

# SUMMARY OF THE 2014 MASSACHUSETTS PIPING PLOVER CENSUS



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*Massachusetts Division of Fisheries & Wildlife*

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## ABSTRACT

This report summarizes data on abundance, distribution, and reproductive success of Piping Plovers (*Charadrius melodus*) in Massachusetts during the 2014 breeding season. Observers reported breeding pairs of Piping Plovers present at 150 sites; 131 additional sites were surveyed at least once, but no breeding pairs were detected at them. The population was stable relative to 2013. The ***Index Count*** (statewide census conducted 1-9 June) was **645 pairs**, and the ***Adjusted Total Count*** (estimated total number of breeding pairs statewide for the entire 2014 breeding season) was 663 pairs. A total of 763 chicks were reported fledged in 2014, for an overall productivity of **1.18 fledglings per pair**, based on data from 648 of 662 (98%) pairs.

## INTRODUCTION

Piping Plovers are small, sand-colored shorebirds that nest on sandy beaches and dunes along the Atlantic Coast from North Carolina to Newfoundland. The U.S. Atlantic Coast population of Piping Plovers has been federally listed as *Threatened*, pursuant to the U.S. Endangered Species Act, since 1986. The species is also listed as *Threatened* by the Massachusetts Division of Fisheries and Wildlife pursuant to Massachusetts' Endangered Species Act.

Population monitoring is an integral part of recovery efforts for Atlantic Coast Piping Plovers (U.S. Fish and Wildlife Service 1996, Hecht and Melvin 2009a, b). It allows wildlife managers to identify limiting factors, assess effects of management actions and regulatory protection, and track progress toward recovery. In this report, we summarize data on abundance, distribution, and reproductive success of Piping Plovers breeding in Massachusetts in 2014, as observed and reported by a coast-wide network of cooperators.

## METHODS

Monitoring and management of Piping Plovers and other coastal waterbirds in Massachusetts is carried out by wildlife biologists, seasonal shorebird monitors, beach managers, researchers, and volunteers affiliated with over 30 federal and state agencies, local municipalities, local and regional land trusts, private conservation organizations, and universities. Cooperators monitored 281 sites in Massachusetts in 2014 for the presence of breeding Piping Plovers.

### Abundance

We measure abundance of Piping Plovers in terms of breeding pairs, defined as pairs observed with either a nest or unfledged chicks or that exhibited site tenacity and evidence of pair bonding and territoriality for at least two weeks. We report three different measures of abundance: the *Index Count*, *Unadjusted Total Count*, and *Adjusted Total Count*. The *Index Count*, as reported since 1990, is the total number of pairs tallied statewide each year during a 9-day count period in late May and early June, standardized each year for the entire Atlantic Coast. In 2014, the *Index Count* period was 1-9 June. The objective of the *Index Count* is to estimate population size with minimal double-counting of pairs that may move between or within sites, thereby providing an index to population trends that is likely to be more precise than counts based on observations made over the entire breeding season. The *Index Count* likely minimizes double-counting because it occurs over such a short time period. However, it probably

underestimates the actual number of breeding pairs because it does not include pairs that leave the state before, arrive after, or are present but simply go undetected during the 9-day *Index Count* period.

For sites for which "0" is reported for the *Index Count* but "nd" is reported for the *Total Count*, this indicates that the site was surveyed during the *Index Count* period (1-9 June) and no breeding pairs were detected, but during the rest of the breeding season, it was either not surveyed or was surveyed too infrequently during May and June to confidently conclude that no pairs were present for at least 2 weeks.

Since 2000, we have reported two different "Total Counts". The *Unadjusted Total Count* is simply a tally of the total number of pairs reported for all sites over the course of the entire nesting season, with limited effort made to adjust for any pairs that may have been double-counted if they nested unsuccessfully at one location and then re-nested at another. We then derive an *Adjusted Total Count* by calculating the average of the *Index Count* and the *Unadjusted Total Count*, rounded to the nearest whole number of pairs.

The *Unadjusted Total Count* likely overestimates the actual population by double-counting pairs that establish nesting territories at more than one location in a given year. Without color-banded birds, however, it is impossible to accurately determine whether late-nesting pairs may have nested earlier at a different site, or simply did not arrive or begin breeding activities until June. It is too subjective, and likely inaccurate, to try to adjust the *Total Count* of pairs each year by not tallying late-nesting pairs (*i.e.*, pairs reported as "new" pairs that nested after the first week in June), based on the assumption that these birds were probably already counted earlier in the season. We believe that the *Adjusted Total Count* is the most accurate estimate of the actual number of breeding pairs in Massachusetts because it falls midway between the *Index Count* and *Unadjusted Total Count*, which we suspect slightly underestimate and overestimate, respectively, the actual breeding population.

## **Reproductive success**

The primary measure of reproductive success that we report is *Productivity*, measured as number of chicks fledged per pair. The denominator of this ratio is the number of breeding pairs for which fledging data were reported; this includes not only pairs that successfully fledged chicks, but also pairs that cooperators believed did not nest, pairs that nested unsuccessfully (eggs did not survive to hatch), and pairs whose chicks failed to fledge. Since 2000, we have reported two different estimates of *Number of pairs with fledge data*. As with counts of breeding pairs, estimates of the number of pairs for which fledging data are reported will be biased if double-counting of pairs occurs. Double-counting will overestimate the number of pairs in the denominator of the productivity ratio, and thereby will underestimate actual productivity. To reduce the potential bias associated with double-counting, we multiply the *Unadjusted number of pairs with fledge data* (a tally of the total number of pairs with fledge data reported for all sites, with limited effort made to adjust for pairs that may have been double-counted) by the ratio of the *Adjusted Total Count* to the *Unadjusted Total Count* to arrive at the *Adjusted number of pairs with fledge data*.

## **Data reporting and quality control**

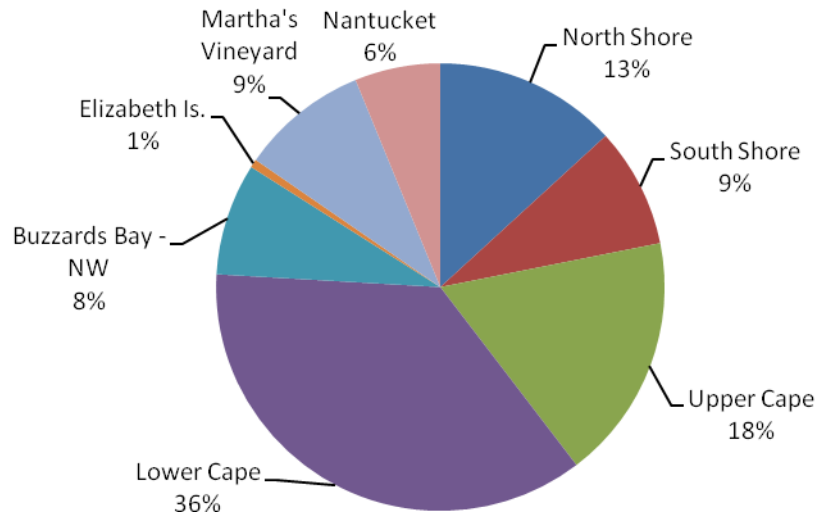
All data were reported by cooperators who filled out a standard Massachusetts Piping Plover Census Form for each site monitored. These forms are used to report data on number of breeding pairs (*Index Count* and *Total Count*); frequency of site visits; design(s) and installation dates of predator exclosures; dates of nest discovery, completion, and hatching or failure; number of eggs on the date the nest was discovered; total numbers of eggs laid, eggs hatched, and chicks fledged; reasons for egg and chick loss, if determined; and comments regarding census results, limiting factors, and management needs. Maps of sites showing the locations of all nests were submitted with census forms. After reviewing census forms, if necessary, we contacted cooperators to obtain missing or incomplete data, resolve inconsistencies, and clarify ambiguities. When we could not obtain the needed information, we used best professional judgment to assign final values or noted data as preliminary; any such instances are noted in Table 1.

## RESULTS

Observers reported breeding Piping Plovers at 150 sites in Massachusetts in 2014. An additional 131 sites were surveyed one or more times during May and June, but no breeding pairs were detected at them (**Table 1**).

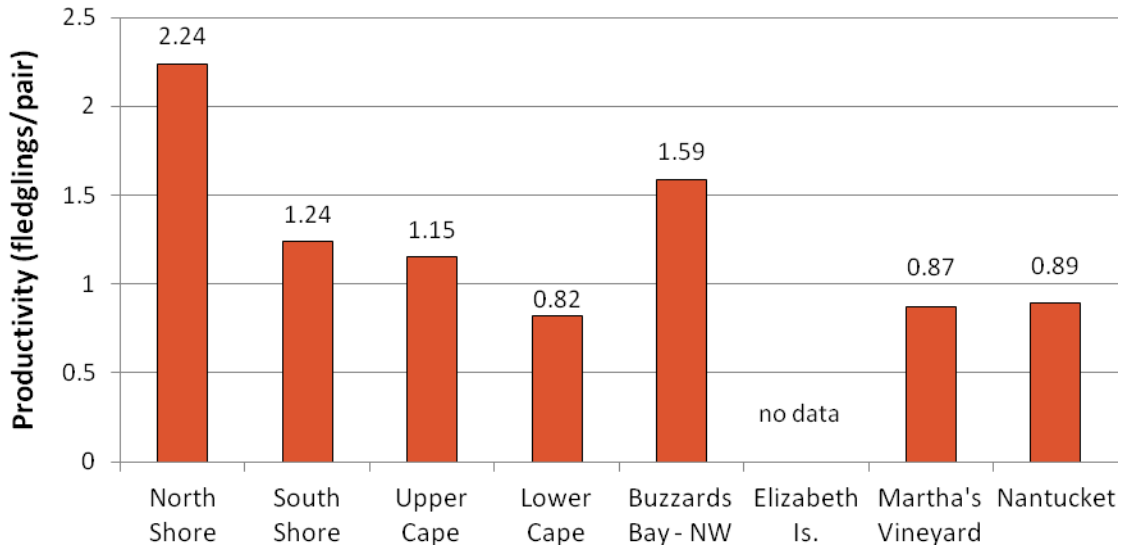
The *Adjusted Total Count* in 2014 was **663 pairs** (**Table 1**), essentially the same as in 2013 (666 pairs). The *Index Count* in 2014 was **645 pairs** (vs. 638 pairs in 2013), or 97% of the *Adjusted Total Count*.

Distribution of breeding pairs by region is shown in **Figure 1**. Fifteen sites with ten or more breeding pairs accounted for 50% of the Massachusetts breeding population, while 108 sites with three or fewer pairs accounted for 26%.



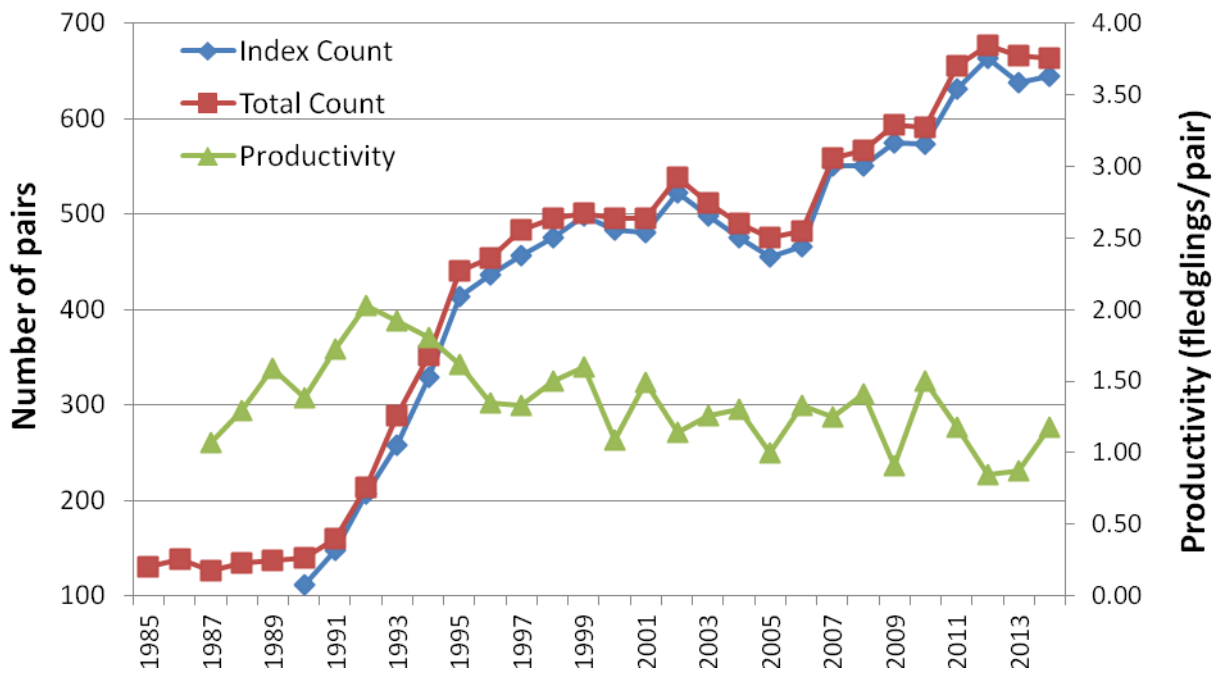
**Figure 1.** Distribution of Piping Plover breeding pairs by Massachusetts region in 2014, based on *Adjusted Total Counts* for each region.

In total, 763 chicks were reported fledged in 2014, resulting in overall productivity of **1.18 fledglings/pair**, based on data from 648 of 662 (98%) pairs (**Table 1**). This represents a 35% increase in productivity relative to 2013 (0.87 fledglings/pair). Productivity varied widely by region (**Fig. 2**). By a wide margin, the North Shore was the most productive region, with 2.24 fledglings/pair. The Lower Cape was the least productive region, with only 0.82 fledglings/pair, but plovers on Martha's Vineyard and Nantucket fared only slightly better.



**Figure 2.** Productivity (fledglings/pair) of Piping Plover breeding pairs by Massachusetts region in 2014.

Trends in Piping Plover abundance and productivity from 1985 to present are shown in **Figure 3**.



**Figure 3.** Piping Plover abundance (Index Count and Adjusted Total Count) and productivity (fledglings/pair) in Massachusetts, 1985 – 2014.

## ACKNOWLEDGEMENTS

We extend our sincere thanks to the many biologists, seasonal shorebird monitors, beach managers, landowners, and volunteers who participated in conservation efforts on behalf of Piping Plovers and other coastal waterbirds in Massachusetts in 2014. We also thank the more than 30 state and federal agencies, local municipalities and county government, local and regional land trusts, private conservation organizations, and universities that supported their efforts. We especially thank all the individuals who participated in population monitoring and submitted the data that are summarized in this report. Lastly, the strong plover numbers in Massachusetts today would not have been achieved without Dr. Scott Melvin's (Senior Zoologist at MassWildlife) tireless efforts over many years to protect and manage plovers and their habitats within the regulatory framework provided by the Commonwealth of Massachusetts.

## LITERATURE CITED

- U.S. Fish and Wildlife Service. 1996. Piping Plover (*Charadrius melodus*) Atlantic Coast population revised recovery plan. U.S. Fish and Wildlife Service, Hadley, MA. 245 pp.
- Hecht, A. and S. M. Melvin. 2009a. Population trends of Atlantic Coast Piping Plovers, 1986-2006. *Waterbirds* 32(1):64-72.
- Hecht, A. and S. M. Melvin. 2009b. Expenditures and effort associated with recovery of breeding Atlantic Coast Piping Plovers. *J. Wildlife Management* 73(7):1099-1107.

**Table 1.** Abundance, distribution, and productivity of Piping Plovers in Massachusetts, 2014.

Site	Index Count <sup>a</sup> (no. pairs)	Total Count <sup>b</sup> (no. pairs)	No. chicks fledged <sup>c</sup>	No. pairs with fledged data <sup>c</sup>	Source <sup>d</sup>	Notes
<b>NORTH SHORE</b>						
Salisbury Beach State Reservation, Salisbury	0	1	0	1	MAS	
Plum I. town beaches, Newburyport/Newbury	2	2	5	2	MAS	
Parker River NWR, Newbury/Rowley	30	31	59	31	USFWS	
Sandy Point State Res., Ipswich	5	5	11	5	MAS	
Crane Beach, Ipswich	26	30	56	30	TTOR	At Crane Beach, a banded, 1-year old female from the Great Lakes population nested, possibly only the 6 <sup>th</sup> instance of a piping plover breeding outside of the recovery unit within which it was banded.
Coffin's Beach, Gloucester	3	3	12	3	DFW, ECGA	
Wingaersheek Beach, Gloucester	0	0	0	0	DFW	
Good Harbor Beach, Gloucester	nd	nd	nd	nd		
Nahant Beach, Nahant	1	1	0	1	MAS	New Piping Plover nesting site in 2014.
Point of Pines, Revere	1	1	3	1	MAS	New Piping Plover nesting site in 2014.
Revere Beach, Revere	9	9	30	9	MAS	
Winthrop Beach, Winthrop	5	6	16	6	MAS	
Yirrell Beach, Winthrop	2	2	4	2	Winthrop	
Constitution Beach, Boston	0	nd	nd	0	MAS	
L Street Beach, Boston	0	nd	nd	0	MAS	
Carson Beach, Boston	0	nd	nd	0	MAS	
Lovells I., Boston	0	nd	nd	0	MAS	
<b>SOUTH SHORE</b>						
Nantasket Beach, Hull	1	1	4	1	MAS	New Piping Plover nesting site in 2014.
The Glades, Scituate	0	0	0	0	MAS	
Third Cliff, Scituate	2	2	8	2	MAS	
Fourth Cliff, Scituate	1	1	2	1	MAS	
Humarock, Scituate	0	nd	nd	0	MAS	

Site	Index Count <sup>a</sup> (no. pairs)	Total Count <sup>b</sup> (no. pairs)	No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>	Notes
Rexhame Beach, Marshfield	1	1	0	1	MAS	
Green Harbor, Marshfield	0	nd	nd	0	MAS	
Duxbury Beach, Duxbury/Plymouth	26	26.5	24	26.5	MAS, Duxbury	
Saquish, Plymouth	0	nd	nd	0	MAS	
Plymouth Long Beach, Plymouth	18	18	28	18	Plymouth	
Ellisville, Plymouth	2	2	1	2	MAS	
Sagamore Beach, Bourne	2	2	3	2	MAS	
Sagamore Beach, Sandwich	3	3	0	3	MAS	
Scusset Beach State Res., Sandwich	1	1	1	1	MAS	
<b>UPPER CAPE</b>						
Mashnee Dike, Bourne	0	nd	nd	0	MAS, USACE	
Bassetts I., Bourne	0	nd	nd	0	MAS	
Old Silver Beach, Falmouth	0	nd	nd	0	MAS	
Little I. Beach, Falmouth	0	nd	nd	0	MAS	
Chappaquoit Beach, Falmouth	0	nd	nd	0	MAS	
Black Beach, Falmouth	3	3	5	3	MAS	
Sippewisset, Falmouth	1	1	0	1	MAS	
Wood Neck Beach, Falmouth	0	1	0	1	MAS	A pair from Wood Neck Beach (the female of which was banded) lost its nest and moved to Trunk River Beach, where it nested during the Index window. This pair is counted in the Index Count only for Trunk River. It appears in the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals.
Trunk River Beach/ Quisset Beach / Moors Beach, Falmouth	1	1	2	1	MAS	New Piping Plover nesting site in 2014. A pair from Wood Neck Beach (the female of which was banded) lost its nest and moved to Trunk River Beach, where it nested during the Index window. This pair is counted in the Index Count only for Trunk River. It appears in the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals.
Falmouth Heights, Falmouth	nd	nd	nd	nd		
Acapesket Beach, Falmouth	0	nd	nd	0	MAS	
Menauhant Beach, Falmouth	0	nd	nd	0	DCR	
Washburn I., Falmouth	4	3	4	4	MAS	



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South Cape Beach, Mashpee	6	6	11	5	MAS	For one pair at South Cape Beach not included in Pairs with Fledge Data, the number of fledglings was uncertain; however, it fledged 2 to 3 young.
New Seabury, Mashpee	1	1	1	1	MAS	
Rock Landing/Maushop Village, Mashpee	0	nd	nd	0	MAS	
Popponeset Spit, Mashpee	3	3	6	3	MAS	
Town Neck Beach, Sandwich	2	2	0	2	MAS	
Spring Hill Beach, Sandwich	7	7	9	7	MAS	
East Sandwich Beach, Sandwich	3	3	0	3	MAS	
Scorton (Neck) Creek, Sandwich	3	3	2	3	MAS	
Scorton Shores, Sandwich	3	3	2	3	MAS	
Sandy Neck, Barnstable	30	30	42	30	Barnstable	
Rushy Marsh Pond Beach, Barnstable	0	nd	nd	0	MAS	
Loop Beach, Barnstable	nd	nd	nd	nd		
Sampson's Is.-Dead Neck, Barnstable	5	7	9	7	MAS	Two pairs that nested at Sampson's Island-Dead Neck after the Index window nested at other sites (Squaw Island, Barnstable and Long Beach, Barnstable) during the Index window. These two pairs are included in the Total Count and Pairs with Fledge Data for (1) Sampson's and Squaw and (2) Sampson's and Long Beach, respectively, but are counted only once in statewide totals for each site-pair.
Bone Hill Road, Barnstable	0	nd	nd	0	MAS	
Dowsey Beach, Barnstable	0	1	0	1	Barnstable	
Long Beach, Barnstable	5	5	5	5	MAS	One pair from Long Beach failed during the Index window and re-nested at Sampson's Island-Dead Neck, Barnstable after the Index window. This pair is included in the Total Count and Pairs with Fledge Data for both sites, but is counted only once in statewide totals.
Craigville Beach, Barnstable	1	1	0	1	MAS	
Memorial Beach, Barnstable	0	nd	nd	0	MAS	
Squaw I., Barnstable	4	4	4	4	MAS	One pair from Squaw I. failed during the Index window and re-nested at Sampson's Island-Dead Neck, Barnstable after the Index window. This pair is included in the Total Counts and Pairs with Fledge Data for both sites, but is counted only once in statewide totals.

Site	Index Count <sup>a</sup> (no. pairs)	Total Count <sup>b</sup> (no. pairs)	No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>	Notes
Squaw I. Road / Causeway, Barnstable	1	1	4	1	MAS	
Sea St./ Keyes Beach, Barnstable	0	nd	nd	0	MAS	
Kalmus Park, Barnstable	2	2	3	2	Barnstable	
Fortes Beach, Barnstable	0	nd	nd	0	MAS	
Colonial Acres-Standish Way, Yarmouth	0	nd	nd	0	MAS	
Gray's Beach, Yarmouth	0	0	0	0	MAS	
Great I. - Smith Point, Yarmouth	2	2	0	2	MAS	
Great I. Causeway, Yarmouth	2	2	0	2	MAS	
Radio City Beach, Yarmouth	1	1	0	1	MAS	
Seagull Beach, Yarmouth	9	9	8	9	MAS	
Red Jacket Inn, Yarmouth	0	nd	nd	0	MAS	
Bass River Beach / Smugglers, Yarmouth	0	nd	nd	0	MAS	
West Dennis Beach, Dennis	8	8	9	8	Dennis	
South Village Beach, Dennis	1	1	0	1	Dennis	
Miramar Beach (Swan River), Dennis	1	1	2	1	MAS	A Piping Plover pair with four 5 - 10 day old chicks, first observed foraging on 6/6 at Miramar, is believed to have nested nearby, probably in the Haigis-to-Depot area. They consistently foraged at Miramar from 6/15 through fledging. They are included in the Index Count, Number of Chicks Fledged, and Pairs with Fledge Data for both sites, but are only counted once in statewide totals.
Haigis-Glendon-Depot-Inman	1	1	2	1	MAS	A Piping Plover pair with four 5 - 10 day old chicks, first observed foraging on 6/6 at Miramar, is believed to have nested nearby, probably in the Haigis-to-Depot area. They consistently foraged at Miramar from 6/15 through fledging. They are included in the Index Count, Number of Chicks Fledged, and Pairs with Fledge Data for both sites, but are only counted once in statewide totals.
Bayview, Dennis	nd	nd	nd	nd		
Chapin Beach, Dennis	2	2	3	2	Dennis	
Mayflower Beach, Dennis	0	0	0	0	Dennis	
Corporation Beach, Dennis	0	0	0	0	Dennis	

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Howes St. Beach, Dennis	0	nd	nd	0	MAS	
Sesuit Harbor Beach, Dennis	0	nd	nd	0	MAS	
Cold Storage Beach, Dennis	0	0	0	0	Dennis	
Sea St. (north side), Dennis	nd	nd	nd	nd		
Crowes Pasture (Coles Pond) / Quivett Neck, Dennis	0	0	0	0	Dennis	
Wings I., Brewster	0	nd	nd	0	MAS	
Paine's Creek, Brewster	0	nd	nd	0	MAS	
Mants Landing, Brewster	0	nd	nd	0	MAS	
Robbins Hill Beach, Brewster	0	nd	nd	0	MAS	
Saint's Landing, Brewster	nd	nd	nd	nd		
Breakwater Beach, Brewster	0	nd	nd	0	MAS	
Point of Rocks Landing, Brewster	0	nd	nd	0	MAS	
Ellis Landing, Brewster	nd	nd	nd	nd		
Linnell Landing Beach, Brewster	0	nd	nd	0	MAS	
Crosby Landing Beach, Brewster	1	1	0	1	MAS	
Belmont Condos, Harwich	0	nd	nd	0	MAS	
Grey Neck Road Beach, Harwich	0	nd	nd	0	MAS	
Earle Rd. Beach, Harwich	nd	nd	nd	nd		
Allens Harbor, Harwich	0	nd	nd	0	MAS	
Winstead Inn, Harwich	1	1	4	1	MAS	New Piping Plover nesting site in 2014.
Bank St./Merkel Beach/Wychmere, Harwichport	4	4	0	4	MAS	
Saquatucket Beach, Harwich	0	nd	nd	0	MAS	
Red River Beach, Harwich	0	0	0	0	MAS	Scrapes were found at Red River Beach on 5/13-5/14, but no Piping Plovers were observed.
<b>LOWER CAPE</b>						
Pleasant St. Beach, Chatham	0	0	0	0	MAS	Pleasant St. Beach was used by Piping Plovers for foraging throughout nesting season.
Forest Beach, Chatham	2	2	1	2	MAS	

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Chatharbor Lane (Mill Ck., Cockle Cove), Chatham	0	0	0	0	MAS	Piping Plovers foraged at Chatharbor Lane, but did not nest.
Ridgevale Beach, Chatham	0	1	0	1	MAS	At Ridgevale, a pair exhibited territorial and courtship behavior from 4/17 to 5/14, but a nest was never found. The pair subsequently moved to Hardings Shores and nested; its chicks foraged at Ridgevale. The pair is included in the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals.
Hardings Shores, Chatham	1	1	0	1	MAS	The pair that nested at Hardings Shores exhibited nesting behavior at Ridgevale Beach for about a month prior to the Index period. The pair is included in the Index count for Hardings Shores and the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals.
Harding Beach, Chatham	3	3	5	3	MAS	
North Monomoy I., Chatham	1	1	0	1	USFWS	
Minimoy I., Chatham	2	2	2	2	USFWS	
South Monomoy I., Chatham	36	41	41	41	USFWS	
South Beach, Chatham	56	62	44	61	MAS	
Morris I. dredge spoil, Chatham	1	1	3	1	MAS	
Chatham Lighthouse Beach north to Andrew Harding Way, Chatham	0	nd	nd	0	MAS	
Clafin Landing/ Chatham Bars Inn, Andrew Harding Way, Chatham	0	nd	nd	0	MAS	
Tern I., Chatham	1	1	0	1	MAS	
Linnell Lane, Chatham	0	nd	nd	0	MAS	
North Beach I., Chatham	24	24	4	20	Chatham	For 4 pairs at North Beach I. not included in Pairs with Fledge Data, the number of fledglings was uncertain; however, together these 4 pairs are thought to have fledged 4 to 9 young.
North (Nauset) Beach, Chatham	12	12	11	12	Chatham	
North (Nauset) Beach, Orleans	11	11	28	11	Orleans	
Nauset Spit (Heights) (includes Skaket Public Beach), Orleans & Eastham	11	11	0	11	Orleans	
Little Sipson I., Orleans	nd	nd	nd	nd		

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New I., Orleans/Eastham	0	1	0	1	NPS, Orleans	
Rock Harbor (north and south sides), Eastham	0	nd	nd	0	MAS	
Dyer Prince Beach, Eastham	nd	nd	nd	nd		
Boat Meadow, Eastham	0	nd	nd	0	MAS	
First Encounter Beach, Eastham	0	nd	nd	0	MAS	
Eastern South Sunken Meadow to Eastern First Encounter Beach, incl. Cooks and Campground beaches	nd	nd	nd	nd		
So. Sunken Meadow, Eastham	0	2	1	2	MAS	
Coast Guard Beach, Eastham	4	4	8	4	NPS	
Nauset Light Beach, Eastham	1	1	0	1	NPS	
Marconi Beach, Wellfleet	7	7	12	7	NPS	
Marconi Station, Wellfleet	0	1	0	1	NPS	A pair moved to Marconi Station after failing at Lecount Hollow on 6/5. It is included in the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals for Total Count and Pairs with Fledge Data.
Lecount Hollow, Wellfleet	1	1	0	1	NPS	A pair moved to Marconi Station after failing at Lecount Hollow on 6/5. It is included in the Total Count and Pairs with Fledge Data for both sites, but is tallied only once in statewide totals for Total Count and Pairs with Fledge Data.
White Crest Beach, Wellfleet	2	2	0	2	NPS	At White Crest, one pair failed on 5/28 and the other on 5/31. Neither renested. It was not clear from the data provided whether or not the pairs were present during the Index Count, but the assumption was made that both were.
Cahoon Hollow, Wellfleet	0	nd	nd	0	NPS	
Lieutenant I. - SW, Wellfleet	0	nd	nd	0	MAS	
Lieutenant I. - NW, Wellfleet	1	1	0	1	MAS	
Old Wharf Point, Wellfleet	0	nd	nd	0	MAS	
Field Point /Fox Is. WMA, Wellfleet	0	nd	nd	0	MAS	
Indian Neck, Wellfleet	0	nd	nd	0	MAS	

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Herring River mouth - Powers Landing - Mayo Beach, Wellfleet	0	nd	nd	0	MAS	
Jeremy Point, Wellfleet	2	2	0	2	NPS	
Great I., Wellfleet	3	3	8	3	NPS	
Duck Harbor, Wellfleet	2	2	1	2	NPS	
Bound Brook, Wellfleet	1	1	0	1	NPS	
Ryder Beach, Truro	0	nd	nd	0	MAS	
Fisher Beach (Pamet Harbor -South), Truro	1	1	3	1	MAS	
Corn Hill Beach (Pamet Harbor - North), Truro	2	2	0	2	MAS	
Between Corn Hill Beach and Beach Point, Truro	0	nd	nd	0	MAS	
Pilgrim Beach/Beach Point, Truro	2	2	0	2	MAS	
Newcomb Hollow, Wellfleet / Truro	3	3	0	3	NPS	
Ballston Beach, Truro	8	8	5	8	NPS	
Longnook Beach, Truro	1	1	3	1	NPS	
Coast Guard Beach, Truro	3	3	1	3	NPS	
Dead Forest / Head of the Meadow, Truro	1	1	0	1	NPS	
High Head, Truro	0	0	0	0	NPS	
Race Point-South Beach, Provincetown / Truro	12	12	11	12	NPS	
Race Point-North/Hatches Harbor, Provincetown	7	7	2	7	NPS	
Long Point/Wood End, Provincetown	9	9	1	9	NPS	
Herring Cove Beach, Provincetown	0.5	0.5	0	0.5	NPS	At Herring Cove, a single bird scraped for almost a month, 5/9 - 6/4; it is counted as a half-pair in the Index Count, Total Count, and Pairs with Fledge Data.

Site	Index Count <sup>a</sup> (no. pairs)	Total Count <sup>b</sup> (no. pairs)	No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>	Notes
<b>BUZZARDS BAY - NORTHWEST</b>						
Stony Point Dike, Wareham	1	1	2	1	USACE	
Long Beach Point, Wareham	nd	nd	nd	nd		
Little Harbor Beach, Wareham	0	nd	nd	0	MAS	
Swift's Beach, Wareham	0	nd	nd	0	MAS	
Cedar I., Wareham	0	nd	nd	0	MAS	
Planting I., Marion	0	nd	nd	0	MAS	
Meadow I., Marion	0	nd	nd	0	MAS	
Ram I., Marion	0	nd	nd	0	DFW	For Ram I., one survey conducted on 5/29 was used for the Index count.
Stewarts I., Marion	0	nd	nd	0	MAS	
Haskell I., Marion	0	nd	nd	0	MAS	
Strawberry Point, Mattapoisett	3	3	2	1	DFW	
Ram I., Mattapoisett	0	0	0	0	DFW	
Brandt I. Causeway, Mattapoisett	1	1	3	1	DFW, C. Larsson, MAS	This newly reported nesting site on the Brandt I. Causeway also had nesting Piping Plovers in 2013, according to a credible beach-goer.
Ward's Rock, Fairhaven	0	nd	nd	0	MAS	
South Shore Marshes WMA, Fairhaven	2	2	0	2	DFW	South Shore Marshes WMA was visited only on 5/21 and 6/23. Data from 5/21 were used for both the Index and Total Counts.
Round I., Fairhaven	0	nd	nd	0	DFW	For Round I., one survey conducted on 5/29 was used for the Index count.
West I., Fairhaven	4	4	7	4	LCES	
Winsegansett Heights, Fairhaven	0	0	0	0	LCES	
Round Hill Beach, Dartmouth	1	1	1	1	MAS	
Salters Pond, Dartmouth	2	2	0	2	MAS	
Nonquitt, Dartmouth	2	2	1	2	MAS	
Demarest Lloyd State Park, Dartmouth	6	7	5	7	LCES	
Little Beach/Barney's Joy, Dartmouth (incl. Timmy's Rock)	13	13	31	13	MAS	
East Beach, Westport	0	nd	nd	0	MAS	
Gooseberry Neck, Westport	0	1	0	1	LCES	

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Horseneck Beach State Reservation, Westport	9	10	15	10	LCES	
Baker's Beach / Westport Town Beach, Westport	4	4	0	2	MAS	
Speaking Rock, Westport	0	nd	nd	0	MAS	
Fishing Rock, Westport	0	nd	nd	0	MAS	
Acoaxet, Westport	0	0	0	0	TNCRI	
Cockeast Pond (Elephant Rock), Westport	2	2	5	2	TNCRI	
Richmond Pond, Westport	2	2	7	2	TNCRI	
Bay Point, Swansea	nd	nd	nd	nd		
<b>ELIZABETH ISLANDS</b>						
Naushon I. – Tarpaulin Cove	1	1	nd	0	M. Sharon, R. Thieler	
Naushon I. – Robinson's Hole	nd	nd	nd	nd		
Naushon I. – West Beach	nd	nd	nd	nd		
Naushon I. – Crescent Beach	1	1	nd	0	M. Sharon	
Naushon I. – Kettle Cove	1	1	nd	0	M. Sharon, R. Thieler	
Pasque I. - Robinson's Hole	nd	nd	nd	nd		
Pasque I. - Cobbly	nd	nd	nd	nd		
Pasque I. - Quicks Hole	nd	nd	nd	nd		
Nashawena I. - Quicks Hole	nd	nd	nd	nd		
Nashawena I. - Canapitsit	nd	nd	nd	nd		
Cuttyhunk I., Gosnold	1	1	nd	0	DFW	Cuttyhunk was visited only on 6/19.
Penikese I., Gosnold	0	0	0	0	DFW	
<b>MARTHA'S VINEYARD</b>						
Eastville Beach, Oak Bluffs	0	0	0	0	MAS	
Doug's Cove Preserve, Oak Bluffs	0	nd	nd	0	MVLBC	



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Harthaven, Oak Bluffs	2	4	0	4	MAS	
Sylvia State Beach, Oak Bluffs	2	3	0	3	MAS	
Sylvia State Beach, Edgartown	1	1	0	1	MAS	One pair is suspected to have laid a first nest at Cow Bay before the Index window, then a second nest at Sylvia State Beach, Edgartown during the Index window, then a third nest back at Cow Bay after the Index window. This pair is counted in the Index Count only for Sylvia State Beach, Edgartown. It is included in the Total Count and Pairs with Fledge Data for both sites, but is only tallied once in statewide totals.
Little Gravel I., Oak Bluffs	0	nd	nd	0	MAS	
Big Gravel I., Oak Bluffs	0	nd	nd	0	MAS	
Sarson I., Oak Bluffs	0	nd	nd	0	MAS	
Haystack I., Edgartown	0	nd	nd	0	MAS	
Bend-in-the-Road Beach, Edgartown	0	0	0	0	MAS	
Cow Bay, Edgartown	1	5	1	5	MAS	One pair is suspected to have laid a first nest at Cow Bay before the Index window, then a second nest at Sylvia State Beach during the Index window, then a third nest back at Cow Bay after the Index window. This pair is counted in the Index Count only for Sylvia State Beach. It is included in the Total Count and Pairs with Fledge Data for both sites, but is only tallied once in statewide totals.
Yorke - Allen Point, Edgartown	0	nd	nd	0	MAS	
Little Beach / Eel Pd., Edgartown	2	2	3	2	BW	
Lighthouse Beach, Edgartown	0	0	0	0	BW	
Chappaquiddick Point Beach, Chappaquiddick	0	0	0	0	MVLBC	
Caleb's Pond, Chappaquiddick	0	nd	nd	0	BW	
Tom's Neck Farm/Pease Pond, Chappaquiddick	0	nd	nd	0	BW	
Cape Pogue Elbow / The Narrows, Chappaquiddick	4	4	5	4	TTOR	One pair at Cape Pogue Elbow is strongly suspected to have renested after its newly-hatched chicks were lost.
Little Neck, Chappaquiddick	0	0	0	0	TTOR	
Arruda's Point / The Jetties, Chappaquiddick	0	0	0	0	TTOR	

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Leland / East Beach, Chappaquiddick	6	6	9	6	TTOR	
Wasque, Chappaquiddick	0	0	0	0	TTOR	
Norton Point Beach, Edgartown	5	6	0	6	TTOR	
South Beach, Edgartown	0	0	0	0	BW	
Crackatuxet Pond, Edgartown	1	1	0	1	BW	
Edgartown Great Pond, Edgartown	6	7	0	7	BW, MVLBC	
Paqua Pond, Edgartown	0	0	0	0	BW	
Oyster Pond, Edgartown	0.5	0.5	0	0.5	BW	At Oyster Pond, a territorial male was calling and scraping from 5/2 to 6/9, but was never seen with a mate. This bird was counted as a half-pair.
Watcha Pond, West Tisbury	1	1	0	1	BW	
Sepiessa Point Reservation, West Tisbury	0	nd	nd	0	MVLBC	
Tisbury Great Pond / Quansoo, Chilmark	1	1	2	1	MVLBC, MAS	
Black Point Pond, Chilmark	0	0	0	0	BW	At Black Point Pond, a single, non-territorial Piping Plover was observed at the site on 5/11, 5/25, and 6/1.
Chilmark Pond, Chilmark	0	0	0	0	MVLBC	
Lucy Vincent Beach, Chilmark	0	0	0	0	BW	
Stonewall Beach, Chilmark	0	0	0	0	BW	
Squibnocket Beach/Long Beach, Chilmark	3	3	0	3	BW	
Long Point, Chilmark/West Tisbury	0	0	0	0	TTOR	
Philbin Beach, Aquinnah	0	nd	nd	0	BW	
Moshup Beach, Aquinnah	0	0	0	0	MVLBC	
Dogfish Bar, Aquinnah	9	9	9	9	BW	
Lobsterville Beach, Aquinnah	0	1	0	1	MAS	
Edey's I., Chilmark	0	nd	nd	0	MAS	
Menemsha Neck, Chilmark	0	0	0	0	MVLBC	
Menemsha Beach, Chilmark	nd	nd	nd	nd		
Great Rock Bight Preserve, Chilmark	0	0	0	0	MVLBC	

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Spring Point, West Tisbury	1	1	2	1	BW	New Piping Plover nesting site in 2014.
Cape Higgon, Chilmark	1	1	2	1	BW	
Seven Gates, West Tisbury	1	1	0	1	BW	New Piping Plover nesting site in 2014.
Cedar Tree Neck, W. Tisbury	2	2	4	2	BW	
Paul's Point, West Tisbury	1	1	3	1	BW	
Lambert's Cove, West Tisbury	0	0	0	0	BW	
Northern Pines Shores, Tisbury	0	nd	nd	0	MAS	
West Tashmoo, Tisbury	3	3	9	3	BW	
East Tashmoo, Tisbury	0	0	0	0	MAS	
Wilfrid's Pond Preserve, Tisbury	0	0	0	0	MVLBC	
Mink Meadows /West Chop, Tisbury	3	3	4	3	MAS	
Grove Avenue Beach, Tisbury	0	nd	nd	0	MVLBC	
Beach Road Causeway, Tisbury	0	nd	nd	0	MAS	
Maciel Marine/Ferry Boat I./Lagoon Pond, Vineyard Haven	0	nd	nd	0	MAS	
Nomans Land I. NWR	0	nd	nd	0	USFWS	
<b>NANTUCKET</b>						
Great Point	2	2	2	2	TTOR, USFWS	
The Galls	3	3	1	3	TTOR	
Coskata-West Beach	2	2	0	2	TTOR	
Coatue	2	2	0	2	NCF	
Coskata-East Beach	0	0	0	0	TTOR	
Coskata Inlet/The Haulover	0	0	0	0	NCF	
Wauwinet	0	nd	nd	0	MAS	
Squam Pond / Squam Road	0	0	0	0	NCF	
Quidnet/Sesachacha Pond/Greenhills	2	3	3	3	MAS	
Hoicks Hollow	0	nd	nd	0	MAS	
Low Beach	0	0	0	0	Nantucket	

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Tom Nevers	0	0	0	0	NCF	
Surfside (Fisherman's and Nobadeer portions only)	1	1	2	1	Nantucket	
Surfside (Western Ave. portion only)	2	3	2	3	MAS	
Hummock Pond	0	0	0	0	NCF	
West Hummock Pond	1	1	0	1	NCF	
Smith Point / Esther I.	4	4	1	4	Nantucket, MAS	At Smith Point, a reported Index Count of 3 pairs and Total Count of 5 pairs were not supported by the data provided, which suggested that both Index and Total Counts should be 4 pairs.
Eel Point	10	10	11	10	NCF	
Dionis Beach	0	0	0	0	Nantucket	
East Hallowell Lane	0	nd	nd	0	MAS	
Jetties Beach / Steps Beach / Washing Pond	3	3	3	3	Nantucket	At Jetties Beach, a reported Index Count of 2 pairs and Total Count of 4 pairs were not supported by the data provided, which suggested that both Index and Total Counts should be 3 pairs.
Monomoy Creeks	0	0	0	0	NCF	
UMass Field Station	0	0	0	0	NCF	
Quaise Point	0	0	0	0	Nantucket	
Polpis Harbor, Ram I., and Medouie Point	0	0	0	0	NCF	
Long Pond	0	0	0	0	NCF	
Madaket Beach	nd	nd	nd	nd		
Tuckernuck I. - Whale Point	3	3	2	3	TLT, E. Ray, T. Taylor, R. Veit	
Tuckernuck I. - Bigelow's Point	1	1	4	1	TLT, E. Ray, T. Taylor, R. Veit	
Tuckernuck I. - North Pond	1	1	3	1	TLT, E. Ray, T. Taylor, R. Veit	

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Tuckernuck I. - East Pond	0	0	0	0	TLT, E. Ray, T. Taylor, R. Veit	
Muskeget I.	3 - 4	3 - 4	nd	0	MAS, E. Ray	Muskeget I. was visited only on 5/30 and 7/30. Data from 5/30 were used for the Index and Total Counts. For the statewide Index and Total Counts, a conservative estimate of 3 pairs was used.
"Minimusk" I.	0	0	0	0	MAS	"Minimusk" I. was underwater at high tide and was presumed to have no nesting Piping Plovers.
<b>UNADJUSTED TOTALS</b>	<b>645</b>	<b>681.5</b>	<b>763</b>	<b>665.5</b>		
<b>ADJUSTED TOTALS</b>		<b>663</b>		<b>648</b>		

<sup>a</sup> *Index Count* = number of pairs counted between 1-9 June 2014, the standardized *Index Count* period for the Atlantic Coast population.

<sup>b</sup> *Total Count* = total number of territorial or breeding pairs present at a site for at least 2 weeks during the breeding season.

<sup>c</sup> *Chicks fledged* are defined as chicks  $\geq 25$  days of age or observed in flight, whichever occurs first. Number of *Pairs with fledge data* includes all pairs for which number of *chicks fledged* was determined; this includes not only pairs that successfully fledged chicks, but also pairs for which no nests were found, pairs that nested unsuccessfully, and pairs whose chicks failed to fledge.

<sup>d</sup> Source = primary source(s) that provided monitoring data: Barnstable = Town of Barnstable, BW = BiodiversityWorks, Chatham = Town of Chatham, DCR = Massachusetts Department of Conservation and Recreation, Dennis = Town of Dennis, DFW = Massachusetts Division of Fisheries & Wildlife, Duxbury = Town of Duxbury, ECGA = Essex County Greenbelt Association, LCES = Lloyd Center for Environmental Studies, MAS = Massachusetts Audubon Society, MVLBC = Martha's Vineyard Land Bank Coalition, Nantucket = Town of Nantucket, NCF = Nantucket Conservation Foundation, NPS = National Park Service, Orleans = Town of Orleans, Plymouth = Town of Plymouth, TLT = Tuckernuck Land Trust, TNCRI = The Nature Conservancy - Rhode Island Chapter, TTOR = The Trustees of Reservations, USACE = U.S. Army Corps of Engineers, USFWS = U.S. Fish & Wildlife Service, Winthrop = Town of Winthrop

### Erratum

An earlier version of this report incorrectly stated the number of sites with one or more breeding pairs and the number of sites visited at least once with no breeding detected.