

**SUMMARY OF THE  
2012 MASSACHUSETTS PIPING PLOVER CENSUS**

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# SUMMARY OF THE 2012 MASSACHUSETTS PIPING PLOVER CENSUS

## ABSTRACT

This report summarizes data on abundance, distribution, and reproductive success of Piping Plovers (*Charadrius melodus*) in Massachusetts during the 2012 breeding season. Observers reported breeding pairs of Piping Plovers present at 146 sites; 132 additional sites were surveyed at least once, but no breeding pairs were detected at them. The *Index Count* (statewide census conducted 1-9 June) was 663 pairs, and the *Adjusted Total Count* (estimated total number of breeding pairs statewide for the entire 2012 breeding season) was 676 pairs. A total of 564 chicks were reported fledged in 2012, for an overall productivity of 0.85 chicks fledged per pair, based on data from 660 of 676 (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 also is 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 2012, 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 a total of 278 sites in Massachusetts in 2012 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 2012, 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.

## RESULTS

Observers reported breeding Piping Plovers at 146 sites in Massachusetts in 2012. An additional 132 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 2012 was 676 pairs (Table 1). The *Index Count* in 2012 was 663 pairs, or 98 % of the *Adjusted Total Count*. A total of 564 chicks were reported fledged in 2012, resulting in overall productivity of 0.85 chicks fledged per pair, based on data from 660 of 676 (98%) pairs (Table 1). By comparison, in 2011 the *Index Count* was 630.5 pairs, the *Adjusted Total Count* was 655 pairs, and overall productivity was 1.18 chicks fledged per pair (Melvin 2012).

Two regions harbored 59% of the total breeding pairs in the state in 2012: the Lower Cape (38%) and the Upper Cape (21%) (Table 1). Individual sites with the largest numbers of pairs (*Total Count*) were: South Beach, Chatham (60 pairs); Sandy Neck, Barnstable (37 pairs); South Monomoy Island, Chatham (37 pairs); Crane Beach, Ipswich (29 pairs); Parker River National Wildlife Refuge, Newbury and Rowley (27 pairs); Plymouth Long Beach, Plymouth (23 pairs); North Beach Island, Chatham (18 pairs); Race Point-South/High Head, Provincetown/Truro (18 pairs); Duxbury Beach, Duxbury/Plymouth (14 pairs); Long Point/Wood End, Provincetown (14 pairs); Little Beach/Barney's Joy (Allen's Pond), Dartmouth (14 pairs); Springhill Beach, Sandwich (13 pairs); Sampson's Is.-Dead Neck, Barnstable (13 pairs); Nauset Spit (Heights), Orleans (11 pairs); Revere Beach, Revere (10 pairs); Marconi Beach, Wellfleet (10 pairs); and Eel Point, Nantucket (10 pairs). Although the 17 largest sites, *i.e.*, those with  $\geq 10$  pairs, supported 53% of all pairs in the state, the smallest sites (1-3 pairs,  $n = 95$  sites) were collectively also important, accounting for over 22% of all pairs.

## 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 2012. 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. Carolyn Mostello and Jennifer Longsdorf (MDFW) assisted with the finalization of this report.

## LITERATURE CITED

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Table 1. Abundance, distribution, and productivity of Piping Plovers in Massachusetts, 2012.

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
<b>NORTH SHORE</b>					
North Salisbury Beach, Salisbury	nd	nd	nd	nd	nd
South Salisbury Beach, Salisbury	nd	nd	nd	nd	nd
Plum Island town beaches, Newburyport/Newbury	1	1	1	1	USFWS
Parker River NWR, Newbury/Rowley	25	27	39	27	USFWS
Sandy Point State Res., Ipswich	6	6	2	6	USFWS
Crane Beach, Ipswich	29	29	19	29	TTOR
Coffin's Beach, Gloucester	1	1 <sup>e</sup>	0	1	DFW
Wingaersheek Beach, Gloucester	1	1	0	1	DFW
Good Harbor Beach, Gloucester	nd	nd	nd	nd	nd
Revere Beach, Revere	10	10	17	10	MAS, DCR
Winthrop Beach, Winthrop	3	3	3	3	MAS, DCR
Yirrell Beach, Winthrop	2	2	3	2	MAS
L Street Beach, Boston	0	nd	nd	0	MAS
<b>SOUTH SHORE</b>					
The Glades, Scituate	nd	nd <sup>f</sup>	nd	nd	MAS
Third Cliff, Scituate	2	2	7	2	MAS
Fourth Cliff, Scituate	1	1	0	1	MAS
Humarock, Scituate	0	0	0	0	MAS
Rexhame Beach, Marshfield	nd	nd <sup>g</sup>	nd	nd	MAS
Duxbury Beach, Duxbury/Plymouth	14	14	13	14	MAS, Duxbury
Saquish, Plymouth	nd	nd <sup>h</sup>	nd	nd	MAS
Plymouth Long Beach, Plymouth	23	23	21	23	Plymouth
Ellisville, Plymouth	2	2	1	2	MAS, FEM
Sagamore Beach, Plymouth	0	0	0	0	MAS
Sagamore Highlands, Sandwich	1	2	0	2	MAS
Sagamore Beach, Bourne	1	1	1	1	MAS
Scusset Beach State Res., Sandwich	1	1	2	1	MAS

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
<b>UPPER CAPE</b>					
Mashnee Dike, Bourne	1	1	0	1	ACOE
Bassetts Island, Bourne	0	nd	nd	0	MAS
Old Silver Beach, Falmouth	0	nd	nd	0	MAS
New Silver Beach, Falmouth	0	0	0	0	I. Nisbet
Little Island Beach, Falmouth	0	nd	nd	0	MAS
Chappaquoit Beach, Falmouth	0 <sup>i</sup>	nd	nd	0	MAS
Black Beach, Falmouth	1	1	4	1	MAS
Sippewisset, Falmouth	3	4	5	4	MAS
Woodneck Beach, Falmouth	1	1	0	1	MAS
Falmouth Heights, Falmouth	nd	nd	nd	nd	nd
Acapesket Beach, Falmouth	0	nd	nd	0	MAS
Menauhant Beach, Falmouth	1	1	0	1	MAS
Menauhant Yacht Club Beach, Falmouth	0	0	0	0	WBNRR
Washburn Island, Falmouth	2	3	0	3	WBNERR
South Cape Beach, Mashpee	5	6	1	6	WBNERR
New Seabury, Mashpee	1	1	0	1	WBNERR
Rock Landing/Maushop Village, Mashpee	0	nd	nd	0	MAS
Popponesset Spit, Mashpee	3	3	2	3	MAS
Town Neck Beach, Sandwich	2	2	1	2	MAS
Springhill Beach, Sandwich	13	13	3	13	MAS
East Sandwich Beach, Sandwich	7	7	4	7	MAS
Scorton (Neck) Creek, Sandwich	5	5	1	5	MAS
Scorton Shores, Sandwich	2	2	0	2	MAS
Sandy Neck, Barnstable	38	37	3	38	Barnstable
Rushy Marsh Pond Beach, Barnstable	0	nd	nd	0	MAS
Loop Beach, Barnstable	nd	nd	nd	nd	nd
Sampson's Is.-Dead Neck, Barnstable	13	13	10	13	MAS, SUNY-ESF
Bone Hill Road, Barnstable	0	0	0	0	MAS
Dowsets Beach, Barnstable	1	1 <sup>j</sup>	0	1	Barnstable
Long Beach, Barnstable	2	2	2	2	MAS
Craigville Beach, Barnstable	2 <sup>k</sup>	1	3	2 <sup>k</sup>	MAS

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Memorial Beach, Barnstable	0	0	0	0	MAS
Squaw Island, Barnstable	4	4	7	4	MAS
Squaw Is. Road / Causeway, Barnstable	0	0	0	0	MAS
Sea St./ Keyes Beach, Barnstable	0	nd	nd	0	MAS
Kalmus Park, Barnstable	6	6	0	6	Barnstable
Fortes Beach, Barnstable	0	nd	nd	0	MAS
Colonial Acres-Standish Way, Yarmouth	0	nd	nd	0	MAS
Gray's Beach, Yarmouth	1	1	nd <sup>l</sup>	0	MAS
Great Island - Smith Point, Yarmouth	1	2	0	1	MAS
Great Island Causeway, Yarmouth	2	2	1	2	MAS
Radio City Beach, Yarmouth	0	1	0	1	MAS
Seagull Beach, Yarmouth	5	5	14	5	MAS
Red Jacket Inn, Yarmouth	0	nd	nd	0	MAS
Bass River Beach / Smugglers, Yarmouth	0	nd	nd	0	MAS
West Dennis Beach, Dennis	6	6	12	6	Dennis
South Village Beach, Dennis	0	0 <sup>m</sup>	0	0 <sup>m</sup>	Dennis, MAS
Miramar Beach (Swan River), Dennis	1	1	2	1	MAS
Haigis Beach to Belmont, Dennis	0	nd	nd	0	MAS
Depot St. to Inman Rd., Dennis	0	nd	nd	0	MAS
Bayview, Dennis	0	nd	nd	0	MAS
Chapin Beach, Dennis	2	2	1	2	Dennis, SUNY-ESF
Mayflower Beach, Dennis	1	1	2	1	MAS
Corporation Beach, Dennis	0	nd	nd	0	MAS
Howes St. Beach, Dennis	0	nd	nd	0	MAS
Sesuit Harbor Beach, Dennis	0	nd	nd	0	MAS
Cold Storage Beach, Dennis	0	nd	nd	0	MAS
Sea St. (north side), Dennis	0	nd	nd	0	MAS
Coles Pond, Dennis	1	1	0	1	Dennis
Crowes Pasture / Quivett Neck, Dennis	0	0	0	0	Dennis
Wings Island, Brewster	0	0	0	0	MAS
Paine's Creek, Brewster	0	nd	nd	0	MAS
Mants Landing. Brewser	0	nd	nd	0	MAS

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Robbins Hill Beach, Brewster	0	nd	nd	0	MAS
Saint's Landing, Brewster	0	nd	nd	0	MAS
Breakwater Beach, Brewster	0	nd	nd	0	MAS
Point of Rocks Landing, Brewster	0	nd	nd	0	MAS
Ellis Landing, Brewster	0	nd	nd	0	MAS
Linnell Landing Beach, Brewster	0	nd	nd	0	MAS
Crosby Landing Beach, Brewster	1	2	1	2	MAS
Earle Rd. Beach, Harwich	nd	nd	nd	nd	nd
Grey Neck Road Beach, Harwich	0	0	0	0	MAS
Allens Harbor, Harwich	1	1	0	1	MAS
Belmont Condos, Harwich	0	0 <sup>n</sup>	0	0	MAS
Bank St./Merkel Beach/Wychmere, Harwichport	3	3	7	3	MAS
Saquatucket, Harwich	0	0	0	0	MAS
Red River Beach, Harwich	0	2 <sup>o</sup>	0	2 <sup>o</sup>	MAS
<b>LOWER CAPE</b>					
Pleasant St. Beach, Chatham	1	1 <sup>o</sup>	0	1 <sup>o</sup>	MAS
Forest Beach, Chatham	1	1	1	1	MAS
Chatharbor Lane (Mill Ck.), Chatham	1	1	1	1	MAS
Cockle Cove, Chatham	0	0	0	0	MAS
Ridgevale Beach, Chatham	2	2	4	2	MAS
Harding Shores, Chatham	0	0	0	0	MAS
Harding Beach, Chatham	3	4	4	4	MAS
Harding Beach Point, Chatham	1	1	0	1	MAS
North Monomoy Island, Chatham	0	0 <sup>p</sup>	0	0	USFWS
Minimoy Island, Chatham	0	0 <sup>p</sup>	0	0	USFWS
South Monomoy Island, Chatham	35	37	54	37	USFWS
South Beach, Chatham	56	60	74	60	MAS
Morris Island dredge spoil, Chatham	0	0	0	0	MAS
Tern Island, Chatham	0 <sup>q</sup>	0 <sup>q</sup>	0	0	MAS
Clafin Landing/ Chatham Bars Inn, Andrew Harding Way, Chatham	0	nd	nd	0	MAS

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Linnell Lane, Chatham	0	nd	nd	0	MAS
North Beach Island, Chatham	18	18	10	18	Chatham
North (Nauset) Beach, Chatham	8	8	10	7	Chatham
North (Nauset) Beach, Orleans	9	9	15	9	Orleans
Nauset Spit (Heights), Orleans	10 <sup>r</sup>	11 <sup>r</sup>	4	11 <sup>r</sup>	Orleans
New Island, Orleans/Eastham	0 <sup>r</sup>	1 <sup>r</sup>	0	1 <sup>r</sup>	NPS, Orleans
Skaket Beach, Orleans	1	1	0	1	Orleans
Rock Harbor (north and south sides), Eastham	0	nd	nd	0	MAS
Dyer Prince Beach, Eastham	0	nd	nd	0	MAS
Boat Meadow Beach and Landing, Eastham	0	nd	nd	0	MAS
First Encounter Beach, Eastham	0	0 <sup>s</sup>	0	0	MAS
Campground Beach, Eastham	0	nd	nd	0	MAS
Cooks Beach, Eastham	0	nd	nd	0	MAS
So. Sunken Meadow, Eastham	1	2	0	2	MAS
Coast Guard Beach, Eastham	5	5	5	5	NPS
Nauset Light Beach, Eastham	0	0	0	0	NPS
Marconi Beach, Wellfleet	10	10	4	10	NPS
Marconi Station, Wellfleet	0	0	0	0	NPS
Lecount Hollow, Wellfleet	0	0	0	0	NPS
White Crest Beach, Wellfleet	1	1	2	1	NPS
Cahoon Hollow, Wellfleet	0	2 <sup>t</sup>	0	2 <sup>t</sup>	NPS
Lieutenant Island - SW, Wellfleet	0	0	0	0	MAS
Lieutenant Island - NE (The Hook), Wellfleet	0	nd	nd	0	MAS
Lieutenant Island - NW, Wellfleet	1 <sup>u</sup>	1 <sup>u</sup>	0	1 <sup>u</sup>	MAS
Old Wharf Point, Wellfleet	0	nd	nd	0	MAS
Field Point /Fox Is. WMA, Wellfleet	1 <sup>u</sup>	1 <sup>u</sup>	4	1 <sup>u</sup>	MAS
Indian Neck - North Beach / Burton Baker Beach, Wellfleet	0	nd	nd	0	MAS
Herring River Mouth - Powers Landing - Mayo Beach, Wellfleet	0	nd	nd	0	MAS
Jeremy Point, Wellfleet	6	6	6	6	NPS
Great Is., Wellfleet <sup>v</sup>	8	9	5	9	NPS

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Duck Harbor, Wellfleet	2	2	0	2	NPS
Bound Brook, Wellfleet	0	0	0	0	NPS
Ryder Beach, Truro	0	0 <sup>w</sup>	0	0	MAS
Fisher Beach - North (Pamet Harbor -South), Truro <sup>x</sup>	1	1	0	1	MAS
Fisher Beach - South, Truro <sup>x</sup>	2	2	4	2	MAS
Corn Hill Beach (Pamet Harbor - North), Truro	3	3	3	3	MAS
Between Corn Hill Beach and Beach Point, Truro	0	nd	nd	0	MAS
Pilgrim Beach/Beach Point, Truro	3 <sup>y</sup>	2 <sup>y</sup>	3 <sup>y</sup>	3 <sup>y</sup>	MAS
Newcomb Hollow, Wellfleet / Truro	3	3	0	3	NPS
Ballston Beach, Truro	7	9	1	9	NPS
Longnook Beach, Truro	2	3 <sup>z</sup>	0	3 <sup>z</sup>	NPS
Coast Guard Beach, Truro	3	3 <sup>z</sup>	0	3 <sup>z</sup>	NPS
Dead Forest / Head of the Meadow, Truro	5 <sup>aa</sup>	8 <sup>aa</sup>	0	8 <sup>aa</sup>	NPS
High Head, Truro	2	2	0	2	NPS
Race Point-South Beach / High Head, Provincetown / Truro	18 <sup>aa</sup>	18 <sup>aa</sup>	0	18 <sup>aa</sup>	NPS
Race Point-North/Hatches Harbor, Provincetown	8	8	0	8	NPS
Long Point/Wood End, Provincetown	14	14	3	14	NPS
Herring Cove Beach, Provincetown	0	0	0	0	NPS
<b>BUZZARDS BAY - NORTHWEST<sup>bb</sup></b>					
Stony Point Dike, Wareham	2	2	4	2	ACOE
Long Beach Point, Wareham	1	1	2	1	MAS
Little Harbor Beach, Wareham	1	1	nd <sup>cc</sup>	0 <sup>cc</sup>	MAS
Ram Is., Marion	0	0	0	0	MAS
Ram Is., Mattapoisett	0	0	0	0	DFW
Strawberry and Angelica Points, Mattapoisett	3	3	≥ 2	1	MAS, DFW
Round Is., Fairhaven	nd	nd	nd	nd	nd
West Island, Fairhaven	6	6	11	6	LCE

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Winsegansett Heights, Fairhaven	0	0 <sup>dd</sup>	0	0	LCE
South Shore Marshes WMA (Mirey Neck), Fairhaven	1	1	nd	0	DFW, MAS
Round Hill Beach, Dartmouth	1	1	0	1	MAS
Salters Pond, Dartmouth	1	1	0	1	MAS
Nonquitt, Dartmouth	2	2	6	2	MAS
Demarest Lloyd State Park, Dartmouth	6	6	8	6	LCE
Little Beach/Barney's Joy, Dartmouth	13	14	12	14	MAS
East Beach, Westport	0	nd	nd	0	MAS
Gooseberry Neck, Westport	1	1	0	1	LCE
Horseneck Beach State Reservation, Westport	7	7	4	7	LCE
Baker's Beach / Westport Town Beach, Westport	2	2	1	2	MAS
Acoaxet, Westport	0	0	0	0	TNC-RI
Cockeast Pond / Elephant Rock Beach, Westport	2	2	3	2	TNC-RI
Richmond Pond, Westport	2	2	2	2	TNC-RI
Bay Point, Swansea	0	0	0	0	A. Waring
<b>ELIZABETH ISLANDS</b>					
Naushon Is. – Tarpaulin Cove	1	1	nd	0	R. Thieler, DFW
Naushon Is. – Robinson's Hole	0	nd	nd	0	DFW
Naushon Is. – West Beach	0	nd	nd	0	DFW
Naushon Is. – Crescent Beach	1	1	nd	0	DFW
Naushon Is. – Kettle Cove	0	nd	nd	0	DFW
Pasque Island-Robinson's Hole	1	1	nd	0	DFW
Pasque Island-Cobbly	nd	nd	nd	nd	nd
Pasque Island-Quicks Hole	0	nd	nd	0	DFW
Nashawena Island-Quicks Hole	1	1	nd	0	DFW
Nashawena Island-Canapitsit	1	1	nd	0	DFW
Cuttyhunk Island, Gosnold	2	2	nd	0	DFW
Penikese Island, Gosnold	0	0	0	0	DFW

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
<b>MARTHA'S VINEYARD</b>					
Eastville Beach, Oak Bluffs	0	0	0	0	MAS
Harthaven, Oak Bluffs	1	1	2	1	MAS
Sylvia State Beach, Oak Bluffs	3 <sup>ee</sup>	3 <sup>ee</sup>	1	3 <sup>ee</sup>	MAS
Sylvia State Beach, Edgartown	0	0	0	0	MAS
Cow Bay / Bend-in-the-Road, Edgartown	1 <sup>ee</sup>	2 <sup>ee</sup>	0	2 <sup>ee</sup>	MAS
Sarson Is., Oak Bluffs	0	nd	nd	0	MAS
Little Gravel Is., Oak Bluffs	0	0	0	0	MAS
Big Gravel Is., Oak Bluffs	0	0	0	0	MAS
Haystack Is., Edgartown	0	0	0	0	MAS
Yorke - Allen Point, Edgartown	0	0	0	0	MAS
Little Beach / Eel Pd., Edgartown	2	2	0	2	BW
Lighthouse Beach, Edgartown	0	0	0	0	BW
Caleb's Pond, Chappaquiddick	0	0	0	0	BW
Chappaquiddick Point Beach, Chappaquiddick	0	0	0	0	MVLB
Cape Pogue Elbow / The Narrows, Chappaquiddick	4	4	5	4	TTOR
Little Neck, Chappaquiddick	0	0	0	0	TTOR
Arruda's Point / The Jetties, Chappaquiddick	1 <sup>ff</sup>	0	0	0	TTOR
Cape Pogue Bay - South, Chappaquiddick	0 <sup>gg</sup>	0 <sup>gg</sup>	0	0 <sup>gg</sup>	BW
Leland / East Beach, Chappaquiddick	5	5	4	5	TTOR
Wasque, Chappaquiddick	0	0	0	0	TTOR
Norton Point Beach, Chappaquiddick	0	0	0	0	TTOR
Norton Point Beach, Edgartown	6	6	1	6	TTOR
Katama Point Beach, Edgartown	nd	nd <sup>hh</sup>	nd	nd	MVLB
South Beach, Edgartown	0	0	0	0	BW
Crackatuxet Cove, Edgartown	0	0	0	0	BW
Edgartown Great Pond, Edgartown	7	7	7	7	BW, MVLB
Jobs Neck, Edgartown	nd	nd	nd	nd	nd
Paqua Pond, Edgartown	1	1	2	1	BW
Oyster Pond, Edgartown	1	1	3	1	BW
Butler's Pond, W. Tisbury	1	1	2	1	BW

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Watcha Pond, W. Tisbury	0	0	0	0	BW
Long Point, Chilmark	0	0	0	0	TTOR
Tisbury Great Pond / Quansoo, Chilmark	4	4	2	4	MAS, MVLB
Black Point Pond, Chilmark	1	0	0	0	BW
Chilmark Pond, Chilmark	1	1	1	1	BW, MVLB
Lucy Vincent Beach, Chilmark	0	0	0	0	BW
Stonewall Beach, Chilmark	0	0	0	0	BW
Squibnocket Beach / Long Beach, Aquinnah	2	2	3	2	BW
Philbin Beach, Aquinnah	0	nd	nd	0	BW
Moshup Beach, Aquinnah	0	0	0	0	MVLB
Dogfish Bar, Aquinnah	6	7	5	7	BW
Lobsterville Beach, Aquinnah	1	1	0	1	MAS
Menemsha Neck, Aquinnah	0	nd	nd	0	MVLB
Edey's Island, Chilmark	0	0	0	0	MAS
Menemsha Beach, Chilmark	0	nd	nd	0	MAS
Lambert's Cove, West Tisbury	1 <sup>ii</sup>	2 <sup>ii</sup>	0	2 <sup>ii</sup>	BW
Cedar Tree Neck, W. Tisbury	2 <sup>ii</sup>	2 <sup>ii</sup>	2	2 <sup>ii</sup>	BW, SMF
Great Rock Bight Preserve, Chilmark	0	0	0	0	MVLB
Sepiessa Point Reservation, West Tisbury	nd	nd	nd	nd	nd
West Tashmoo, Tisbury	2	2	4	2	BW
East Tashmoo, Tisbury	0	0 <sup>ii</sup>	0	0	MAS
Mink Meadows /West Chop, Tisbury	3	3	2	3	MAS
Northern Pines Shores, Tisbury	nd	nd	nd	nd	nd
Wilfrid's Pond Preserve, Tisbury	0	0	0	0	MVLB
Maciel Marine / Lagoon Rd. Ferry Boat Is., Vineyard Haven	0	nd	nd	0	MAS
Nomans Land Island NWR	0	0	0	0	USFWS
<b>NANTUCKET</b>					
Great Point	1	1	3	1	TTOR
The Galls	3	3	9	3	TTOR
Coskata-West Beach	3	3	3	3	TTOR

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
Coatue	3	5	0	5	NCF
Coskata-East Beach	0	0	0	0	TTOR
Coskata Inlet/The Haulover	0	0	0	0	NCF
Wauwinet	0	0	0	0	MAS
Squam Pond / Squam Road	0	0	0	0	MAS, NCF
Quidnet/Sesachacha Pond	2	2	0	2	MAS
Low Beach	0	0	0	0	Nantucket
Tom Nevers	0	0	0	0	Nantucket, NCF
South Pastures <sup>kk</sup>	0	0	0	0	NCF
Surfside	1 <sup>ll</sup>	1 <sup>ll</sup>	3 <sup>ll</sup>	1 <sup>ll</sup>	Nantucket, MAS
Hummock Pond	1	1	0	1	NCF
Smith Point / Esther Is.	4	4	0	4	Nantucket
Eel Point	10	10	11	10	NCF
Dionis Beach	0	0	0	0	Nantucket
East Hallowell Lane	0	0	0	0	MAS
Jetties Beach	2	2	2	2	Nantucket
Monomoy Creeks	0	0	0	0	NCF
UMass Field Station	0	0	0	0	NCF
Quaise Point	0	0	0	0	Nantucket
Ram Is. and Medouie Point, Polpis Harbor	0	0	0	0	NCF
Pocomo	0	0	0	0	MAS
Long Pond	0	0	0	0	NCF
Madaket Beach	0	0	0	0	Nantucket
Tuckernuck Is. - Whale Point	3	4 <sup>mm</sup>	0	4 <sup>mm</sup>	TLT
Tuckernuck Is. - Bigelow's Point	3	4 <sup>mm</sup>	0	4 <sup>mm</sup>	TLT
Tuckernuck Is. - North Pond	0	0	0	0	TLT
Tuckernuck Is. - East Pond	0	0	0	0	TLT
Tuckernuck - North Lagoon	0	0	0	0	TLT
Muskeget Is.	2	4	nd	0	MAS
"Minimusk" Is.	nd	nd	nd	nd	nd

Location	Number of pairs		No. chicks fledged <sup>c</sup>	No. pairs with fledge data <sup>c</sup>	Source <sup>d</sup>
	Index Count <sup>a</sup>	Total Count <sup>b</sup>			
<b>UNADJUSTED TOTALS</b>	<b>663</b>	<b>689</b>	<b>564</b>	<b>673</b>	
<b>ADJUSTED TOTALS</b>		<b>676</b>		<b>660</b>	

<sup>a</sup> *Index Count* = number of pairs counted between 1-9 June 2012, 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 = the primary source(s) that provided monitoring data: ACOE = U.S. Army Corps of Engineers, 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 and Wildlife, Duxbury = Town of Duxbury, FEM = Friends of Ellisville Marsh, LCE = Lloyd Center for the Environment, MAS = Massachusetts Audubon Society, MVLB = Martha's Vineyard Land Bank, Nantucket = Town of Nantucket, NCF = Nantucket Conservation Foundation, NPS = National Park Service, Orleans = Town of Orleans, Plymouth = Town of Plymouth, TLT = Tuckernuck Land Trust, TNC-RI = The Nature Conservancy - Rhode Island Chapter, TTOR = The Trustees of Reservations, USFWS = U.S. Fish and Wildlife Service, WBNERR = Waquoit Bay National Estuarine Research Reserve.

<sup>e</sup> At Coffins Beach, Gloucester, eight Piping Plovers were observed on 16 May. It is likely that many or most of these were feeding birds associated with the large nesting population on Crane Beach.

<sup>f</sup> At The Glades, Scituate, no Piping Plovers were observed on 15 June, the only date the site was visited.

<sup>g</sup> At Rexhame Beach, Marshfield, Piping Plovers tracks were observed along the top of a section of dunes on 30 April, but not on the subsequent and only other visit on 14 May.

<sup>h</sup> Saquish, Plymouth was only surveyed once, on 11 June. Two Piping Plovers were observed foraging on the western section of Crescent Beach (Saquish Neck).

<sup>i</sup> At Chappaquoit Beach, Falmouth, an adult Piping Plover was observed scraping at the top of the foredunes during the first survey of the site on 8 June. It was not observed on four subsequent visits in June. It may have been the same apparently unpaired adult seen on Black Beach, Falmouth earlier and on 12 June.

<sup>j</sup> At Dowses Beach, Barnstable, on 19 May only, a second pair was seen foraging.

<sup>k</sup> At Craigville Beach, Barnstable, a second pair was observed for four days between 6-10 June, courting and with many scrapes, before leaving the site and not returning. We presume this is a pair that had previously nested unsuccessfully elsewhere. They are included in the *Index Count* and *No. pairs with fledge data* for the site, but not in the *Total Count* or statewide total.

- <sup>l</sup> At Gray's Beach, Yarmouth, four chicks hatched from the single nest there, but the number of chicks fledged was not reported.
- <sup>m</sup> At South Village Beach, Dennis, two Piping Plovers were present from approximately 8-18 May. No mating or courtship behavior was observed. No nests were found, but two scrapes and numerous tracks were observed. They were not tallied as a breeding pair because they were not present for  $\geq 2$  weeks.
- <sup>n</sup> At Belmont Condos, Harwich, a single Piping Plover was regularly observed, but no scrapes or other signs of nesting activity were reported.
- <sup>o</sup> Pair 1 that nested unsuccessfully at Red River Beach, Harwich, in May was believed to have subsequently re-nested at nearby Pleasant St. Beach, Chatham, during the Index window. This pair is included in the *Total Count* and *No. pairs with fledge data* for both sites, but is tallied only once in the statewide total.
- <sup>p</sup> Although no territorial pairs were observed at North Monomoy Is. or Minimoy Is., Chatham, Piping Plovers were observed foraging on adjacent intertidal flats.
- <sup>q</sup> At Tern Island, Chatham, although Piping Plovers regularly foraged in intertidal area, no breeding behavior or evidence of nesting was observed.
- <sup>r</sup> At Nauset Spit, Orleans, pair 3, whose first nest attempt was depredated by a crow, was believed to have re-nested at New Is. in mid-June. This pair is included in the *Index Count* for Nauset Spit, but not New Is. It is included in the *Total Count* and *No. pairs with fledge data* for both sites, but only once in the statewide total.
- <sup>s</sup> At First Encounter Beach, Eastham, a single Piping Plover was observed on one occasion.
- <sup>t</sup> At Cahoon Hollow, Wellfleet, the two pairs found with one-egg clutches on 19 and 28 June, respectively, were likely pairs that had been present and tallied earlier in the season at other sites. These two pairs are included in *Total Count* and *No. pairs with fledge data* for Cahoon Hollow, but not in statewide tallies for these parameters.
- <sup>u</sup> A pair that nested twice unsuccessfully at Lieutenant Is. – NW is believed to have relocated to Field Pt. around the first part of the 1-9 Jun *Index Count* period. This pair is tallied in the *Index Count*, *Total Count*, and *No. pairs with fledge data* for both sites, but only once in the state totals for these parameters.
- <sup>v</sup> Great Island, Wellfleet includes both NPS and town owned property.
- <sup>w</sup> At Ryder Beach, Truro, a single Piping Plover was observed on 2 occasions during the breeding season.
- <sup>x</sup> Fisher Beach – North (Pamet Harbor – South) and Fisher Beach – South were lumped together as a single site (Fisher Beach) prior to 2012 census.
- <sup>y</sup> At Beach Point, Truro, two nesting pairs were found and an apparent third pair was observed infrequently, including on 8 June acting territorial toward the two nesting pairs. A single male scraped and defended territory from 30 June to 10 July; it is not tallied as a “nesting” half-pair because it was present  $\leq 2$  weeks.
- <sup>z</sup> At Coast Guard Beach, Truro, pair 3, after two unsuccessful nest attempts, is believed to have relocated to Longnook Beach, Truro and re-nested unsuccessfully. This pair is tallied in the *Total Count* for both sites, but only once in statewide tallies of *Total Count* and *No. pairs with fledge data*.
- <sup>aa</sup> Three pairs that nested unsuccessfully at Race Point – South were believed to have eventually moved to Head of the Meadow and nested there. These pairs are included in *Total Count* and *No. pairs with fledge data* for each site, but are tallied only once in statewide tallies for these parameters.
- <sup>bb</sup> The Buzzards Bay – Northwest region comprises sites along the northwestern shore of Buzzards Bay. It was referred to as “Bristol County” in previous reports, but in fact encompasses portions of both Bristol and Plymouth counties.

- cc At Little Harbor Beach, Wareham, four chicks were reported to have hatched from the single pair reported, but no data were reported on number of chicks fledged.
- dd At Winsegansett Heights, Fairhaven, although no Piping Plovers nested in 2012, one adult was observed in the intertidal zone on 25 May.
- ee At Joseph Sylvia State Beach – Oak Bluffs, the third pair was present during the *Index Count* period and for at least two weeks, but subsequently moved to Cow Bay Beach to nest. This pair is tallied in the statewide *Index Count* for Sylvia State Beach only. It is reported in the *Total Count* and *No. pairs with fledge data* for both sites, but in the statewide tally for *Total Count* and *No. pairs with fledge data* for Cow Bay only.
- ff At Arruda's Point/The Jetties on Chappaquiddick, a pair was present for only ten days (24 May-3 June). It is tallied for this site in the *Index Count*, but not in the *Total Count*.
- gg Cape Pogue Bay – South included the Potter/Cole and Tom's Neck Farm properties along the south shore of the Bay. Although a "pair" of plovers was observed at Tom's Neck Farm, Chappy between 7-20 June, the birds were just seen feeding and never exhibited nesting or territorial behavior. They are suspected to have been birds also using another nearby nesting area. It is not tallied as a pair for Cape Pogue Bay – South.
- hh Katama Point Beach, Edgartown, was visited only once between 1-15 May by staff of Martha's Vineyard Land Bank Commission. Neither Piping Plovers nor suitable habitat was observed.
- ii The pair that nested unsuccessfully at Lambert's Cove, West Tisbury, likely renested at Cedar Tree Neck, West Tisbury, as Pair 2/Nest 2A (found with 1 egg on 10 June). This pair is tallied in the *Index Count* and *Total Count* for both sites, but only once in statewide tallies of *Index Count*, *Total Count* and *No. pairs with fledge data*.
- jj Although no plovers nested at East Tashmoo, birds believed to be nesting at West Tashmoo were frequently seen nesting there.
- kk South Pastures, Nantucket is the narrow, eroding shoreline abutting the south shore of Nantucket, from Madequeham Valley east to, but not including, the Tom Nevers Fairgrounds.
- ll The full extent of nesting habitat at Surfside, Nantucket was not adequately monitored during much of the nesting season, so additional pairs may have been present. A pair with four chicks was photographed and reported to shorebird monitors on 21 June near Point of Breakers.
- mm At Tuckernuck Island, only three pairs could definitely be attributed to nesting at Bigelow Point and three to nesting at Whale Point during the *Total Count*. It is uncertain where the other two pairs nested. The three pairs attributed to Bigelow Point during the *Index Count* and the three pairs attributed to Whale Point during the *Index Count* were, in fact, present at those locations during that period.