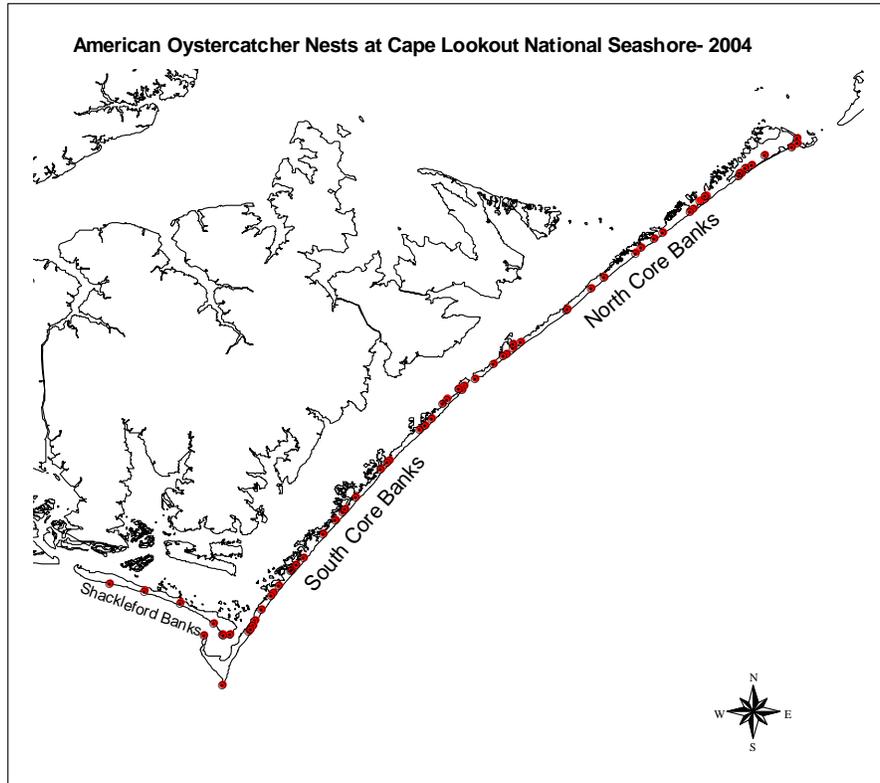


AMERICAN OYSTERCATCHER (*Haematopus palliatus*) MONITORING AT  
CAPE LOOKOUT NATIONAL SEASHORE

2004 SUMMARY REPORT



NATIONAL PARK SERVICE  
CAPE LOOKOUT NATIONAL SEASHORE  
131 CHARLES STREET  
HARKERS ISLAND, NC 28531

## *2004 American Oystercatcher Monitoring-Cape Lookout National Seashore*

### **Introduction**

American Oystercatchers are common nesters throughout the park, primarily on the ocean beach. They are listed as a 'Bird of Conservation Concern' on the southeast coastal plain. 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 N. C. State University and park staff have conducted censuses, monitored nesting success and banded birds in the park. The primary focus of this research has been to find ways to measure impacts of park visitors and improve nesting success.

### **Methods**

Surveys of nesting habitat on Core Banks were conducted 2-5 times a week from early April to mid-July. Surveys of Shackleford Banks were made an average of less than once a week. 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. Generally, nests found in the dunes were not posted. There was concern that predators might learn to associate posts with nests. Locations of the nests were recorded using a GPS and the park's mile marker system. Information about the habitat type was also noted.

Nests were checked every few days to monitor the number of eggs present and hatch date. Chicks were monitored until they fledged or were lost.

### **Results**

A park-wide census was conducted in May. Fifty-three nesting pairs were counted (Table 1). Counts were for pairs on or near the ocean beach and did not include marsh islands.

Table 1. American Oystercatcher Census- May 2004

North Core Banks	22 pairs
Middle Core Banks	5 pairs
South Core Banks	20 pairs
Shackleford Banks	6 pairs

Nesting pairs were spread throughout most of the ocean beach habitat in the park (Figures 1,2 & 3). The birds did not use areas adjacent to buildings and concentrations of people.

### Hatch Success

68 nests were found of which 37 hatched at least one egg. Forty five chicks were known to survive to fledge (Table 2). The average clutch size was 2.55 eggs. Of the nests that failed, 16 were lost to predation and 17 nests failed due to unknown causes (Table 3). Raccoons were found to be the main predator of oystercatcher eggs. Individual nest data are found in Appendix 1.

Table 2. Oystercatcher Nesting by Island 2004

<b>Island</b>	<b># pairs</b>	<b>#Nests</b>	<b># Nests Hatched</b>	<b># Chicks Fledged</b>
North Core Banks	22	25	20	31
Middle Core Banks	5	5	4	7
South Core Banks	20	31	13	6
Shackleford Banks	6	7+	unknown	at least 1

Table 3. 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	4	0	0	0	1
Middle Core Banks	0	0	0	0	1
South Core Banks	11	0	0	0	9
Shackleford Banks	1	0	0	0	6
CALO total	16 (49%)	0	0	0	17 (51%)

Table 4. Summary of Oystercatcher Reproductive Success Data

<b>Year</b>	<b>Island</b>	<b>#Nests</b>	<b>#Nests Hatched</b>	<b>#Chicks fledged</b>
1995	South Core Banks	36	10 (28%)	7
1997	South Core Banks	34	4 (12%)	2
1998	North & South Core Banks	98	12 (12%)	6
1999	North & South Core Banks	114	16 (14%)	6
2000	North & South Core Banks	75	25 (33%)	9
2001	North & South Core Banks	109	19 (17%)	1
2002	North & South Core Banks	90	10 (11%)	6
2003	Cape Lookout N. S.	106	17 (16%)	8
2004	Cape Lookout N. S.	68	37 (54%)	45
All		730	150 (20%)	90

## **Banding**

Thirteen adult birds and 52 chicks were captured and banded in the park. A list of band combinations used is found in Appendix 2. Details on oystercatcher band combinations can be found at the website:

[www4.ncsu.edu/unity/users/s/simons/www/AMOY%20Banding.htm](http://www4.ncsu.edu/unity/users/s/simons/www/AMOY%20Banding.htm)

## **Discussion**

Hatch rates in 2004 were the highest since monitoring began in 1995. Nesting success this year (54%) was over three times the park's previous average (17%). Nests on North Core Banks and Middle Core Banks did particularly well with 80% of the nests hatching. Mammalian predators, particularly raccoons, were the primary cause of nest losses. No nests were lost to flooding or other weather related events. No nests were known to be lost due to human disturbance, although several nests had off-road vehicles drive within a few feet of the eggs.

Fledging success was also the highest ever recorded in the park. At least 88 chicks hatched and 45 survived to fledge (51%). The causes of chick loss were unknown except for one oystercatcher chick run over by a vehicle on South Core Banks at Cape Point and one chick killed by a Great Horned Owl.

One area of ocean beach, between Ramp 39 and Ramp 40, was closed to vehicles for about two weeks to protect two oystercatcher chicks that were staying near the surf. Vehicles were routed to the backroad. The closure was removed when the chicks moved off the beach and into the dunes. One of those chicks successfully fledged.

There are several possible factors contributing to the tremendous increase in nesting success by American oystercatchers in 2004. Hurricane Isabel in September 2003 created large overwash areas, particularly at the northern end of the park. These are the areas that had the highest nesting success. Raccoon populations also seemed to have greatly declined on North Core Banks following the hurricane. Only four nests were lost to predators north of New Drum Inlet. In areas where the impact from Hurricane Isabel was minor (Shackleford Banks), nesting productivity was poor. The other positive factor was a nesting season free of storms and flooding that were problems in previous years. The combination of all these factors seems to have produced ideal nesting conditions for American oystercatchers throughout much of the park.

## **Management Recommendations**

Monitoring should continue to document factors limiting nesting success of American Oystercatchers at CALO. Observations of banded birds could provide vital information on survival rates and site fidelity of nesting birds. Efforts should continue to limit the impacts of off-road vehicles on nests and chicks.

Figure 1.

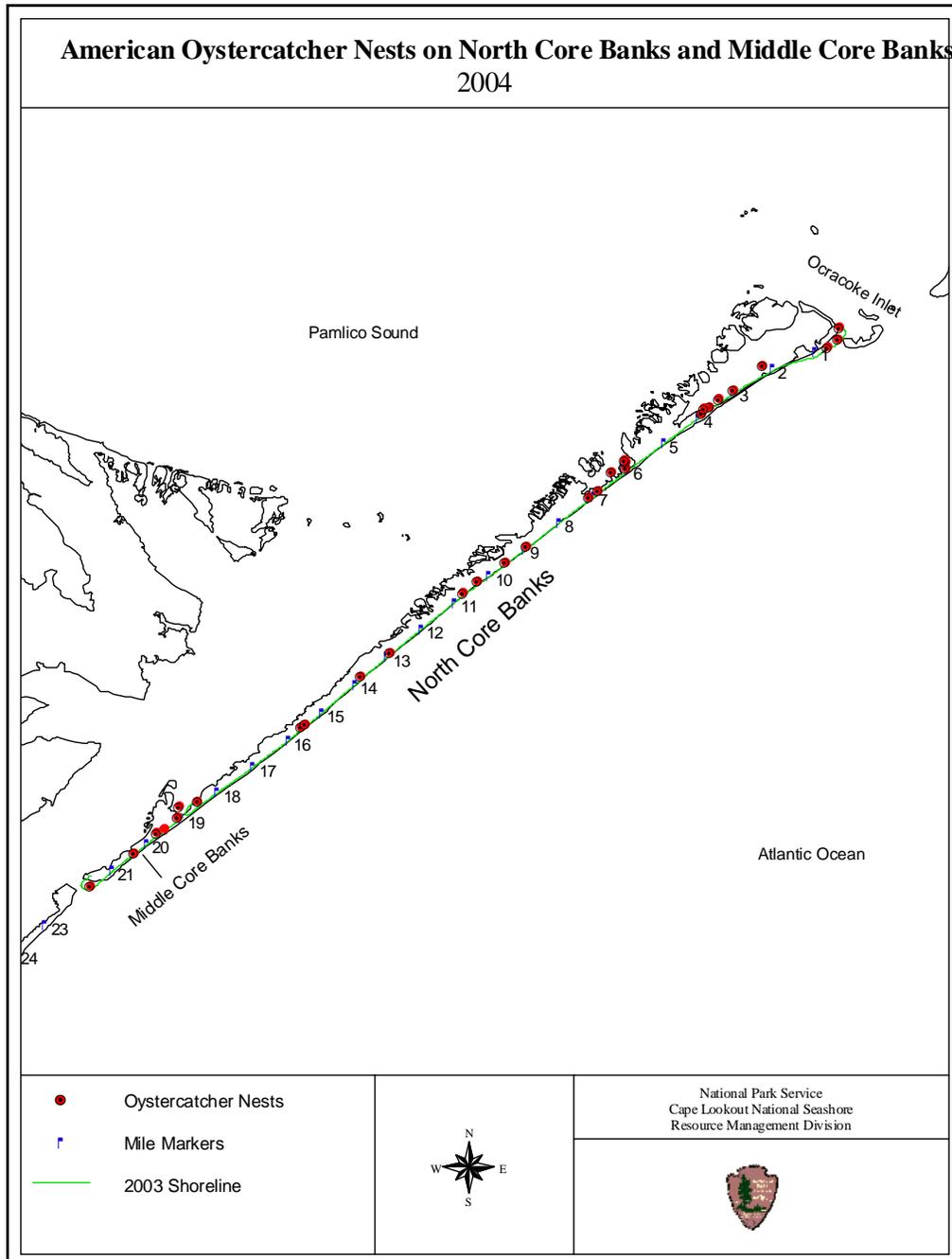
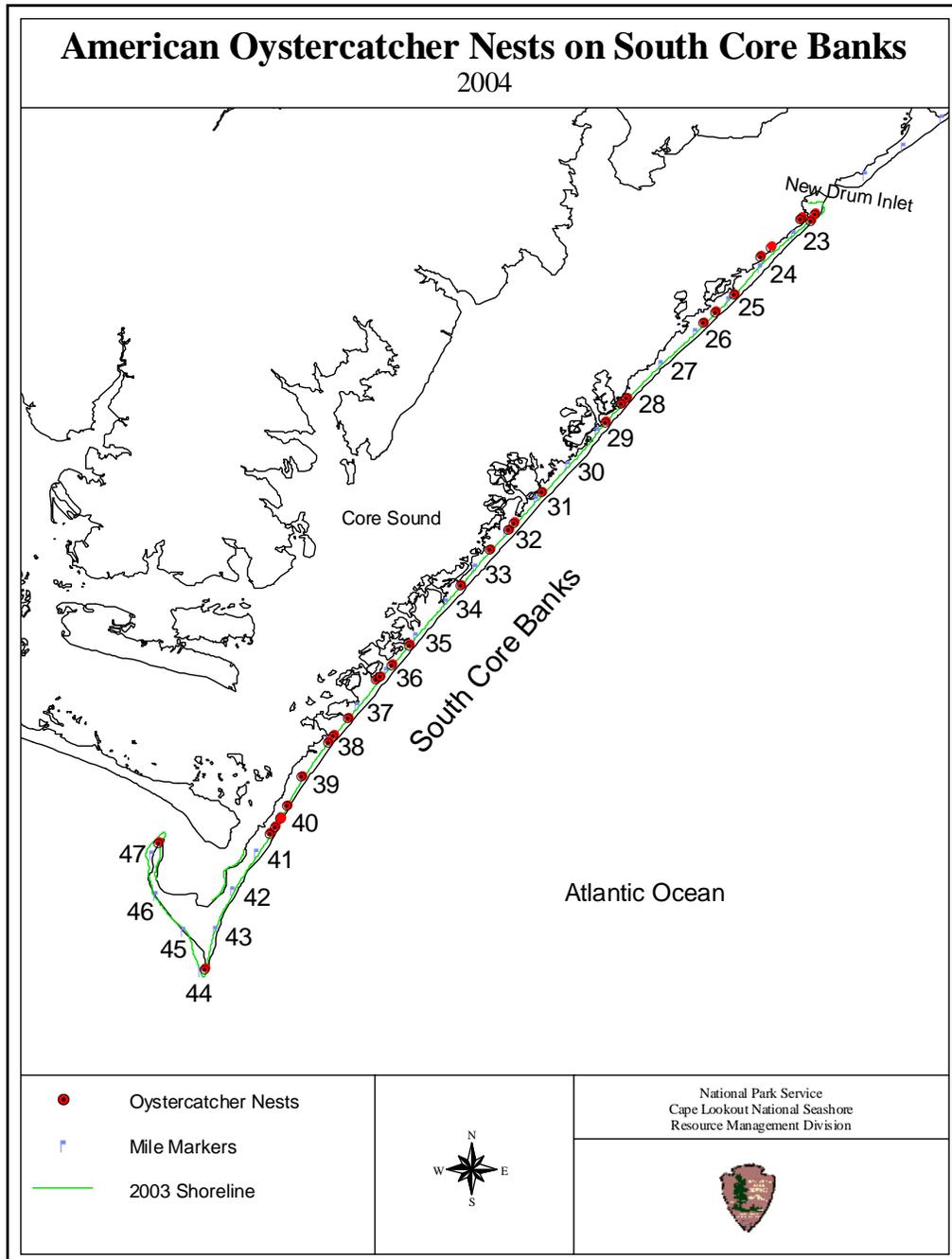
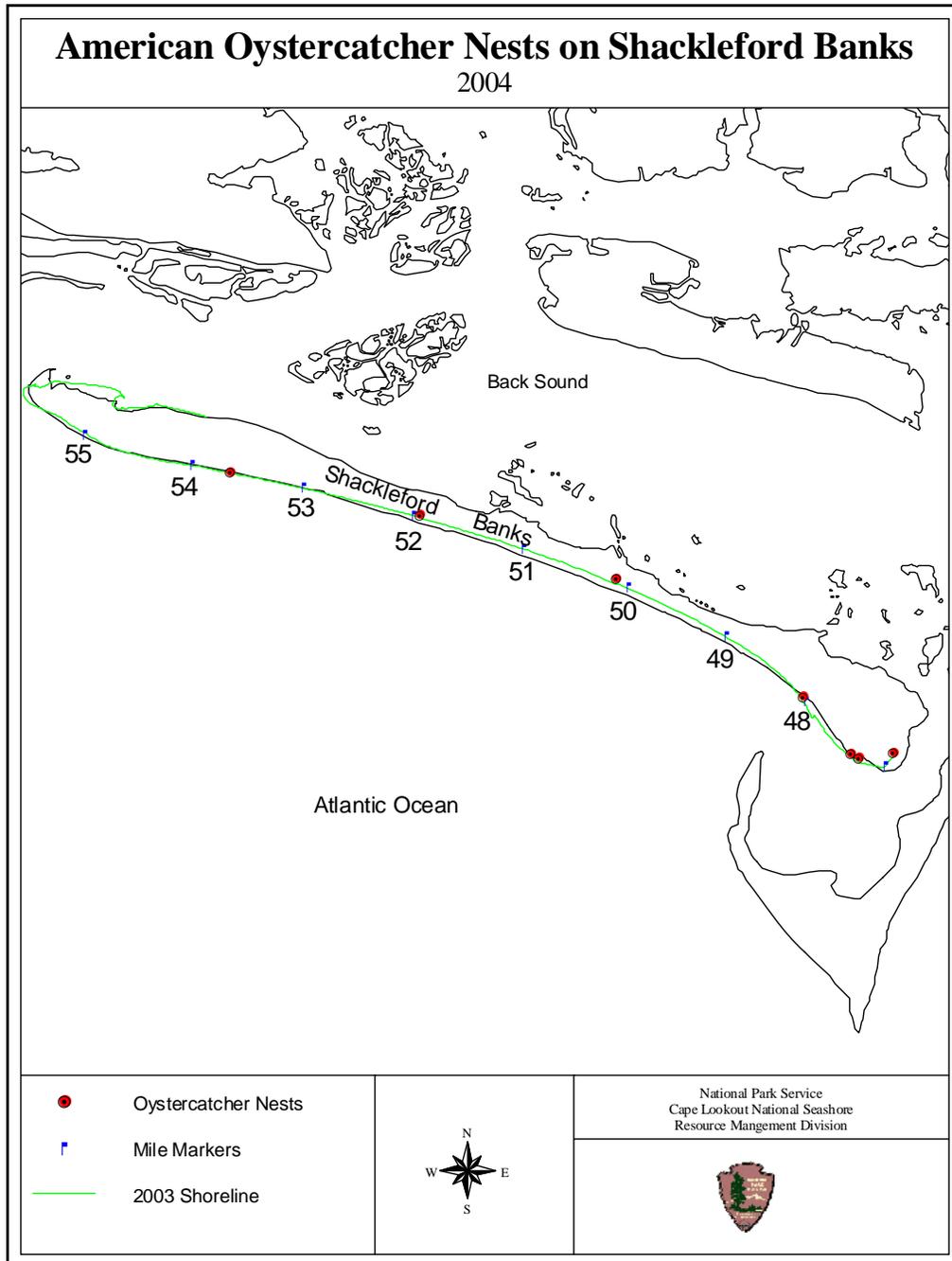


Figure 2.



Plot date: October 29, 2003 c:\gis\data\oystercatcher\amoy\_2003.apr

Figure 3.



Plot date: October 29, 2003 c:\gis\data\oystercatcher\amoy\_2003.apr

APPENDIX 1A AMERICAN OYSTERCATCHER NESTS- NORTH CORE BANKS-2004

NEST	PAIR	LOCATION	Eggs	Date Found	Date Eggs Lost	Hatch	Date Hatch	Date Chick Lost	Fledge	Date Fledge	Notes
1	NC01	Mile 18.5	3	4/21	1 failed to hatch	2	5/18	6/16	1	6/20	1 chick -DG(32)- lost - unknown cause
2	NC02	Mile 8.9	3	4/21	1 failed to hatch	2	5/20		2	6/22	
3	NC03	Mile 6.9	3	4/26		3	5/19		3	6/21	
4	NC04	Mile 15.6	3	4/28	5/17	0			0		Nest failure - Raccoon predation
5	NC05	Mile 13.8	3	4/28	5/14	0			0		Nest failure - Mammalian predation
6	NC06	Mile 9.5	3	4/28		3	5/27	6/8	2	6/29	1 chick lost - unknown cause
7	NC07	Mile 3.67	1	4/28	5/4	0			0		Nest failure - Unknown (rained between visits)
8	NC08	Mile 0.0	3	4/29		3	5/10		3	6/12	
9	NC09	Mile 10.3	3	4/29		3	5/26	6/8	2	6/28	1 chick lost - unknown cause
10	NC10	Mile 10.7	3	4/29	1 failed to hatch	2	5/21	6/8	0		2 chicks lost - unknown cause
11	NC11	Mile 6.01	3	4/29		3	5/25		3	6/27	
12	NC12	Mile 6.15	4	4/29	1 failed to hatch	3	5/26	5/30	0		3 chicks lost - unknown cause
13	NC13	Mile 3.4	3	4/29		3	5/24	6/1-6/29	2	6/26	1 chick lost - unknown cause
14	NC14	Mile 0.1	3	4/30		3	5/30	6/8	0		3 chicks lost - unknown cause
15	NC15	Mile 3.9	3	4/30		3	5/27		3	6/29	DG(68) seen with head and wing injuries on 7/7/2004 (post fledging). Not seen again.
16	NC16	Mile 7.15	3	5/4		3	5/30	7/13	3	7/2	3 fledged, then DG(65) found dead (owl kill) 7/13/04
17	NC17	Mile 0.7	3	5/4	1 failed to hatch	2	6/1	6/8	0		2 chicks lost - unknown cause
18	NC18	Mile 6.3	3	5/5		3	5/27	6/6, 7/5	1	6/29	2 chicks lost- unknown. Only 1 chick observed fledged - DG(62) assumed dead
19	NC19	Mile 3.0	3	5/12	2 failed	1	5/31	6/27	0		1 chick lost - unknown cause

NEST	PAIR	LOCATION	Eggs	Date Found	Date Eggs Lost	Hatch	Date Hatch	Date Chick Lost	Fledge	Date Fledge	Notes
20	NC07	Mile 3.7	2	5/18		2	6/9		2	7/12	
21	NC20	Sandbar, Old Drum Inlet	3	5/19	1 failed to hatch	2	6/16		2	7/19	
22	NC05	Mile 12.9	2	5/26	6/10	0			0		Nest failure - Raccoon predation
23	NC04	Mile 15.5	2	6/8	6/11	0			0		Nest failure - Raccoon predation
24	NC21	Mile 2.0	3			3	6/5	6/11, 6/16	1		2 chicks lost - unknown cause
25	NC12	Mile 6.15	2	6/9		2	7/9	8/1	1		1 chick lost - unknown cause

**Total = 25 nests**, 20 nests hatched (51 chicks) and 31 chicks fledged from 14 different nests

Causes of nest failure:

- 4 lost to Mammalian predation- 3 lost to raccoons, 1 to unidentified mammal
- 1 lost to unknown causes

**Total = 51 chicks (20 nests)**

- 20 chicks lost prefledging - unknown causes

2 chicks lost post fledging

- 1 lost to owl
- 1 with head/wing injuries - collision with vehicle?

APPENDIX 1B AMERICAN OYSTERCATCHER NESTS- MIDDLE CORE BANKS-2004

NEST	PAIR	LOCATION	Eggs	Date Found	Date Eggs Lost	Hatch	Date Hatch	Date Chick Lost	Fledge	Date Fledge	Notes
1	MC0 1	North End Mile 0.0	2	5/19		2	5/20	6/10	1	est 6/22	1 chick lost - unknown cause
2	MC0 2	Mile 0.4	2+			2+	est. 5/15 - Found 5/19 with 2 four-day old chicks		2	est. 6/17	
3	MC0 3	Mile 0.6	2			3	est. 5/16 - Found 5/19 with 2 three-day old chicks		3	est 6/18/	
4	MC0 4	Mile 1.3	2	5/19	1 failed to hatch	1	5/19		1	est. 6/21	
5	MC0 5	Mile 2.6	1	5/19	5/31/2004	0			0		Nest failure - cause unknown

**Total = 5 nests**

4 nests hatched (8 chicks) and 7 chicks fledged from 4 different nests

Causes of nest failure:

1 lost to unknown causes

**Total = 8 chicks (4 nests)**

1 chick lost prefledging - unknown causes

APPENDIX 1C AMERICAN OYSTERCATCHER NESTS- SOUTH CORE BANKS-2004

#	MILE	LOCATION	FOUND	EGGS	POSTED	Latitude	Longitude	COMMENTS
1	35.8	Base of primary duneline	15-Apr	3	N	34.69200	-76.47110	Hatched 5/11, chicks lost in first days
2	33.5	Base of primary duneline	15-Apr	3	N	34.71940	-76.44745	Hatched 5/11, chicks lost
3	31.9	Base of primary duneline	21-Apr	2	N	34.73822	-76.43085	Hatched ~5/14, chicks lost in first days
4	25.7	Base of Primary duneline	21-Apr	3	N	34.80905	-76.36401	Hatched ~5/14, chicks lost in first days
5	25.4	Top of dune	21-Apr	3	N	34.81286	-76.36008	Lost to raccoon predation 5/17
6	37.3	Base of primary duneline	21-Apr	3	N	34.67386	-76.48602	Hatched 5/19, chicks lost
7	37.8	Base of primary duneline	21-Apr	3	N	34.66805	-76.49083	Lost to predation 5/17
8	43.9	Flats in closure	21-Apr	3	N	34.58781	-76.53512	Hatched ~5/15, 1 chick run over 5/29
9	40.5	Top of dune	23-Apr	3	N	34.63430	-76.51294	Lost to predation 5/4
10	28.0	Base of primary duneline	23-Apr	2	N	34.78329	-76.39054	Lost to predation 5/5
11	39.7	Beach berm	23-Apr	3	Y	34.64402	-76.50681	Hatched ~5/8, fledged 1 chick
12	32.5	Base of primary duneline	27-Apr	3	N	34.73132	-76.43726	Hatched 5/19, chick lost
13	22.3	Flats in closure	27-Apr	2	N	34.84655	-76.32597	Lost 5/5
14	22.5	Flats in closure	27-Apr	3	N	34.84498	-76.33060	Lost 5/5
15	47.3	Top of dune	29-Apr	1	N	34.63094	-76.55095	Lost to predation 5/5
16	22.4	Flats in closure	29-Apr	2	N	34.84431	-76.32742	Lost 5/11
17	36.3	Flats west of backroad	29-Apr	3	N	34.68685	-76.47652	Hatched 5/21, chicks lost
18	23.8	Soundside overwash	5-May	3	N	34.83178	-76.34450	Lost 5/11
19	40.0	Beach berm	7-May	3	Y	34.63982	-76.50907	Lost 5/13
20	28.2	Berm in bird closure	14-May	1	N	34.78131	-76.39237	Lost to raccoon predation 5/17
21	38.9	Dunes	14-May	2	N	34.65378	-76.50167	Lost 5/17
22	40.0	Beach berm	28-May	3	Y	34.63943	-76.50922	Lost to raccoon predation 6/4
23	38.0	Base of primary duneline	31-May	3	N	34.66578	-76.49277	Lost to raccoon predation 6/16
24	35.2	Base of primary duneline	2-Jun	3	N	34.69899	-76.46522	Lost to predation 6/25
25	30.8	Flats between dunes	2-Jun	1	N	34.75126	-76.41958	Lost to predation 6/11
26	24.8	Base of primary duneline	2-Jun	2	N	34.81900	-76.35380	Lost 6/18
27	31.7	Flats between dunes	2-Jun	3	N	34.74062	-76.42898	Lost to predation 6/9
28	22.6	Soundside overwash	7-Jun	2	N	34.84474	-76.33079	Hatched 6/16, 2 chicks fledged 7/21
29	36.2	Flats west of backroad	7-Jun	2	N	34.68804	-76.47526	Lost 6/16
30	23.5	Soundside overwash	14-Jun	3	N	34.83516	-76.34095	2 Eggs Hatched ~7/7, 2 chicks fledged
31	28.7	Beach berm	16-Jun	1	Y	34.77495	-76.39773	Hatched 6/22, chick lost
32	40.3	Beach berm	21-Jun	1	N	34.63676	-76.51093	Lost 6/23
33	47.1	nest not found			N			1 fledged chick found 7/12

33 nests, 13 hatched, 6 chicks fledged (11 nests lost to predation, 9 lost to unknown causes)

APPENDIX 1D AMERICAN OYSTERCATCHER NESTS- SHACKLEFORD BANKS-2004

#	MILE	LOCATION	FOUND	EGGS	POSTED	Latitude	Longitude	COMMENTS
1	51.9	Flats between dunes	19-Apr	3	N	34.66949	-76.60285	Lost by 5/20
2	47.0	Top of dune	19-Apr	3	N	34.63212	-76.52868	lost to predation 5/6
3	47.9	Beach berm	19-Apr	3	N	34.64097	-76.54289	lost by 5/6
4	47.3	On low dune	6-May	2	N	34.63195	-76.53537	lost by 5/20
5	47.2	On dune	3-Jun	3	N	34.63135	-76.53417	lost by 7/1
6	50.2	Overwash fan	10-Jun	2	N	34.65941	-76.57209	lost by 7/1
7	53.6	Beach berm	10-Jun	2	N	34.67608	-76.63251	lost by 6/25
	48.0	fledged chick found 15 July						

7 nests found, 0 hatched but one fledged chick found from an unknown nest

APPENDIX 2 BAND COMBINATIONS USED ON AMERICAN OYSTERCATCHERS IN 2004

USFWS #	Banding Date	Banding Location	Estimated Age	Upper-Left	Lower-Left	Upper-Right	Lower-Right	Color Combination
875-98377	6/16/2004	CALO - Middle Core Banks Mile 0.6	HY	OR	DG/S	DB	DB	OR;DG/S;DB;DB
875-98378	6/16/2004	CALO - Middle Core Banks Mile 0.6	HY	DB	DG/S	DB	RD	DB;DG/S;DB;RD
875-98379	6/16/2004	CALO - Middle Core Banks Mile 0.6	HY	RD	DG/S	YE	WH	RD;DG/S;YE;WH
875-98376	5/19/2000	CALO - North Core Banks - Mile 3.9	ATY	DG(37)	-	DG(37)	S	DG(37);-DG(37);S
2406-00412	5/29/2004	CALO - North Core Banks Drum Inlet Flats Mile 18.5 Pair NC01	ATY	DG(18)	-	DG(18)	S	DG(18);-DG(18);S
875-98328	5/17/2004	CALO - North Core Banks Mile 0.0 Across inlet from Lifesaving station.	TY?	DG(08)	S	DG(08)	-	DG(08);S;DG(08);-
875-98329	5/18/2004	CALO - North Core Banks Mile 0.0 Northeast tip	ATY	DG(09)	-	DG(09)	S	DG(09);-DG(09);S
875-98367	6/8/2004	CALO - North Core Banks Mile 10.3 Pair NC 9	ATY	DG(30)	-	DG(30)	S	DG(30);-DG(30);S
875-98433	6/30/2004	CALO - North Core Banks Mile 10.3 Pair NC 9.	HY	DG(66)	-	DG(66)	S	DG(66);-DG(66);S
875-98434	6/30/2004	CALO - North Core Banks Mile 10.3 Pair NC 9.	HY	DG(67)	-	DG(67)	S	DG(67);-DG(67);S
875-98370	6/10/2004	CALO - North Core Banks Mile 18.5	HY	DG(32)	-	DG(32)	S	DG(32);-DG(32);S
875-98371	6/10/2004	CALO - North Core Banks Mile 18.5	HY	DG(33)	-	DG(33)	S	DG(33);-DG(33);S
875-98396	6/27/2004	CALO - North Core Banks Mile 2.0. Pair NC21	HY	DG(46)	-	DG(46)	S	DG(46);-DG(46);S
875-98323	5/4/2004	CALO - North Core Banks mile 3.0	ATY	DG(03)	-	DG(03)	S	DG(03);-DG(03);S
875-98442	7/4/2004	CALO - North Core Banks Mile 3.4 Pair NC07	HY	DG(75)	-	DG(75)	S	DG(75);-DG(75);S
875-98443	7/4/2004	CALO - North Core Banks Mile 3.4 Pair NC07	HY	DG(76)	-	DG(76)	S	DG(76);-DG(76);S
875-98435	7/1/2004	CALO - North Core Banks Mile 3.9. Pair NC15.	HY	DG(68)	-	DG(68)	S	DG(68);-DG(68);S
875-98436	7/1/2004	CALO - North Core Banks Mile 3.9. Pair NC15.	HY	DG(69)	-	DG(69)	S	DG(69);-DG(69);S
875-98437	7/1/2004	CALO - North Core Banks Mile 3.9. Pair NC15.	HY	DG(70)	-	DG(70)	S	DG(70);-DG(70);S
875-98389	6/22/2004	CALO - North Core Banks Mile 6.01. Pair NC11	ATY	DG(40)	-	DG(40)	S	DG(40);-DG(40);S
875-98394	6/27/2004	CALO - North Core Banks Mile 6.01. Pair NC11	HY	DG(44)	-	DG(44)	S	DG(44);-DG(44);S
875-98395	6/27/2004	CALO - North Core Banks Mile 6.01. Pair NC11	HY	DG(45)	-	DG(45)	S	DG(45);-DG(45);S
875-98427	6/29/2004	CALO - North Core Banks Mile 6.01. Pair NC11	HY	DG(60)	-	DG(60)	S	DG(60);-DG(60);S
875-98375	5/31/2002	CALO - North Core Banks Mile 6.3	ATY	OR	DG/S	OR	DB/DB	OR;DG/S;OR;DB/DB
875-98429	6/30/2004	CALO - North Core Banks Mile 6.3 Pair NC 18.	HY	DG(62)	-	DG(62)	S	DG(62);-DG(62);S

USFWS #	Banding Date	Banding Location	Estimated Age	Upper-Left	Lower-Left	Upper-Right	Lower-Right	Color Combination
875-98441	7/3/2004	CALO - North Core Banks Mile 6.3 Pair NC 18.	HY	DG(74)	-	DG(74)	S	DG(74);-:DG(74);S
875-98372	6/10/2004	CALO - North Core Banks Mile 6.9	HY	DG(34)	-	DG(34)	S	DG(34);-:DG(34);S
875-98373	6/10/2004	CALO - North Core Banks Mile 6.9	HY	DG(35)	-	DG(35)	S	DG(35);-:DG(35);S
875-98380	6/17/2004	CALO - North Core Banks Mile 6.9	HY	DG(38)	-	DG(38)	S	DG(38);-:DG(38);S
875-98388	6/22/2004	CALO - North Core Banks Mile 7.15. Pair NC16	ATY	DG(39)	-	DG(39)	S	DG(39);-:DG(39);S
875-98428	6/29/2004	CALO - North Core Banks Mile 7.15. Pair NC16	HY	DG(61)	-	DG(61)	S	DG(61);-:DG(61);S
875-98431	6/30/2004	CALO - North Core Banks Mile 7.15. Pair NC16	HY	DG(64)	-	DG(64)	S	DG(64);-:DG(64);S
875-98432	6/30/2004	CALO - North Core Banks Mile 7.15. Pair NC16	HY	DG(65)	-	DG(65)	S	DG(65);-:DG(65);S
875-98374	6/11/2004	CALO - North Core Banks Mile 8.9	HY	DG(36)	-	DG(36)	S	DG(36);-:DG(36);S
875-98324	5/6/2004	CALO - North Core Banks mile 9.5	ATY	DG(04)	-	DG(04)	S	DG(04);-:DG(04);S
875-98430	6/30/2004	CALO - North Core Banks Mile 9.5 Pair NC06.	HY	DG(63)	-	DG(63)	S	DG(63);-:DG(63);S
875-98350	7/3/2004	CALO - North Core Banks Mile 9.5 Pair NC06.	ATY	DG(73)	-	DG(73)	S	DG(73);-:DG(73);S
875-98338	5/31/2004	CALO - North Core Banks northeast tip Mile 0.0	HY	DG(19)	-	DG(19)	S	DG(19);-:DG(19);S
875-98339	5/31/2004	CALO - North Core Banks northeast tip Mile 0.0	HY	DG(20)	-	DG(20)	S	DG(20);-:DG(20);S
875-98369	6/9/2004	CALO - North Core Banks northeast tip Mile 0.0	HY	DG(31)	-	DG(31)	S	DG(31);-:DG(31);S
875-98348	7/3/2004	CALO - North Core Banks Old Drum Inlet. Pair NC20.	HY	DG(71)	-	DG(71)	S	DG(71);-:DG(71);S
875-98349	7/3/2004	CALO - North Core Banks Old Drum Inlet. Pair NC20.	HY	DG(72)	-	DG(72)	S	DG(72);-:DG(72);S
875-98334	5/26/2004	CALO - North Core Banks, Whalebone Flats, Mile 6.15	ATY	DG(15)	-	DG(15)	S	DG(15);-:DG(15);S
875-98452	8/1/2004	CALO - North Core Banks, Whalebone Flats, Mile 6.15	HY	DG(85)	-	DG(85)	S	DG(85);-:DG(85);S
875-98390	6/23/2004	CALO - Old Dump Island at Old Drum Inlet	HY	DB	DG/S	RD	RD	DB;DG/S;RD;RD
875-98336	5/28/2004	CALO - South Core Banks Mile 37.3 nest 6	ATY	DG(17)	-	DG(17)	S	DG(17);-:DG(17);S
875-98368	6/7/2004	CALO - South Core Banks Mile 39.7 nest 11	HY	DG(29)	-	DG(29)	S	DG(29);-:DG(29);S
875-98448	7/22/2004	CALO - South Core Banks mile 22.6 nest 28	HY	DG(81)	-	DG(81)	S	DG(81);-:DG(81);S
875-98449	7/22/2004	CALO - South Core Banks mile 22.6 nest 28	HY	DG(82)	-	DG(82)	S	DG(82);-:DG(82);S
875-98335	6/6/2003	CALO - South Core Banks, Cape point mile 43.9	ATY	DG(16)	-	DG(16)	S	DG(16);-:DG(16);S
875-98453	8/5/2004	CALO - South Core Banks Mile 23.5 nest 30	HY	DG(86)	-	DG(86)	S	DG(86);-:DG(86);S
875-98454	8/5/2004	CALO - South Core Banks Mile 23.5 nest 30	HY	DG(87)	-	DG(87)	S	DG(87);-:DG(87);S

Color Codes								
DG	Dark Green							
LG	Light Green							
GF	Green Flag							
DB	Dark Blue							
LB	Light Blue							
RD	Red							
OR	Orange							
YE	Yellow							
WH	White							
BK	Black							
S	USFWS band							
-	No Band							
;	Separates upper and lower leg segments							
:	Separates left and right legs (left leg comes first)							
/	Separates two bands on a single leg segment							
(##)	Indicates an engraved code on the band							