

^w Coskata-West Beach refers to the beach along the Nantucket Sound side of Coskata, from the south end of The Galls south and west to the boundary of Coatue. This is the same area that was referenced as Coskata-North Beach in 1993 and as part of The Galls in 1991 and 1992. Census data for Great Point, The Galls, and Coskata-West Beach were not reported separately in 1996 or 1997.

^x Coskata-Inner Trail refers to the inland trail running south and west from Coskata toward Coatue. Coskata-East Beach refers to the beach along the eastern (Atlantic) side of Coskata, including the washover at The Glades. Coskata Inlet is the inlet from Nantucket Harbor into Coskata Pond.

^y Low Beach/Tom Nevers runs from Siasconset south and west and includes the beach in front of Tom Nevers Head. In 1999, this site was split and reported as two sites: Low Beach/Tom Nevers, and Low Beach-Siasconset.

^z The *Unadjusted Total Count* is the sum of the *Total Counts* reported for each site.

^{aa} The *Unadjusted Total Number of Pairs With Fledge Data* is the sum of the values reported for each site.

^{bb} The *Adjusted Total Count* is the midpoint between the *Index Count* and the *Unadjusted Total Count*, rounded to the nearest whole number of pairs.

^{cc} The *Adjusted Total Number of Pairs with Fledge Data* is calculated by multiplying the *Unadjusted Total Number of Pairs with Fledge Data* by the ratio of the *Adjusted Total Count* to the *Unadjusted Total Count*, and rounding to the nearest whole number of pairs.

Table 2. Comparison of Piping Plover nest success (percentage of nests that hatched ≥ 1 egg) in Massachusetts, 2003, with and without predator exclosures.

Fate of nests	Number of nests (%) ^a	
	With exclosure	Without exclosure
Successful ^b	226 (67)	87 (27)
Unsuccessful	111 (33)	237 (73)
Total	337 (100)	324 (100)

^a Not included in this table are 41 nests lost to flooding (23 exclosed, 18 unexclosed) that presumably would have been lost regardless of whether or not exclosures were used. Also not included are 13 nests around which wire exclosures were placed, then removed after 3 to 14 days. These included 1 nest at Sandy Point State Reservation in Ipswich, 8 nests at Crane Beach, 3 nests at Coast Guard Beach, Eastham, and 1 nest at Great Island, Wellfleet. Also not included are an additional 15 nests at Crane Beach, Ipswich, that were inside large areas of electric fencing.

^b Nests were considered successful if they hatched ≥ 1 egg.

Table 3. Comparison of Piping Plover hatching success (percentage of eggs laid that hatched) in Massachusetts, 2003, with and without predator exclosures.

Fate of eggs	Number of eggs (%) ^a	
	With exclosure	Without exclosure
Hatched	792 (62)	262 (27)
Depredated/failed	490 (38)	717 (73)
Total	1,282 (100)	979 (100)

^a Not included in this table are 132 eggs lost to flooding (86 exclosed, 46 unexclosed) that presumably would have been lost regardless of whether or not exclosures were used. Also not included in this table are 52 eggs in 13 nests from which exclosures were removed prior to hatching, and 60 eggs in 15 nests that were protected inside electric fencing placed around Least Tern colonies.

Table 4. Reported causes of failure for 390 Piping Plover nests with and without predator exclosures in Massachusetts, 2003. Not included in this table are an additional 10 nests that failed after exclosures were removed, and 7 nests that failed inside electric fencing placed around Least Tern colonies.

Cause of nest failure	Number of nests		Total
	With exclosure	Without exclosure	
Abandonment	87	17	104
Unknown predator	4	74	78
Overwash/flooding ^a	23	18	41
Coyote	4	27	31
Crow	3	27	30
Gull	1	23	24
Striped Skunk	2	15	17
Fox	3	11	14
Unidentified canid	0	10	10
Black-crowned Night-Heron	0	5	5
Raccoon	0	3	3
Cat	0	1	1
Other	3 ^b	9 ^c	12
Unknown	4	16	20
Total	134	256	390^d

^a Overwash /flooding includes nests lost to overwash from high tides or flooding from heavy rain.

^b "Other" causes of nest loss for 3 exclosed nests were reported as: an unidentified predator small enough to enter 2 in. x 4 in. wire mesh; suspected avian predation; monitors removed a single egg after plovers had incubated it for 72 days, 2 other eggs in this clutch had disappeared earlier to unknown predators.

^c "Other" causes of nest loss for 9 unexclosed nests were reported as: suspected fox or skunk (n = 3 nests); European Starling (n = 1); gull or skunk (n = 2); 1 egg overwashed by high tide and remaining 2 eggs lost to gull predation; eggs crushed by human; injured plover buried under 4 in. of sand while incubating, died 3 days later, necropsy revealed neurological damage.

^d Total number of failed nests in 2003 was 407. Not included in Table 4 are 10 nests that failed after exclosures were removed and 7 nests that failed inside electric fencing. The nests that failed after exclosures were removed were abandoned (2 nests) or depredated by unknown predators (3), crow (2), Coyote (1), Striped Skunk (1), or unidentified canid (1). The 7 nests lost inside electric fencing were depredated by Striped Skunk (3), unknown predators (3), and suspected Great-horned Owl (1 nest with eggs missing, yolk in nest, owl track nearby).

Table 5. Suspected causes of Piping Plover nest abandonments (n = 106) in Massachusetts, 2003. The total of 106 includes 87 nests that were abandoned while inside exclosures, 17 nests that were abandoned and were not exclosed, and 2 nests that were abandoned after exclosures were removed (the latter 2 nests are not tallied in Table 5 but are listed in footnote "g").

Cause of nest abandonment	<u>Number of nests</u>		Total
	With exclosure	Without exclosure	
Unknown	36	13	49
Adult killed/died ^a	16	1	17
Predator harassment ^b	14	1	15
Severe inclement weather ^c	9	1	10
Human disturbance ^d	4	1	5
Eggs failed to hatch ^e	2 ^e	0	2 ^e
Territorial dispute with other PIPL pair	1	0	1
Exclosure installation	1	0	1
Other ^f	4	0	4
Total	87	17	104 ^g

^a Avian predation on an adult was suspected as the cause of abandonment at 9 exclosed nests (7 at Crane Beach and 2 at Parker River National Wildlife Refuge) and 1 unexclosed nest (Parker River NWR). At 7 exclosed nests, there was no evidence reported that would suggest cause of adult mortality.

^b "Predator harassment" included 5 instances of harassment by fox, 3 by Coyote, 1 by "canid", 2 by a canid or crow, 1 instance where evidence at an abandoned nest included canid tracks and a Great-horned Owl pellet at the exclosure, and 2 instances of suspected harassment by Black-crowned Night-Herons.

^c "Severe inclement weather" included strong wind and/or heavy rain.

^d Reported instances of human disturbance included 1 nest abandoned due to suspected disturbance by human or dog, 1 abandonment suspected to have been caused by human disturbance to a nest in a parking lot, and 1 abandonment possibly caused by disturbance from oil spill clean-up crews (Horseneck Beach).

^e Two exclosed nests were abandoned after eggs failed to hatch after incubation periods of 36 and 42 days.

^f "Other" suspected causes of nest abandonment included: harassment from a pair of American Oystercatchers nesting nearby (1 nest); a major coastal storm on June 1 that coincided with the

disappearance of an oiled male after June 2 at a nest on Washburn Island; and 2 nests abandoned at Horseneck Beach, suspected due to either canid harassment or disturbance from oil spill clean-up crews.

^g In addition to the total of 104 exclosed and unexclosed nests that were abandoned, 2 additional nests were abandoned for unknown reasons after exclosures were removed from around them.

