2017	1	interior	FAILED-unknown
55	30	UNB	UNB	20.38	6/22/2017	2	none	FAILED-raccoon

Nest #	Pair #	Adult Band	Adult Band	Mile	Found	Eggs	Closure	Comments (Abbreviated)
56	23	DG(M8)	UNB	19.56	6/22/2017	1	none	FAILED-abandoned, unknown cause

30 nesting pairs, 56 nests, 5 nests hatched, 0 chicks fledged

APPENDIX 2B AMERICAN OYSTERCATCHER NESTS- SOUTH CORE BANKS-2017

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
1	1	DG(UL)	UNB	43.79	4/11/2017	3	interior	Failed- Coyote
2	2	DG(TC)	DG(JC)	27.94	4/12/2017	3	600' buffer	Failed- Washed out
3	3	DG(AP)	DG(AR)	33.92	4/14/2017	3	600' buffer	Failed- Washed out
4	4	DG(L2)	DG(R8)	38.06	4/14/2017	3	600' buffer	Failed- Coyote
5	5	UNB	DG(TE)	28.34	4/15/2017	3	600' buffer	Failed- Washed out
6	6	UNB	DG(AL)	23.7	4/15/2017	3	interior	Failed- Otter
7	7	DG(LN)	DG(33)	25.16	4/15/2017	2	600' buffer	Failed- Washed out
8	8	DG(CEF)	UNB	27.28	4/18/2017	3	600' buffer	Failed- Coyote
9	9	DG(CF7)	DG(UJ)	26.98	4/18/2017	3	600' buffer	Failed- Coyote
10	10	DG(J3)	UNB	24.24	4/19/2017	2	interior	Failed- Washed out
11	11	DG(WP)	DG(LP)	24.32	4/20/2017	3	interior	Failed- Washed out
12	12	UNB	UNB	31.33	4/20/2017	3	600' buffer	Failed- Coyote
13	13	UNB	DG(NF)	33.26	4/20/2017	3	600' buffer	Failed- washed out
14	14	DG(KO)	UNB	32.44	4/20/2017	2	600' buffer	Failed- Washed out

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
15	15	DG(J9)	UNB	37.86	4/20/2017	2	600' buffer	Failed- Washed out
16	16	UR-red	UNB	36.62	4/21/2017	3	600' buffer	Failed- Coyote
17	17	DG(MC)	UNB	23.81	4/21/2017	2	interior	Failed- Washed out, Raccoon
18	18	UNB	DG(CFA)	26.58	4/22/2017	1	600' buffer	Failed- Washed out
19	19	UNB	DG(CFE)	32.88	4/26/2017	3	600' buffer	Failed- Coyote
20	20	UNB	DG(RU)	34	4/27/2017	3	600' buffer	Failed- Coyote
21	21	DG(YP)	DG(CHJ)	34.73	4/28/2017	2	600' buffer	Failed- Unknown
22	22	DG(CAN)	DG(J0)	35.41	4/28/2017	1	600' buffer	Failed- Coyote
23	23	DG(CJR)	DG(YM)	30.43	4/29/2017	2	600' buffer	Failed- Coyote
24	24	UNB	UNB	38.6	4/29/2017	3	600' buffer	Failed- Unknown
25	14	UNB	DG(KO)	32.4	5/2/2017	2	600' buffer	Failed- Coyote
26	4	DG(L2)	DG(R8)	38	5/2/2017	2	600' buffer	Failed- Unknown
27	1	UNB	DG(UL)	43.53	5/2/2017	3	600' buffer	Failed- Coyote
28	25	UNB	UNB	23.62	5/3/2017	3	interior	Failed- Coyote
29	26	UNB	R(AHT)	47.19	5/3/2017	2	interior	Failed- Coyote

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
30	3	DG(AR)	DG(AP)	33.69	5/6/2017	3	600' buffer	Failed- Coyote
31	15	UNB	DG(J9)	37.31	5/7/2017	3	600' buffer	Failed- Coyote
32	5	UNB	DG(TE)	28.35	5/8/2017	3	600' buffer	Failed- Coyote
33	7	DG(LN)	DG(33)	25.18	5/8/2017	2	600' buffer	Failed- Coyote
34	10	DG(J3)	UNB	24	5/8/2017	2	interior	Failed- Coyote
35	17	DG(MC)	UNB	23.89	5/8/2017	3	interior	Failed- Coyote
36	27	DG(JH)	R(5F)	40.01	5/8/2017	3	600' buffer	Failed- Coyote
37	28	DG(JA)	DG(PW)	39.6	5/8/2017	2	600' buffer	Failed- Coyote
38	29	UNB	DG(CP)	43.78	5/9/2017	2	600' buffer	Failed- Coyote
39	13	DG(NF)	UNB	33.49	5/10/2017	1	600' buffer	Failed- Coyote
40	16	UNB	UR-red	36.05	5/10/2017	3	600' buffer	Failed- Unknown
41	11	DG(LP)	DG(WP)	24.2	5/11/2017	2	interior	Failed- Coyote
42	30	UNB	DG(TC)	27.94	5/15/2017	1	600' buffer	Failed- Coyote
43	19	UNB	DG(CFE)	31.83	5/15/2017	2	600' buffer	Failed- Unknown
44	31	DG(CHL)	DG(CC6)	46.39	5/15/2017	2	600' buffer	Failed- Unknown

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
45	6	UNB	DG(AL)	23.75	5/16/2017	2	interior	Failed- Coyote
46	24	UNB	UNB	39.23	5/16/2017	3	600' buffer	Failed- Coyote
47	18	UNB	DG(CFA)	26.72	5/16/2017	3	600' buffer	Failed- Coyote
48	32	UNB	DG(J0)	35.39	5/17/2017	1	600' buffer	Failed- Coyote
49	33	UNB	DG(KR)	28.23	5/18/2017	2	600' buffer	Failed- Washed out
50	34	DG(NA)	UNB	47.37	5/18/2017	3	interior	Failed- Washed out
51	20	DG(RU)	UNB	34.19	5/19/2017	3	600' buffer	Failed- Unknown
52	13	UNB	DG(NF)	33.28	5/19/2017	3	600' buffer	Failed- Unknown
53	9	DG(CF7)	DG(UJ)	26.85	5/25/2017	3	600' buffer	Failed- Coyote
54	5	DG(TE)	UNB	28.28	5/26/2017	2	600' buffer	Failed- Coyote
55	23	DG(YM)	DG(CJR)	30.87	5/26/2017	1	600' buffer	Failed- Coyote
56	3	DG(AR)	DG(AP)	33.78	5/26/2017	3	600' buffer	Failed- Coyote
57	7	DG(LN)	DG(33)	25.15	5/26/2017	2	600' buffer	Failed- Coyote
58	8	DG(CEF)	UNB	27.38	5/27/2017	3	600' buffer	Failed- Coyote
59	14	DG(KO)	UNB	31.89	5/27/2017	3	600' buffer	Failed- Coyote

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
60	17	DG(MC)	UNB	23.77	5/27/2017	2	600' buffer	Failed- Coyote
61	12	UNB	UNB	31.24	5/28/2017	3	600' buffer	Failed- Coyote
62	28	DG(PW)	DG(JA)	39.54	5/30/2017	1	600' buffer	Failed- Coyote
63	26	UNB	R(AHT)	47	6/3/2017	1	interior	Failed- Coyote
64	15	DG(J9)	UNB	36.99	6/4/2017	2	600' buffer	Failed- Coyote
65	3	DG(AP)	DG(AR)	33.66	6/11/2017	1	600' buffer	Failed- Coyote
66	20	DG(RU)	UNB	34.15	6/11/2017	2	600' buffer	Failed- Coyote
67	4	DG(R8)	DG(L2)	37.97	6/11/2017	1	600' buffer	Failed- Coyote
68	14	DG(KO)	UNB	32	6/12/2017	3	600' buffer	Failed- Coyote
69	29	DG(CP)	UNB	44.74	6/14/2017	2	600' buffer	Failed- Coyote

34 nesting pairs, 69 nests, 0 nests hatched, 0 chicks fledged

APPENDIX 2C AMERICAN OYSTERCATCHER NESTS- SHACKLEFORD BANKS -2017

Nest #	Pair #	Adult Bands	Adult Bands	Mile	Found	Eggs	Closure	Comments (Abbreviated)
1	1	UNB	UNB	49.88	5/11/2017	3	none	Unknown nest loss
2	2	UNB	UNB	48.8	5/11/2017	1	none	Bird Incubating with campers at 20 feet away on 5/19. Nest loss after campers with fire pit at nest site from Memorial Day weekend.
3	3	UNK	UNK	49.47	5/11/2017	1	none	Unknown nest loss
4	4	UNK	UNK	50.15	5/11/2017	1	none	Unknown nest loss
5	5	UNK	UNK	49.71	5/19/2017	2	none	Unknown nest loss
6	6	UNK	UNK	50.45	5/24/2017	2	none	coyote tracks/predation
7	1	UNB	UNB	49.8	6/2/2017	2	none	Nest failed 11 days after expected hatch date
8	4	UNB	UNK	49.92	6/14/2017	2	none	Unknown nest loss

6 nesting pairs, 8 nests, 0 nests hatched, 0 chick fledged