



County of Dukes County

Natural Resources Department

RFD 1 Box 852

Vineyard Haven, MA 02568

508- 696-3810 Fax: 508-696-3841

SUMMARY OF 2004 NESTING SEASON FOR PIPING PLOVERS, LEAST TERNS, AND AMERICAN OYSTERCATCHERS ON JOSEPH SYLVIA STATE BEACH, NORTON POINT BEACH AND EASTVILLE POINT BEACH

**BY ROBERT A. CULBERT
COUNTY BEACH MANAGER**



The 2004 season for beach nesting piping plovers, least terns and American oystercatchers was not successful, with few chicks surviving to fledging. This report summarizes the breeding season for these three species on Norton Point Beach, Joseph Sylvia State Beach and Eastville Point Beach, the three County managed beaches. The most important management techniques used in 2004 are described and analyzed.

The appendices contain detailed information about every nest of piping plovers (Appendix A) and American oystercatchers (Appendix B), including maps of the County beaches (Norton Point Beach in Appendix C, Joseph Sylvia State Beach in Appendix D, and Eastville Point Beach in Appendix E) showing where these birds nested.

PIPING PLOVERS

Piping plovers are listed as a Threatened species under both the Federal and State Endangered Species Laws. The extensive protection and management they receive is intended to increase their population so they can be removed from the endangered species lists.

NEST SUCCESS

Eight pairs of piping plovers nested on County beaches this year. The overall nest success on all three County beaches this season was 0.62 chicks fledged per breeding pair. This is about half the success rate of 1.25 chicks fledged per breeding pair thought to be necessary to maintain a stable population.

The five plover chicks that fledged came from only two nests. The other seven nests failed for the following reasons: the eggs were abandoned (three nests), the eggs were depredated (two nests), or the chicks died (two nests). The two components of nesting success are hatching success, the proportion of eggs that survive to hatch, and fledging success, the proportion of chicks that survive until they are 25 days old – even though they may not be able to fly at that age. These components are summarized in Table 1.

BEACH	BREEDING PAIRS	NEST ATTEMPTS	CHICKS FLEDGED	NESTING SUCCESS ^a	HATCHING SUCCESS ^b	FLEDGING SUCCESS ^c
Joseph Sylvia State Beach	4	5	4	1.00	0.20	1.00
Norton Point Beach	3	2	1	0.33	1.00	0.12
Eastville Point Beach	1	2	0	0.00	0.50	0.00
TOTALS	8	9	5	0.62	0.44	0.31

^a Chicks fledged per breeding pair

^b Eggs hatched per eggs laid

^c Chicks fledged per chicks hatched

Table 1. Summary of nesting data for piping plovers on County beaches in 2004.

HATCHING SUCCESS

Hatching success varied considerably from beach to beach. On Norton Point Beach all eight eggs hatched. This contrasts to Joseph Sylvia State Beach, where only one of five nests (four of 20 eggs) survived to hatching. Predation is the most likely explanation for these nest failures, with the most important predators being crows, skunks and gulls.

Use of Traditional Predator Exclosures to Increase Hatching Success

One of the most frequently used management actions is to erect fencing to keep predators away from the nest and eggs (see photo). The plovers are small enough to come and go from the nest by walking through the two by 2.5 inch mesh fencing while the larger predators (crows, gulls, skunks and dogs) can not get to the nest and eggs. These traditional predator exclosures were used on five nests that were out on the open sandy beach. The exclosed nests were not very successful this year, since the eggs in three of five nests failed to hatch.

Two of the three abandoned exclosures were on State Beach within 100 yards of each other (State Beach Nests 1A and 2A). Incubation was normal on May 12 but both nests were abandoned the next day. While the cause of abandonment is unknown, both people and mammalian predators can be ruled out since either would have left numerous tracks near the exclosures. The lack of fresh tracks suggests that crows caused both of these exclosures to be abandoned. Elsewhere in Massachusetts, people have observed crows causing nest abandonment by repeatedly landing on exclosures and disturbing the plovers. In this case the two nests were only 100 yards apart, so crows could easily have flown back and forth between the exclosures, causing both pairs of plovers to abandon their nests.



The third abandoned exclosure was at Eastville Point Beach (Nest 1B). Territorial conflicts between the plovers and the several pairs of least terns nesting within 30 feet may have caused this abandonment. Very young tern chicks were observed wandering freely through the exclosure and no adult plovers were present when the abandonment was discovered.

A Non-Traditional Predator Exclosure Used Successfully on Norton Point Beach

One of the plover nests at Norton Point was in moderately dense beach grass (Norton Point Nest 1A). A traditional exclosure was not used because of the increased risk of injury or death of the adults. This increased risk is because the beachgrass conceals a predator until it is close enough that the plover is startled into flying off the nest, injuring itself when it flies into the exclosure fencing. On an unvegetated beach plovers are able to detect approaching predators at a greater distance, and they typically walk or run from the nest, squeezing through the mesh fencing before the predator gets very close. In past years, we have observed exclosure-related adult mortality four times, twice on Norton Point and twice on Joseph Sylvia State Beach.

To minimize risk of adult mortality we used a non-traditional predator exclosure consisting of 270 feet of two foot tall wire fencing (2 x 2.5 inch mesh) in an attempt to keep the abundant but not very agile skunks away from the nest. The fencing was:

- Normal exclosure fencing cut in half,
- Short enough to allow plovers to fly over the fencing and away from their nest,
- Pushed (by hand) about three inches into the ground to provide some stability and reduce the likelihood of predators tunneling underneath,
- Fastened in place using rebar,
- In a roughly triangular shape with about 25 feet between the nest and the nearest fencing,
- Inconspicuous because it was about the same height as the nearby beachgrass, and
- Short enough that almost any predator other than a skunk could easily climb or jump over it.

This non-traditional exclosure was successful since all four eggs hatched and the fencing kept predators out. On July 7, four days after hatching, there were four sets of predator tracks (two skunks and two crows) outside the fencing. In each case, the predator turned away from the fencing rather than crossing it or walking along the edge of it. No predator tracks were inside the exclosure.

This stiff fencing does not work well in uneven terrain. It leaves gaps underneath the fencing whenever the slope of the ground changes, especially at the base of dunes. To keep predators from getting through these gaps we had to shovel sand to bury the bottom of the fence. Because of this extra shoveling, it took four of us

about half an hour to put up the fencing. It would have been faster and easier to include the entire small dune within the enclosure even though more fencing would have been needed.

The half hour disturbance necessary to construct this non-traditional enclosure did not seem to adversely affect the plovers since continuous incubation resumed when we were only 50 feet from the nest.

FLEDGING SUCCESS

Plover chicks are precocial, leaving the nest within hours of hatching and then moving around the beach with their parents. The best chick foraging areas tend to be in wet sand areas near the waterline and to have nearby beachgrass for cover when they are disturbed. Their parents warn them about approaching danger (people or predators) and will brood the chicks to keep them warm. The chicks are considered to have fledged when they are 25 days old.

Fledging success from all three County beaches combined was 0.31 chicks fledged per hatched chick (five chicks fledged out of 16 eggs that hatched). State Beach did well, with all four chicks fledging (Nest 3A). This early nest hatched by June 1, with the chicks fledging in late June and being able to fly before peak recreational use of the beach began. At the opposite extreme is Eastville Point Beach, where no chicks fledged.

Norton Point Beach is very different from the other two beaches since plover chicks are unable to access their favored wet sand feeding areas; dense beachgrass and a salt marsh prevent their access to the rich feeding areas on the extensive bay-side tidal flats. And the prevailing two to three foot tall waves regularly wash over the narrow ocean side wet sand areas. With the rich feeding resources of the wet sand areas unavailable, in recent years plover chicks have typically foraged along the high and dry edge of the ocean-side dunes, only occasionally venturing out onto the ocean side of the beach to feed amidst the seaweed and other wrack washed up by storm waves. The lack of any fledging success in 2002 and 2003 suggests that this ocean-side beach is poor habitat for plover chicks.

This year seven of eight plover chicks on Norton Point did not survive. One brood of four chicks (Nest 2A) disappeared completely within four days of hatching. The other brood (Nest 1A) lost three of its four chicks within seven to ten days of hatching. This rapid chick mortality has been typical of the past few years.



The one chick that fledged was probably the chick that regularly left the protective vegetation on the dunes to forage along the shoreline of an unusual brackish pond just to the ocean-side of the primary dune (see photo). This unusual pond was formed by the annual cycle of erosion and accretion that is typical of this wave-dominated beach – the spring accretion left a swale that was filled with water throughout the spring and summer. The wet sand along the edge of this pond probably contained many of the invertebrates that plover chicks prefer to eat. That one of the four chicks was observed to be larger than the others suggests that it was the one we often observed feeding in the wet sand adjacent to the pond, enabling it to grow faster. Why all four chicks from that brood did not feed along the shores of this pond is not known.

The seven smaller chicks (two broods) that foraged in the poorer quality habitat along the edge of the dunes may have been more vulnerable to predators. Their lower quality food may have contributed to their being slightly less vigilant and maybe even a little bit slower, which may make it easier for a predator to catch them. Crows were regularly observed near both plover broods, especially in the late afternoon and evening. On the evening of July 6, when the chicks of Nest 2A were less than two days old, three crows were observed harassing the family of plovers; one of the crows was observed emerging from the beachgrass swallowing what appeared to be a plover chick (two chicks disappeared that evening). This observation suggests that predation by crows is the most likely cause of the loss of these plover chicks.

LEAST TERNS

Least terns are listed as a Species of Special Concern under the State Endangered Species Act. They nest in colonies, and the extensive protection and management each colony receives is an attempt to build up their population so they can be removed from the endangered species list. Table 2 summarizes the breeding data for the three colonies on County beaches.

BEACH	BREEDING PAIRS	DATE		CHICKS FLEDGED
		COLONY START	COLONY END	
Joseph Sylvia State Beach	40	LATE MAY	JUNE 24	0
Norton Point Beach	5	MID JULY	LATE JULY	0
Eastville Point Beach	40	LATE MAY	LATE JULY	15-20
TOTALS	80			

Table 2. Summary of nesting data for least terns on County beaches in 2004.

The colony at Joseph Sylvia State Beach was divided into three subcolonies, one on the open beach near the big bridge, one about 100 yards north in a sparsely vegetated area behind the primary dune, and one even further north in the dunes about halfway between the water and the road. All three subcolonies had the same chronology, starting to lay eggs around Memorial Day and ending rather abruptly with the disappearance of all the adult terns by June 24. Entering the colony revealed that the two southernmost nesting areas were criss-crossed with skunk and gull tracks (see photo below); no eggs or chicks were found. Predators - either skunk paws or gull beaks - had disturbed some of the nest scrapes. Based on observations from past years (2002 and 2003), the gull tracks are most likely from great black-backed gulls.

At Eastville Point Beach most of the terns nested on the top of the dredge spoil dune and, as usual, they managed to fledge some chicks although productivity was not very good. A few pairs of terns nested on the lower beach facing Vineyard Haven Outer Harbor, near piping plover nest 1B. Based on the territorial behaviors of the terns and the plovers, it is likely that terns and their chicks caused the plovers to abandon their nest and eggs.

The five pairs of least terns nesting on Norton Point Beach were very late, laying their eggs in mid-July. These birds probably attempted to nest in some other colony before they set up here, as they did not show up until mid-July. All the eggs were depredated before they could have hatched.



AMERICAN OYSTERCATCHER

American oystercatchers are not listed on either the state or Federal Endangered Species Acts. They first nested on the Vineyard in 1968 and since then their population has grown considerably. Table 3 summarizes the oystercatcher breeding data for the three County beaches.

BEACH	BREEDING PAIRS	NEST ATTEMPTS	CHICKS FLEDGED	NESTING SUCCESS ^a	HATCHING SUCCESS ^b	FLEDGING SUCCESS ^c
Joseph Sylvia State Beach	3 ^d	4	2	0.67	0.50	0.33
Norton Point Beach	9	17	2	0.22	0.20	0.25
Eastville Point Beach	0	-	-	-	-	-
TOTALS	12	21	4	0.33	0.27	0.29

^a Chicks fledged per breeding pair
^b Eggs hatched per eggs laid
^c Chicks fledged per chicks hatched
^d A fourth pair did not attempt to nest

Table 3. Summary of nesting data for American oystercatchers on County beaches in 2004.

The productivity of American oystercatchers on County beaches was fairly low this year. All four fledged chicks came from only two of the 21 nest attempts (State Beach Nest 2A and Norton Point Nest 1B each fledged two chicks). We do not know what level of productivity is needed to maintain a stable population of oystercatchers, but because this species lives longer than plovers it is probably lower than the 1.25 chicks fledged per breeding pair necessary to maintain a stable plover population.

The pair that nested at Eastville Point Beach in recent years probably nested near Maciel Marine on the west arm of Lagoon Pond this year. They were only occasionally present this year.

Most of our observations of oystercatcher nests on Norton Point Beach were made from a distance to reduce the chances of our scent trails or footprints leading predators to the nests. Even with this precaution, 13 of the 17 nests and eggs were depredated, often before the first week of incubation ended (eight nests). Only one of the four pairs that hatched chicks (Nest 1B, see photo of adult and chick below) was able to fledge young. It may be not be a coincidence that this pair often fed along the shores of the unusual brackish pond mentioned in the piping plover section of this report.

The cause of mortality for the other chicks is unknown. In an unusual occurrence, one chick (from Nest 6B on the bay-side of the beach) was run over by an All Terrain Vehicle in late July. The chick was taken to Felix Neck Wildlife Sanctuary but could not be saved. The offending ATV was not the County's, since ours was not used on the beach in late July.



Appendix A. Detailed data for each piping plover nest in 2004.

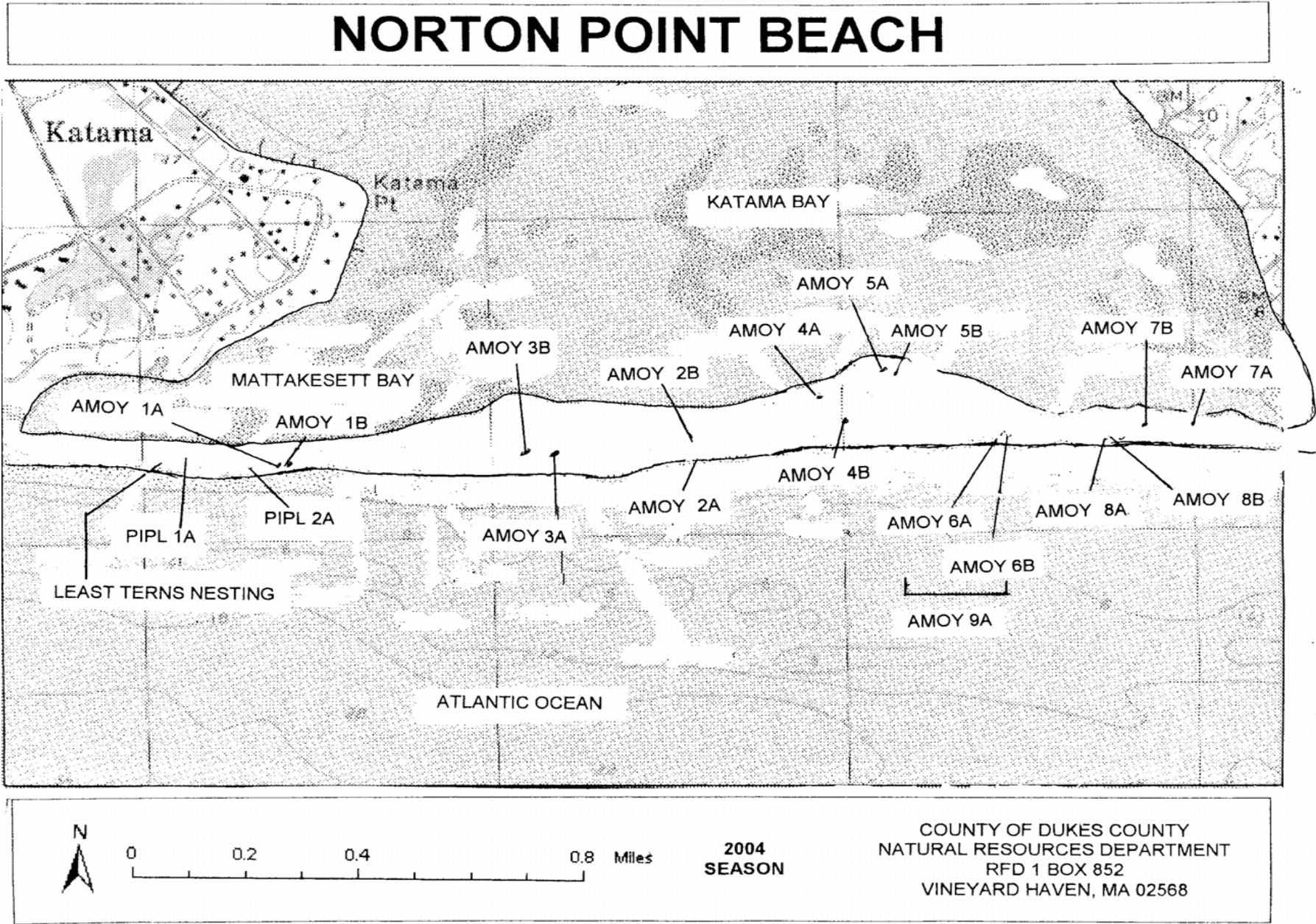
Site	Nest	Number Eggs		Number Chicks	Date Clutch Found	Eggs When Clutch Found	Date Clutch				Cause of Egg Mortality	Cause of Chick Mortality
		Laid	Hatch				Compl.	Hatch	Fail	Excuse		
EASTVILLE POINT BEACH	1A	4	4	0	4/19	1	4/25 or 4/26	5/21 or 5/22		4/22	Eggs were abandoned, adults were seen several days later. Territorial interactions between least terns and the plovers were observed a couple of days prior to abandonment and least tern chicks wandered freely through enclosure once the nest was abandoned.	chicks disappeared no known cause
	1B	4	0	0	6/7	2	by 6/10		by 6/28	6/8		
JOSEPH SYLVIA STATE BEACH	1A	4	0	0	4/27	1	by 5/4		5/12 or 5/13	4/27	Nest was abandoned with eggs intact; no evidence of predators or adult mortality; there were no predator tracks within twenty of the enclosure although extensive cobble and a light rain would have obscured any tracks. Nest abandoned at same time as nearby nest 2A. Nest was abandoned with eggs intact; no evidence of predators or adult mortality; there were no predator tracks within five feet of the enclosure although a light rain might have obscured tracks. A number of skunk tracks were about 10 feet from the enclosure although we can not tell how recently the tracks were made. Nest abandoned at same time as nearby nest 1A.	
	2A	4	0	0	5/5	1	5/11 or 5/12		5/12 or 5/13	5/8		
	2B	4	0	0	6/16	1	by 6/24		6/28 or 6/29	No		

	3A	4	4	4	5/6	4	by 5/6	5/31 or 6/1	No		
	4A	4	0	0	5/23	3	5/23 or 5/24	by 5/26	No	Three of four eggs were depredated but no predator tracks were observed (fourth egg disappeared maybe 2 weeks later).	
NORTON POINT BEACH	1A	4	4	1	6/8	4	by 6/8	7/3	6/11		One chick was regularly observed foraging along the shoreline of an unusual brackish pond on the ocean side of the beach while the other chicks were mostly concealed in the beachgrass on the adjacent dune. One chick was consistently larger than the others, providing <u>indirect</u> evidence that the three "dune" chicks did not grow as quickly (and died by July 15) because they did not get the high quality food that the "pond" chick got.
	2A	4	4	0	6/8	3	6/9	7/5	6/8		Chicks were territorially excluded from the ocean side pond by pair 1A. On evening of July 6, Nathan observed three crows harassing the plovers; one of the crows was observed emerging from the beachgrass struggling to swallow what appeared to be a plover chick and a short while later only two of the chicks could be found. The two remaining chicks were gone by July 8 after more crow/plover interactions.

Appendix B. Detailed data for each American oystercatcher nest in 2004.

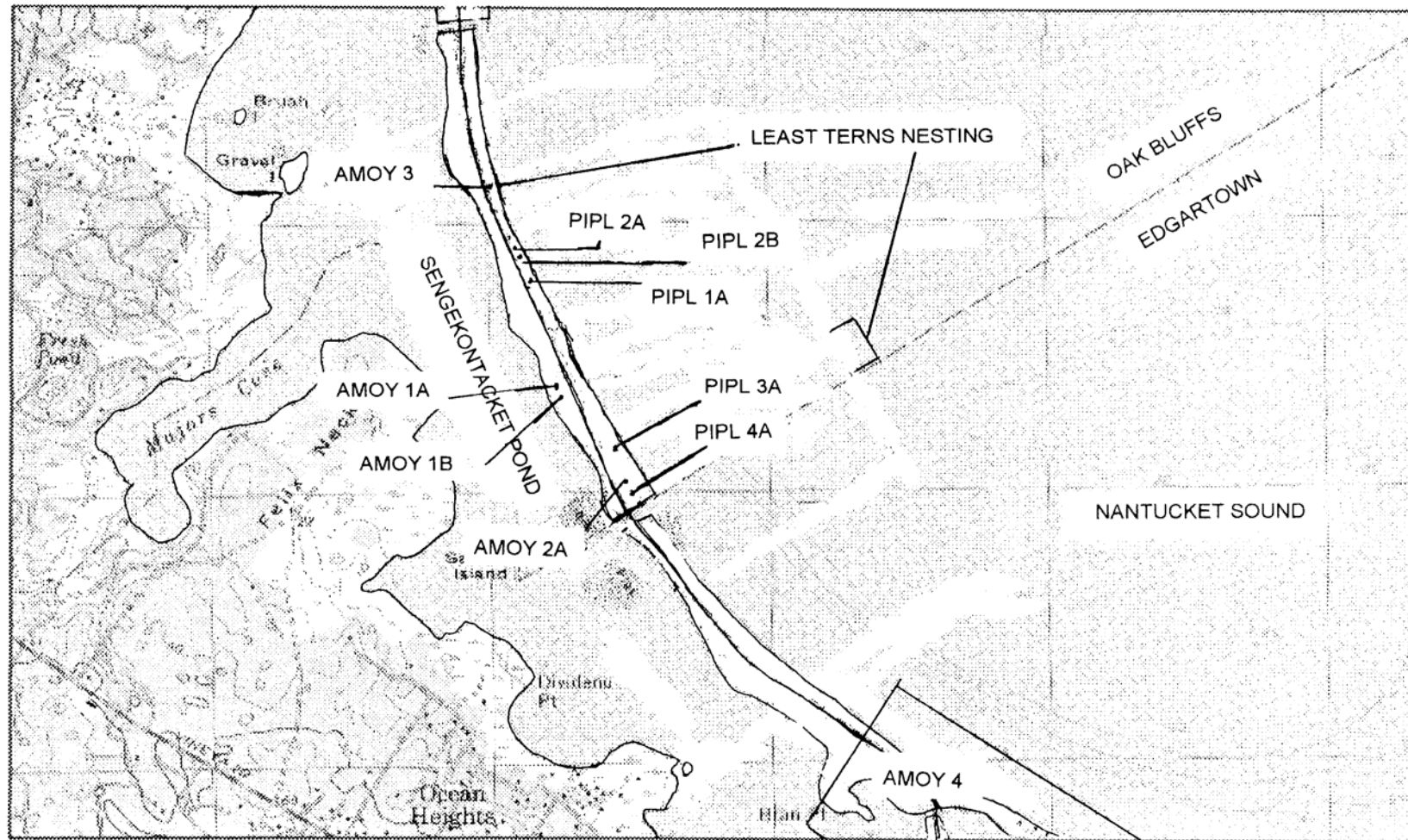
Site	Nest	Number Eggs		Number Chicks Fledged	Date Clutch Found	Eggs When Clutch Found	Date Clutch			Date Chicks Observed		Cause of egg mortality	Cause of Chick Mortality
		Laid	Hatch				Compl. By	Hatch	Fail By	First	Last		
NORTON POINT BEACH	1A	3	0	0	5/8	2	By 5/10		By 5/14	-		These nests survived less than one week of incubation. ¹	
	1B	3	3	2	5/25	3	By 5/25	6/28		6/28	August		
	2A	3	0	0	4/21	2	By 5/6		5/9	-		These nests survived more than one week of incubation but none of them survived more than three weeks. ¹	
	2B	3	0	0	5/21	1	By 6/3		By 6/5	-		These nests survived more than one week of incubation but none of them survived more than three weeks. ¹	
	3A	2+	0	0	4/21	2	?		By 5/1	-		These nests survived more than one week of incubation but none of them survived more than three weeks. ¹	
	3B	3	0	0	5/15	1	By 5/19		By 5/21	-		These nests survived less than one week of incubation. ¹	
	4A	2+	0	0	4/21	2	?		By 5/9	-		These nests survived more than one week of incubation but none of them survived more than three weeks. ¹	
	4B	3	0	0	5/21	3	By 5/21		By 5/23	-		These nests survived less than one week of incubation. ¹	
	5A	?	0	0	5/6	?	By 5/6	5/9	5/9	-	-	These nests survived less than one week of incubation. ¹	
	5B	3	3	0	5/21	3	By 5/21	By 6/16		6/24	6/24		No evidence suggesting the causes of chick mortality.
	6A	3	0	0	6/3	3	By 6/3		By 6/10	-	-	These nests survived more than one week of incubation but none of them survived more than three weeks. ¹	

Appendix C. Locations of piping plover, least tern and American oystercatcher nests on Norton Point Beach in 2004.



Appendix D. Locations of piping plover, least tern and American oystercatcher nests on Joseph Sylvia State Beach in 2004.

JOSEPH SYLVIA STATE BEACH



0 0.25 0.5 1 Miles

2004
SEASON

COUNTY OF DUKES COUNTY
NATURAL RESOURCES DEPARTMENT
RFD 1 BOX 852
VINEYARD HAVEN, MA 02568

Appendix E. Locations of piping plover and least tern nests on Eastville Point Beach in 2004.

