

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS



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ABSTRACT

This report summarizes data on abundance, distribution, and reproductive success of Piping Plovers (*Charadrius melodus*) in Massachusetts during the 2017 breeding season. Observers reported breeding pairs of Piping Plovers present at 147 sites; 180 additional sites were surveyed at least once, but no breeding pairs were detected at them. The population increased 1.4% relative to 2016. The ***Index Count*** (statewide census conducted 1-9 June) was **633 pairs**, and the ***Adjusted Total Count*** (estimated total number of breeding pairs statewide for the entire 2017 breeding season) was **650.5 pairs**. A total of 688 chicks were reported fledged in 2017, for an overall productivity of **1.07 fledglings per pair**, based on data from 98.4% of pairs.

Prepared by: Natural Heritage & Endangered Species Program
Massachusetts Division of Fisheries & Wildlife

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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 2016, 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 318 sites in Massachusetts in 2016 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 2016, 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

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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*.

Median Lay and Hatch Dates

The median estimated date of first egg laid was calculated by using known and estimated dates of first egg laid. Two days were subtracted from Date Clutch Found when the nest was found at two eggs and four days were subtracted from Date Clutch Found when the nest was found at three eggs. For nests that were found at four eggs, only nests that successfully hatched were used and 33 days were subtracted from the hatch date to estimate dates of first egg laid. The median estimated hatch date was calculated using the known hatch date. For hatch dates that consisted of date ranges, the median date was used as the estimated hatch date.

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, in most cases using Piping Plover Online Data Entry System ([PIPLODES](#)). 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 147 sites in Massachusetts in 2017. An additional 180 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*** was **650.5 pairs**, a 1.4% increase over 2016 (641.5 pairs). The ***Index Count*** was **633 pairs** (vs. 622 pairs in 2016), or 97.3% of the *Adjusted Total Count* (Table 1).

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Distribution of breeding pairs by region (**Figure 1**) was very similar to 2016, with a slight decrease on the Lower Cape (33% in 2016) and slight increases in the South Shore (10% in 2016) and Buzzards Bay (7% in 2016). This is consistent with a longer-term shift in the population towards the North and South Shores during the past five years, relative to Cape Cod (which accounted for approximately 61% of the breeding population in 2011 versus 47% today; Melvin 2013). Sixteen sites with ten or more breeding pairs accounted for 53.3% of the Massachusetts breeding population, while 101 sites with three or fewer pairs accounted for 23.8%.

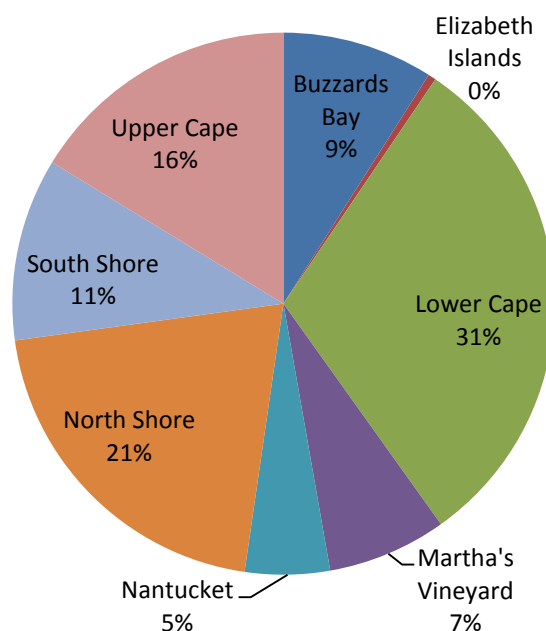


Figure 1. Distribution of Piping Plover breeding pairs by Massachusetts region in 2017, based on *Adjusted Total Counts* for each region.

In total, 688 chicks were reported fledged in 2017, resulting in overall productivity of **1.07 fledglings/pair**, based on data from 640 of 650.5 pairs (98.4%; the *adjusted number of pairs with fledge data*) (**Table 2**).¹ This represents a 26.7% decrease in productivity relative to 2016 (1.46 fledglings/pair). Productivity varied by region, ranging from 1.39 and 1.09 in the Lower Cape and Buzzards Bay, respectively, down to 0.87 and 0.82 in the South Shore and Martha's Vineyard, respectively. The North Shore (0.98), Upper Cape (0.89), and Nantucket (0.98) exhibited intermediate productivity (**Table 1**).

¹ The *unadjusted number of pairs with fledge data* was 657 (out of 668; 98.4 %).

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Table 1. Productivity by region

Region	2017	2016
Buzzard's Bay	1.09	1.86
Elizabeth Islands	0.00	0.00
Lower Cape	1.39	1.5
Martha's Vineyard	0.82	0.85
Nantucket	0.98	1.00
North Shore	0.98	1.40
South Shore	0.87	2.24
Upper Cape	0.89	1.24

Causes of nest loss are shown in **Figure 2**. The largest causes of nest loss were predation (known and suspected) and overwash/flooding. The pattern of nest loss by cause is similar to 2016, with a slight increase in Overwash/Flooding (27% vs 24% in 2016). **Figure 3** shows suspected predator type for nests likely and suspected to have been lost to predation.

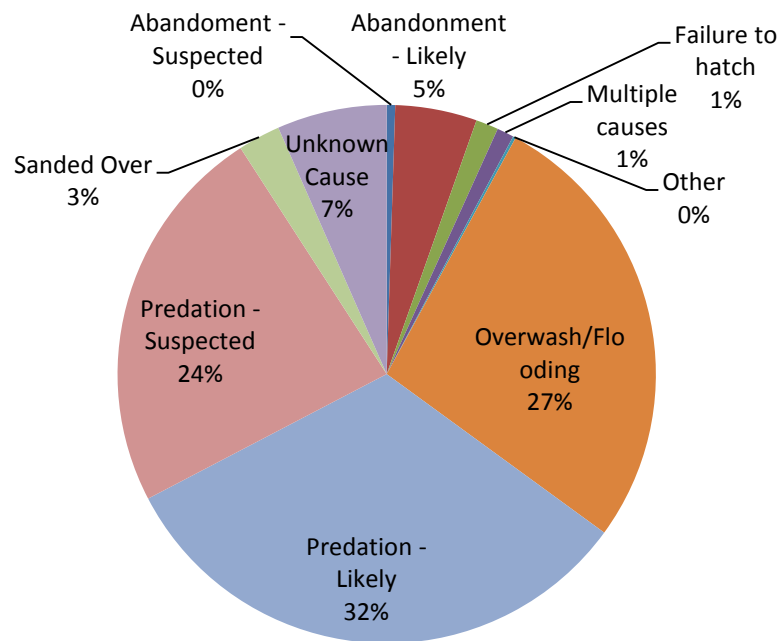


Figure 2. Causes of Piping Plover nest loss in Massachusetts, 2015 (n=591 nest attempts).

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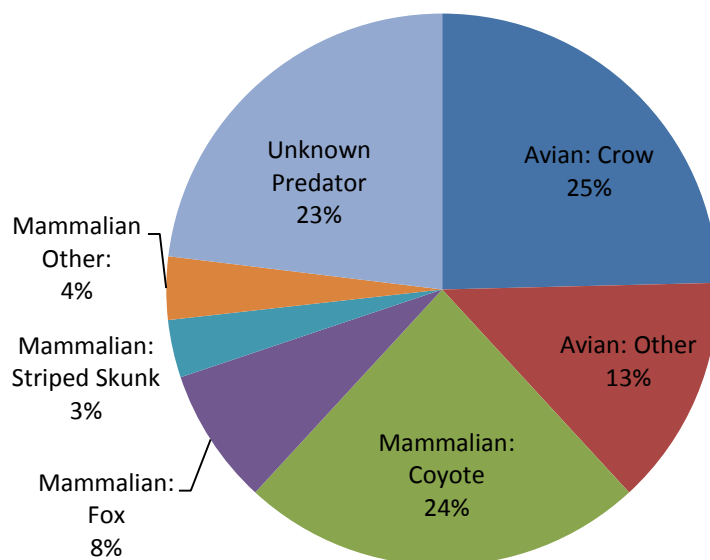


Figure 3. Percentages of nests lost to various predator types for nests suspected and likely to have been lost to predators in Massachusetts, 2016 (n=325).

The earliest first egg laid in the state was estimated to have been on April 17 at Pine Island (Angelica Point and Strawberry Point), Mattapoisett. Statewide, the median clutch initiation date was May 25. The earliest hatch date recorded was May 21 at Squaw Island, Barnstable and Craigville Beach, Barnstable. The median hatch date statewide was June 12.

Hatch rates decreased modestly (45.2%; n=1014) relative to 2016 (50.4%; n=941) and there was a corresponding increase in nesting attempts per pair: 1.6 vs 1.4 in 2016 (based on Adjusted Total Counts). Hatch rates in 2017 for exclosed and unexclosed nests were 79.7% (n=123) and 37.7% (n=891), respectively, as compared to 87.2% (n=94) and 47.5% (n=794) in 2016. Nest abandonment rate for exclosed nests was 7.3% (9 of 123 nests) slightly higher relative to 2016 (5.3%; 5 of 94 nests). Estimated abandonment rates for unexclosed nests were similar in 2017 (2.8%; 22 of 794 nests) and 2016 (2.6%; 23 of 891 nests).

Long term trends in breeding population size and productivity are shown in **Figure 4**. The five year running average of productivity shows a fairly steady decline since 1995. Since 2012, it has remained below the approximately 1.2 fledglings per pair thought to be necessary to maintain a stable population (Melvin & Gibbs 1996).² The population trend as stabilized or decreased since 2012. Interestingly, there is no evidence of significant population declines following the particularly low productivity years of 2009, 2012, and 2013), although it does look like there were slight decreases following these years.

² Melvin and Gibbs (1996) suggest that the actual fecundity needed to maintain a stable population may be slightly lower than the estimate derived from their model. Other researchers have also suggested that early estimates of fecundity needed for a stable population may have been high (e.g. Catlin et al. 2015).

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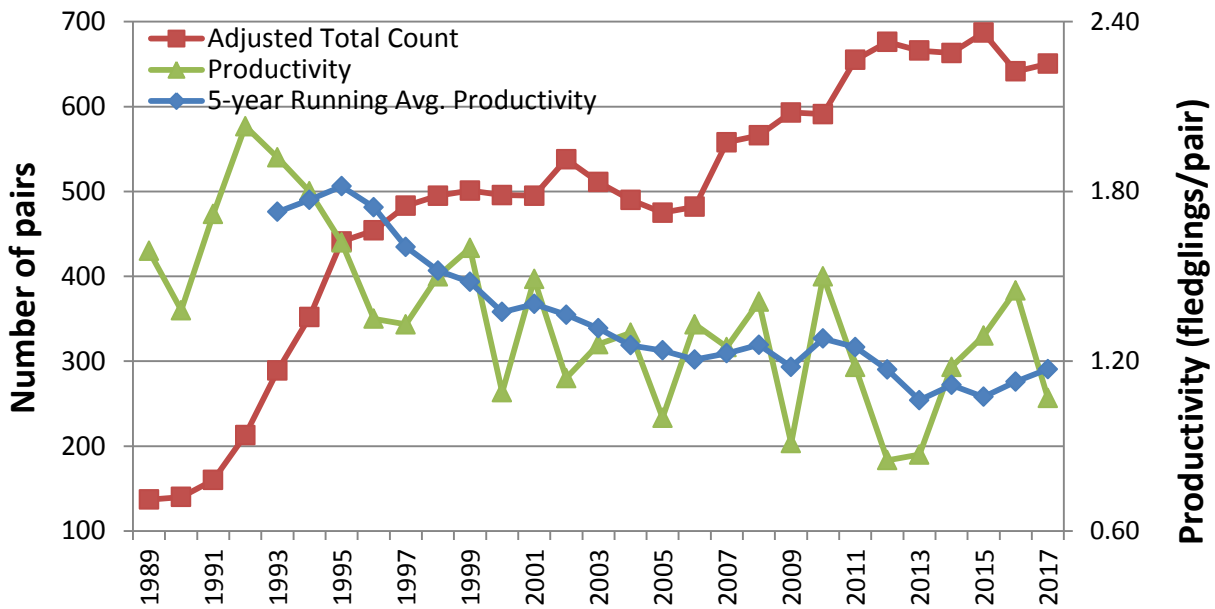


Figure 4. Piping Plover abundance (Adjusted Total Count) and productivity (fledglings/pair) in Massachusetts, by year, 1989–2017.

ACKNOWLEDGEMENTS

This report was prepared by Patricia Levasseur, with assistance from Amanda Veinotte, Jennifer Longsdorf, Carolyn Mostello, and Jon Regosin. 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 2016. 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.

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Table 2. Abundance, distribution, and productivity of Piping Plovers in Massachusetts, 2017

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledge data ^c	No. unpaired adults ^d	Source ^e	Notes
NORTH SHORE							
West Beach, Beverly	Nd	Nd	Nd	0	Nd	ECGA	
Lovell's Beach, Boston	0	0	0	0	0	MAS	
L Street Bathhouse, Dorchester	0	Nd	Nd	0	Nd	MAS	
Constitution beach, East Boston	0	Nd	Nd	0	Nd	MAS	
Coffins Beach - Bradford, Gloucester	1	1	0	1	0	ECGA	
Coffins Beach - Castles, Gloucester	0	0	0	0	0	ECGA	
Coffins Beach - East End, Gloucester	0	0	0	0	0	ECGA	
Good Harbor Beach, Gloucester	1	1	1	1	0	ECGA	
Two Penny Loaf, Gloucester	0	0	0	0	0	ECGA	
Crane Beach, Ipswich	36	39	33	39	0	TTOR	
Sandy Point State Reservation Beach, Ipswich	12	13	21	13	0	MAS	
Nahant State Beach, Nahant	0	0	0	0	3	DCR	Three unpaired adults were present during the census period and for > 2 weeks with active scraping. No pair behavior was observed and three individuals were no longer observed on site on 6/8. It is suspected they moved to Winthrop Beach where 3 pairs were fighting with established pairs from 6/8 to 6/23. The three adults are included in unpaired adults for both sites, but are only tallied once in the unpaired total.
Parker River NWR, Newbury/Rowley	48	48	54	48	0	USFWS	
Newburyport Town Beach, Newburyport	4	6	5	6	0	MAS	
Point of Pines (Private),	2	2	1	2	0	MAS	

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Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Revere							
Revere Beach-North, Revere	11	12	6	12	0	DCR	
Revere Beach-South, Revere	3	4	2	4	0	DCR	One pair observed from 5/9-5/23, no nest was ever found, pair left site after 5/23.
Salisbury Beach State Reservation-North, Salisbury	0	1	1	1	0	MAS	Pair incubated on the Salisbury side, but moved brood to Seabrook in New Hampshire on 7/27. Suspected two earlier nest attempts occurred on the Seabrook side after contacting the NH plover monitor.
Salisbury Beach State Reservation-South, Salisbury	1	1	0	1	0	MAS	
Carson Beach, South Boston	0	Nd	Nd	0	Nd	MAS	
Winthrop Beach, Winthrop	8	8	6	8	3	DCR	3 unpaired adults observed fighting with established pairs from 6/8-6/23, no nesting occurred. It is suspected the 3 unpaired adults came from Nahant State Beach where 3 unpaired adults were present until 6/8 when they were no longer observed. The three adults are included in unpaired adults count for both sites, but are only tallied once in the unpaired total.
Yirrell Beach, Winthrop	3	3	2	3	0	Winthrop	
SOUTH SHORE							
Sagamore Beach - Bourne, Bourne	0	0	0	0	0	MAS	
Duxbury Beach, Duxbury	25	28	11	28	0	MAS	
Nantasket Beach , Hull	5	6	8	6	1	MAS	
Green Harbor , Marshfield	0	Nd	Nd	0	Nd	MAS	
Rexhame Beach, Marshfield	0	0	0	0	0	MAS	
Ellisville Harbor State Park , Plymouth	1	1	0	1	0	MAS	This pair had a first nest attempt at Ellisville Harbor State Park, lost nest before the Index window but was present during the Index window. The pair is suspected to have moved to Ellisville Shifting Lots Preserve, first observed after the Index window on 6/11 for their second nest attempt. This pair is recorded in the Index Count only for

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Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
							Ellisville Harbor State Park. It is included in the Total and pairs with fledged data for both sites, but is only tallied once in the statewide totals.
Ellisville Shifting Lots Preserve , Plymouth	0	1	0	1	0	MAS	This pair had a first nest attempt at Ellisville Harbor State Park, lost nest before the Index window but was present during the Index window. The pair is suspected to have moved to Ellisville Shifting Lots Preserve, first observed after the Index window on 6/11 for their second nest attempt. This pair is recorded in the Index Count only for Ellisville Harbor State Park. It is included in the Total and pairs with fledged data for both sites, but is only tallied once in the statewide totals.
Plymouth Long Beach, Plymouth	24	24	37	24	0	Plymouth	
Sagamore - Plymouth, Plymouth	0	Nd	Nd	0	Nd	MAS	
Saquish, Plymouth	3	3	1	3	0	MAS	
Sagamore Beach - Sandwich , Sandwich	3	3	4	3	0	MAS	
Scusset Beach State Reservation, Sandwich	0	1	0	1	0	MAS	
Fourth Cliff, Scituate	3	3	0	3	0	MAS	
Humarock, Scituate	0	Nd	Nd	0	Nd	MAS	
The Glades, Scituate	0	Nd	Nd	0	Nd	MAS	
Third Cliff, Scituate	5	5	1	5	0	MAS	
UPPER CAPE							
Bone Hill Road, Barnstable	0	Nd	Nd	0	0	MAS	
Craigville Beach, Barnstable	1	1	1	1	0	MAS	
Dead Neck Sampsons Island, Barnstable	6	7	6	7	0	MAS	One pair active from 6/23 - 7/28 but did not nest.
Dowses Beach, Barnstable	1	1	0	1	0	Barnstable	
Fortes Beach, Barnstable	0	Nd	Nd	0	Nd	MAS	
Kalmus Beach, Barnstable	4	4	0	4	0	Barnstable	

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Site	Index Count^a (no. pairs)	Total Count^b (no. pairs)	No. chicks fledged^c	No. pairs with fledged data^c	No. unpaired adults^d	Source^e	Notes
Long Beach, Barnstable	1	1	4	1	0	MAS	
Memorial Beach/Covell's, Barnstable	0	Nd	Nd	0	Nd	MAS	
Mussel Point, Barnstable	0	Nd	Nd	0	Nd	MAS	
Rushy Marsh Pond Beach, Barnstable	0	Nd	Nd	0	Nd	MAS	
Sandy Neck Beach Park, Barnstable	27	27	15	27	0	Barnstable	
Sea St./ Keyes Beach, Barnstable	0	Nd	Nd	0	Nd	MAS	
Squaw Is. Road / Causeway, Barnstable	0	0	0	0	0	MAS	
Squaw Island, Barnstable	5	5	7	5	0	MAS	
Bassetts Island, Bourne	0	Nd	Nd	0	Nd	MAS	
Mashnee Dike, Bourne	0	Nd	Nd	0	Nd	MAS	
Breakwater Beach, Brewster	0	Nd	Nd	0	Nd	MAS	
Crosby Landing Beach, Brewster	2	2	3	2	0	MAS	
Linnell Landing Beach, Brewster	0	Nd	Nd	0	Nd	MAS	
Mants Landing, Brewster	0	Nd	Nd	0	Nd	MAS	
Paine's Creek, Brewster	0	Nd	Nd	0	Nd	MAS	
Point of Rocks Landing, Brewster	0	Nd	Nd	0	Nd	MAS	
Robin's Hill Beach, Brewster	0	Nd	Nd	0	Nd	MAS	
Wings Island, Brewster	1	1	1	1	0	MAS	
Bayview, Dennis	0	0	0	0	0	Dennis	
Bayview Ave/Howe's Beach (private), Dennis	1	1	0	1	0	MAS	
Chapin Beach, Dennis	4	4	3	4	0	Dennis	
Cold Storage Beach, Dennis	0	0	0	0	0	Dennis	
Corporation Beach, Dennis	0	0	0	0	0	Dennis	
Crowes Pasture (Cole's	1	1	0	1	0	Dennis	

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Pond) / Quivett Neck, Dennis							
Depot Street, Dennis	0	0	0	0	0	Dennis	
Dr. Botero, Dennis	0	0	0	0	0	MAS	
Glendon Beach, Dennis	0	0	0	0	0	Dennis	
Haigis to Inman Rd., Dennis	0	0	0	0	0	Dennis	
Harbor View, Dennis	0	0	0	0	0	Dennis	
Howe's St. Beach, Dennis	0	0	0	0	0	Dennis	
Inman Beach, Dennis	0	0	0	0	0	Dennis	
Mayflower Beach, Dennis	0	0	0	0	0	Dennis	
Metcalf Memorial, Dennis	0	0	0	0	0	Dennis	
Miramar Beach (Swan River), Dennis	1	1	1	1	0	MAS	
Raycroft Beach, Dennis	0	0	0	0	0	Dennis	
Sea Street (West Dennis), Dennis	0	0	0	0	0	Dennis	
Sea Street Beach, Dennis	0	0	0	0	0	Dennis	
Sesuit Harbor Beach, Dennis	0	0	0	0	0	Dennis	
South Village Beach, Dennis	0	0	0	0	0	Dennis	
West Dennis Beach, Dennis	3	3	1	3	0	Dennis	
Acapesket Beach, Falmouth	0	Nd	Nd	0	Nd	MAS	
Black Beach, Falmouth	0	1	0	1	0	MAS	
Chappaquoit Beach, Falmouth	0	Nd	Nd	0	Nd	MAS	
Little Island Beach, Falmouth	0	Nd	Nd	0	Nd	MAS	
Menauhant Beach, Falmouth	0	Nd	Nd	0	Nd	MAS	
Old Silver Beach, Falmouth	0	Nd	Nd	0	Nd	MAS	
Sippewisset, Falmouth	0	0	0	0	0	MAS	
Trunk River, Falmouth	1	1	0	1	0	MAS	
Washburn Island, Falmouth	5	6	5	6	0	MAS	

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Woodneck Beach, Falmouth	0	0	0	0	0	MAS	
Allens Harbor, Harwich	0	0	0	0	0	MAS	
Belmont Condos, Harwich	0	0	0	0	0	MAS	
Inn on the Beach-Winstead Inn, Harwich	0	0	0	0	0	MAS	
Red River Beach, Harwich	1	1	0	1	0	MAS	
Saquatucket Beach, Harwich	0	0	0	0	0	MAS	
Stone Horse Yacht Club, Harwich	0	0	0	0	0	MAS	
Town Beach- Grey Neck Rd/Earle Rd, Harwich	0	Nd	Nd	0	Nd	MAS	
Wychmere-Merkel-Bank St, Harwich	2	2	0	2	0	MAS	
New Seabury, Mashpee	3	5	0	5	0	MAS	One pair present and scraping from 5/23-5/27. This pair is not tallied in the Index and Total Counts.
New Seabury Stairs-Popponeset-Maushop-Village, Mashpee	0	Nd	Nd	0	Nd	MAS	
Popponeset Spit, Mashpee	4	3	2	3	0	MAS	One pair present and scraping from 6/7-6/15 no nest was found. This pair is not tallied in Total Count and pairs with fledge data.
South Cape Beach, Mashpee	6	8	8	8	0	MAS	
East Sandwich, Sandwich	3	3	4	3	0	MAS	
Scorton Neck (Torrey), Sandwich	3	3	8	3	0	MAS	
Scorton Shores, Sandwich	1	1	4	1	0	MAS	
Spring Hill, Sandwich	5	5	9	5	0	MAS	
Town Neck Beach, Sandwich	3	3	4	3	0	MAS	
Grays Beach, Yarmouth	2	2	1	2	0	MAS	
Great Island Causeway, Yarmouth	1	1	2	1	0	MAS	
Great Island - Smith Point, Yarmouth	2	2	0	2	0	MAS	

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Great Island Beach Club - Smith Point, Yarmouth	1	Nd	Nd	0	Nd	MAS	
Parkers River Beach-Bass River Beach, Yarmouth	0	Nd	Nd	0	Nd	MAS	
Radio City Beach, Yarmouth	0	0	0	0	0	MAS	
Red Jacket Inn-Parkers River Beach, Yarmouth	0	Nd	Nd	0	Nd	MAS	
Seagull Beach, Yarmouth	2	3	5	3	0	MAS	A 3rd pair was active on Seagull between 4/11 and 5/1. The pair was observed scraping and copulated on 4/20.
Standish Way, Yarmouth	0	Nd	Nd	0	Nd	MAS	
LOWER CAPE							
Andrew Harding Way, Chatham	0	Nd	Nd	0	Nd	MAS	
Chatham Bars Inn, Chatham	0	Nd	Nd	0	Nd	MAS	
Chatharbor Lane (Mill Ck.), Chatham	0	0	0	0	0	MAS	
Claflin Landing, Chatham	0	Nd	Nd	0	Nd	MAS	
Cockle Cove , Chatham	0	0	0	0	0	MAS	
Forest Beach, Chatham	2	2	3	2	0	MAS	
Harding Beach, Chatham	3	3	4	3	1	MAS	One unpaired male observed throughout the season.
Harding Shores, Chatham	0	0	0	0	0	MAS	
Linnell Lane, Chatham	0	Nd	Nd	0	Nd	MAS	
Minimoy Island, Chatham	1	1	3	1	0	USFWS	
Morris Island Dike/ Hardings Beach Point, Chatham	1	1	1	1	0	MAS	
Morris Island Dredge Spoil, Chatham	0	Nd	Nd	0	0	MAS	
North (Nauset) Beach, Chatham	16	16	31	16	0	Chatham	
North Beach Island, Chatham	18	20	14	20	1	Chatham	
North Monomoy Island, Chatham	1	1	0	1	0	USFWS	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Pleasant St. Beach, Chatham	0	0	0	0	0	MAS	
Ridgevale Beach, Chatham	2	2	3	2	0	MAS	
South Beach - Middle Island, Chatham	6	4	2	4	0	MAS	
South Beach (North of Break) , Chatham	0	0	0	0	0	MAS	April 1 storm broke through beach forming South Beach Middle Island. South Beach North suffered much erosion and overwash. Shoreline steeply scarped. No PIPL activity seen.
South Beach (South of Break) , Chatham	12	15	10	15	0	MAS	One pair had their first nest attempt on South Beach, Chatham then had their second nest attempt on South Monomoy Island. This pair is counted in the Index and Total count on South Beach and the Total Count on South Monomoy Island but is tallied only once in the statewide totals.
South Monomoy Island, Chatham	43	46	31	46	1	USFWS	A banded female had her first two nest attempts with an unbanded male, then had a third nest attempt with a banded male. Although the banded male is not counted in the statewide totals, it is included in the unpaired adult count even though it paired with this female and was proven to be 1.5 pairs. One pair had their first nest attempt on South Beach, Chatham then had their second nest attempt on South Monomoy Island. This pair is counted in the Index and Total count on South Beach and the Total Count on South Monomoy Island but is tallied only once in the statewide totals.
Tern Island, Chatham	2	2	0	2	0	MAS	
Boat Meadow, Eastham	0	Nd	Nd	0	Nd	MAS	
Coast Guard Beach, Eastham	7	8	12	8	0	NPS	
First Encounter Beach, Eastham	0	0	0	0	0	MAS	
Nauset Light Beach, Eastham	0	0	0	0	0	NPS	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
South Sunken Meadow, Eastham	0	0	0	0	1	MAS	
North Spit, Orleans	9	11	16	11	1	Orleans	
Rock Harbor, Orleans	0	Nd	Nd	0	Nd	MAS	
Skaket Beach, Orleans	0	Nd	Nd	0	Nd	MAS	
South Beach (Nauset), Orleans	8	10	27	10	3	Orleans	
New Island, Orleans, Eastham	1	1	4	1	0	NPS, Orleans	
Hatches Harbor, Provincetown	2	2	5	2	0	NPS	
Herring Cove, Provincetown	0	0	0	0	0	NPS	
Race Point North, Provincetown	9	9	17	9	0	NPS	
Race Point South, Provincetown	13	13	38	13	0	NPS	
Wood End/Long Point, Provincetown	5	5	9	5	0	NPS	
Ballston Beach, Truro	1	1	0	1	0	NPS, MAS	
Beach Point, Truro	0	0	0	0	0	MAS	
Between Corn Hill Beach and Beach Point, Truro	0	Nd	Nd	0	Nd	MAS	
Coast Guard Truro, Truro	4	4	2	4	0	NPS, MAS	MAS monitored the small area of town owned public beach in between the NPS fencing sections at Coast Guard Beach, Truro.
Corn Hill Beach, Truro	1	1	2	1	0	MAS	
Fisher Beach, Truro	1	1	3	1	0	MAS	
Fisher Beach South, Truro	0	0	0	0	0	MAS	
Head of the Meadow, Truro	4	3	6	3	0	NPS, MAS	One pair present during census window but was present for less than 2 weeks. MAS monitored a narrow section of town owned beach within Cape Cod National Seashore.
High Head, Truro	2	3	3	3	0	NPS	One pair nested twice at this site then left before the Index Count period. This pair is counted in the Total Count.

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Longnook, Truro	0	0	0	0	0	NPS	
Ryder Beach, Truro	0	Nd	Nd	0	Nd	MAS	
Bound Brook, Wellfleet	1	0	0	0	0	NPS	One pair was observed for one day during the census period.
Cahoon Hollow, Wellfleet	2	1	0	1	0	NPS	
Duck Harbor, Wellfleet	2	2	2	2	0	NPS	
Field Point /Fox Is. WMA, Wellfleet	0	Nd	Nd	0	Nd	MAS	
Great Is., Wellfleet	4	3	8	3	0	NPS	
Indian Neck, Wellfleet	0	Nd	Nd	0	Nd	MAS	
Jeremy Point, Wellfleet	3	3	0	3	0	NPS	
Lecount Hollow, Wellfleet	0	0	0	0	0	NPS	
Lieutenant Island - NW, Wellfleet	0	0	0	0	0	MAS	
Lieutenant Island - SW, Wellfleet	0	0	0	0	0	MAS	
Lieutenant Island - The Hook, Wellfleet	0	Nd	Nd	0	Nd	MAS	
Marconi Beach, Wellfleet	2	2	3	2	0	NPS	
Marconi Station, Wellfleet	3	3	6	3	0	NPS	
Mouth of Herring River - Mayo Beach, Wellfleet	0	Nd	Nd	0	Nd	MAS	
Old Wharf, Wellfleet	0	Nd	Nd	0	Nd	MAS	
White Crest Beach, Wellfleet	0	0	0	0	0	NPS	
Newcomb Hollow, Wellfleet, Truro	3	3	9	3	0	NPS	
BUZZARDS BAY							
Barney's Joy/Little Beach, Dartmouth	20	20	16	20	1	MAS	One unpaired male on Barney's Joy Beach.
Demarest Lloyd State Park, Dartmouth	4	5	0	5	0	LCES	
Nonquitt, Dartmouth	1	1	3	1	0	MAS	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Round Hill Beach, Dartmouth	0	0	0	0	0	MAS	
Salters Pond, Dartmouth	1	1	2	1	0	MAS	
Timmy's Rock, Dartmouth	0	0	0	0	0	MAS	
Fish Island, Fairhaven	0	Nd	Nd	0	0	DFW	
Long Island, Fairhaven	0	Nd	Nd	0	0	DFW	
Round Is., Fairhaven	0	Nd	Nd	0	0	DFW	
South Shore Marshes, Fairhaven	0	0	0	0	0	DFW	
Ward's Rock, Fairhaven	0	Nd	Nd	0	Nd	MAS	
West Island, Fairhaven	5	5	10	5	0	LCES	One pair is suspected to have moved to Winsegansett Heights after losing their first nest attempt. This pair is counted in the Index and Total Count on West Island and the Total Count on Winsegansett Heights but is tallied only once in the statewide totals.
Winsegansett Heights, Fairhaven	0	1	0	1	0	LCES	It is suspected this pair had a first nest attempt on West Island and moved to Winsegansett after the Index Count period. This pair is included in the Index and Total Count on West Island and the Total Count on Winsegansett Heights but is tallied only once in the statewide totals.
Haskell Island, Marion	0	Nd	Nd	0	Nd	MAS	
Meadow Island, Marion	0	Nd	Nd	0	Nd	MAS	
Planting Island, Marion	0	Nd	Nd	0	Nd	MAS	
Ram Is., Marion, Marion	0	Nd	Nd	0	0	DFW	
Stewart's Island, Marion	0	Nd	Nd	0	Nd	MAS	
Brandt Island, Mattapoissett	0	Nd	Nd	0	0	DFW	
Pine Island (Angelica Point and Strawberry Point), Mattapoissett	1	2	0	1	0	DFW	One pair present and scraping from 4/5-4/19, no nest was found. There was one unpaired adult observed on 6/6, this adult was not included in the unpaired adult total.
Ram Is., Mattapoissett, Mattapoissett	0	0	0	0	0	DFW	
Cedar Island, Wareham	0	Nd	Nd	0	Nd	MAS	
Cromeset, Wareham	0	0	0	0	0	MAS	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Little Harbor Beach, Wareham	1	1	1	1	0	MAS	
Long Beach Point, Wareham	1	1	0	1	0	MAS	
Stony Point Dike, Wareham	1	1	0	1	0	USACOE	
Swift's Beach, Wareham	0	Nd	Nd	0	Nd	MAS	
Acoaxet, Westport	0	Nd	Nd	0	Nd	MAS, TNC	
Bakers Beach / Westport Town Beach, Westport	4	4	4	4	0	MAS	
Cockeast Pond (Elephant Rock), Westport	1	1	3	1	0	TNC	
East Beach, Westport	1	0	0	0	0	MAS	Pair observed scraping on 5/25 and foraging during census period. Pair last observed on 6/7. No nesting occurred.
Fishing Rock, Westport	0	Nd	Nd	0	Nd	MAS	
Gooseberry Neck, Westport	0	0	0	0	0	LCES	
Horseneck Beach State Reservation, Westport	15	15	23	15	0	LCES	
Richmond Pond, Westport	1	2	0	2	0	TNC	
Speaking Rock, Westport	0	Nd	Nd	0	Nd	MAS	
ELIZABETH ISLANDS							
Cuttyhunk, Gosnold	2	1	Nd	0	Nd	MAS	Two pairs were observed on 6/9. One pair had 1 chick and no nest was found for the second pair. The site was not visited again until 6/30 when only 1 adult was observed. The fledged data is unknown for both pairs. The pair with 1 chick is included in the Total count but neither pair is included in pairs with fledged data.
Nashawena Island-Canapitsit, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Nashawena Island-Quicks Hole, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Naushon Is. - Crescent Beach, Gosnold	1	1	Nd	0	0	DFW	Site visited only once on 6/8, 1 pair with 4 chicks observed, fledgling outcome uncertain, pair not counted in pairs with fledged data.
Naushon Is. - Kettle Cove,	0	Nd	Nd	0	0	DFW	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Gosnold							
Naushon Is. – Robinson’s Hole, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Naushon Is. - Tarpaulin Cove, Gosnold	0	Nd	Nd	0	0	DFW	
Naushon Is. - West Beach, Gosnold	0	Nd	Nd	0	0	DFW	
Pasque Island-Cobbly, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Pasque Island-Quicks Hole, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Pasque Island-Robinson's Hole, Gosnold	Nd	Nd	Nd	Nd	0	DFW	
Penikese Island, Gosnold	0	0	0	0	0	DFW	
MARTHA’S VINEYARD							
Dogfish Bar, Aquinnah	4	4	1	4	0	BW	
Lobsterville Beach, Aquinnah	0	0	0	0	0	MAS	
Menemsha Neck Preserve, Aquinnah	0	Nd	Nd	0	0	MVLBC	
Moshup Beach, Aquinnah	1	1	0	1	0	MVLBC	
Philbin Beach, Aquinnah	0	Nd	Nd	0	0	BW	
Black Point Pond, Chilmark	0	0	0	0	0	BW	
Cape Higgon, Chilmark	0	Nd	Nd	0	0	BW	
Chilmark Pond, Chilmark	2	3	10	3	0	BW	
Chilmark Pond Preserve, Chilmark	0	0	0	0	0	MVLBC	
Edys Island, Chilmark	0	0	0	0	0	MAS	
Great Rock Bight Preserve, Chilmark	0	0	0	0	0	MVLBC	
Lucy Vincent Beach, Chilmark	2	2	0	2	0	BW	
Nomans Land Island NWR,	0	Nd	Nd	0	Nd	USFWS	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Chilmark							
Quansoo, Chilmark	1	1	0	1	3	MAS	3 unpaired adults utilized this site and Tisbury Great Pond site monitored by MV Land Bank but were not exhibiting territorial or courtship behavior. They are not counted in the unpaired adults total.
Spring Point, Chilmark	0	Nd	Nd	0	0	BW	
Squibnocket Beach/Long Beach, Chilmark	2	2	0	2	0	BW	
Stonewall Beach, Chilmark	0	0	0	0	0	BW	
Arruda's Point / The Jetties , Edgartown	3	3	2	3	0	TTOR	
Bend-in-the-Road Beach, Edgartown	0	0	0	0	0	MAS	
Caleb's Pond, Edgartown	0	Nd	Nd	0	0	BW	
Cape Pogue Elbow / The Narrows, Edgartown	4	4	2	4	0	TTOR	
Chappaquiddick Point Beach, Edgartown	0	0	0	0	0	MVLBC	
Cove Meadow Preserve, Edgartown	0	Nd	Nd	0	0	MVLBC	
Cow Bay, Edgartown	0	0	0	0	0	MAS	One unpaired adult observed occasionally, no territorial behavior observed. This adult is not counted in the unpaired adult total.
Cracktuxet Trust Beach, Edgartown	0	Nd	Nd	0	0	BW	
Edgartown Great Pond, Edgartown	0	0	0	0	0	MVLBC	
Edgartown Great Pond (Job's Neck), Edgartown	3	3	6	3	1	BW	One unpaired male territorial and scraping from 4/19 to 6/4.
Haystack Island, Edgartown	0	0	0	0	0	MAS	
Leland / East Beach, Edgartown	4	4	7	4	0	TTOR	
Lighthouse Beach,	1	1	0	1	0	BW	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Edgartown							
Little Beach / Eel Pd., Edgartown	4	4	6	4	0	BW	
Little Neck, Edgartown	0	0	0	0	0	TTOR	
Norton Point Beach, Edgartown	6	6	1	6	0	TTOR	
Oyster Pond, Edgartown	0	1	1	1	0	BW	One pair had three nest attempts on Watcha Pond before, during and after the Index window and suspected to have had a fourth nest at Oyster Pond after the Index window. This pair is counted in the Index count only for Watcha Pond. It is included in the Total Count and pairs with fledged data for both sites, but is tallied only once in the statewide totals.
Paqua Pond, Edgartown	Nd	Nd	Nd	Nd	0	BW	
Pease's Pond, Edgartown	0	Nd	Nd	0	0	BW	
Quammox Preserve, Edgartown	0	Nd	Nd	0	0	MVLBC	
South Beach, Edgartown	0	Nd	Nd	0	0	BW	
Sylvia State Beach Edgartown, Edgartown	0	0	0	0	0	MAS	
Wasque, Edgartown	0	0	0	0	0	TTOR	
Yorke - Allen Point, Edgartown	0	0	0	0	0	MAS	
Big Gravel Island, Oak Bluffs	0	0	0	0	0	MAS	
Dougs Cove Preserve, Oak Bluffs	0	Nd	Nd	0	0	MVLBC	Site visited once in June after census, was used for the Index Count.
Eastville Beach, Oak Bluffs	0	0	0	0	0	MAS	
Harthaven, Oak Bluffs	1	1	1	1	0	MAS	
Little Gravel Island, Oak Bluffs	0	Nd	Nd	0	Nd	MAS	
Sarsons Island, Oak Bluffs	0	0	0	0	0	MAS	
Sylvia State Beach Oak Bluffs, Oak Bluffs	0	1	0	1	0	MAS	Pair left site after nest failed before the Index window on 5/29.

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
Beach Road Causeway, Tisbury	0	0	0	0	0	MAS	
East Tashmoo, Tisbury	0	0	0	0	0	MAS	
Grove Avenue, Tisbury	0	0	0	0	0	MAS	
Lagoon Pond-Maciel Marine/Ferry Boat Island, Tisbury	0	0	0	0	0	MAS	
Mink Meadows /West Chop, Tisbury	1	1	0	1	0	MAS	One unpaired adult observed foraging irregularly throughout the season and was not counted in the unpaired adult total.
West Tashmoo, Tisbury	2	2	0	2	0	BW	
Wilfrids Pond Preserve, Tisbury	0	0	0	0	0	MVLBC	
Cedar Tree Neck, West Tisbury	0	0	0	0	0	BW	
Lamberts Cove, West Tisbury	0	Nd	Nd	0	0	BW	
Long Point, West Tisbury	0	0	0	0	0	TTOR	
Paul's Point, West Tisbury	1	1	0	1	0	BW	
Sepiessa Point Reservation, West Tisbury	0	Nd	Nd	0	0	MVLBC	
Seven Gates, West Tisbury	1	1	0	1	0	BW	
Tisbury Great Pond, West Tisbury	1	1	0	1	0	MVLBC	3 unpaired adults utilized this site and Quansoo monitored by Mass Audubon but were not exhibiting territorial or courtship behavior. They are not counted in the unpaired adult total.
Watcha Pond, West Tisbury	2	2	1	2	0	BW	One pair had three nest attempts on Watcha Pond before, during and after the Index window and suspected to have had a fourth nest at Oyster Pond after the Index window. This pair is counted in the Index count only for Watcha Pond. It is included in the Total Count and pairs with fledged data for both sites, but is only tallied once in the statewide totals.

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledged data ^c	No. unpaired adults ^d	Source ^e	Notes
NANTUCKET							
Capaum Pond, Nantucket	0	0	0	0	0	NCF	
Coatue, Nantucket	4	4	1	4	0	NCF	
Coskata-East Beach, Nantucket	0	0	0	0	0	TTOR	
Coskata-West Beach, Nantucket	1	1	0	1	0	TTOR	
Dionis Beach, Nantucket	1	1	0	1	0	Nantucket	
East Hallowell Lane, Nantucket	0	Nd	Nd	0	Nd	MAS	
Eel Point, Nantucket	7	7	11	7	0	NCF	
Great Point, Nantucket	0	1	0	1	0	TTOR	This pair had their first nest attempt at Great Point before the census period. The pair moved to The Galls and had their second nest attempt during the census window at that site. They lost their second nest and returned to Great Point during the census window and had their third nest attempt. This pair is counted in the Index count for The Galls and the Total count for Great Point.
Hoicks Hallow, Nantucket	0	Nd	Nd	0	Nd	MAS	
Hummock and West Hummock Ponds, Nantucket	0	0	0	0	0	NCF	
Jetties Beach, Nantucket	2	2	2	2	0	Nantucket	
Little Neck, Nantucket	0	0	0	0	0	NCF	
Long Pond, Nantucket	0	0	0	0	0	NCF	
Low Beach , Nantucket	0	0	0	0	0	Nantucket	
Monomoy Creeks, Nantucket	0	0	0	0	0	NCF	
Muskeget Is., Nantucket	2	1	Nd	0	0	MAS	Site visited on 5/30, 6/7, 7/18 and 8/6. One courting pair was only observed on 6/7 and is included in the Index Count only. A second pair with a nest was observed on 5/30 and 6/7. The nesting pair was observed with 2 chicks on 7/18. The number of chicks fledged was not determined. This pair is included in the Index and Total

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledge data ^c	No. unpaired adults ^d	Source ^e	Notes
							counts but is not counted in pairs with fledge data.
Muskeget Shoals, Nantucket	1	1	Nd	0	0	MAS	Pair was found with a 4 egg nest on 6/7. Site was not visited again until 7/18. A pair was observed but no chicks were found and the number of fledglings was unknown. This pair is not included in pairs with fledge data.
Nantucket NWR (Great Point), Nantucket	2	2	5	2	0	USFWS	
Polpis Harbor (Medouie Creek and Pocomo Meadows), Nantucket	0	0	0	0	0	NCF	
Quaise Point, Nantucket	0	0	0	0	0	Nantucket	
Quidnet/Sesachacha Pond/Greenhills, Nantucket	1	2	3	2	0	MAS	One nesting pair present before Index Window from 4/3-5/12. Pair left site after nest loss. Pair is included in Total Count and pairs with fledge data.
Sheep Pond, Nantucket	0	0	0	0	0	NCF	
Smith Point / Esther Is., Nantucket	3	5	Nd	Nd	0	Nantucket	
Smith's Point, Nantucket	0	0	0	0	0	MAS	
South Pastures (Madequecham Valley to Tom Nevers), Nantucket	0	Nd	Nd	0	Nd	NCF	
Squam Pond, Nantucket	1	1	0	1	0	MAS, NCF	
Surfside/Western Ave, Nantucket	0	1	0	1	0	Nantucket	
The Galls, Nantucket	2	1	0	0	0	TTOR	This pair had their first nest attempt at Great Point before the census period. The pair moved to The Galls and had their second nest attempt during the census window at this site. They lost their second nest and returned to Great Point during the census window and had their third nest attempt. This pair is counted in the Index count for The Galls and the Total count for Great Point.
The Glades, Nantucket	0	0	0	0	0	TTOR	
The Haulover , Nantucket	0	0	0	0	0	NCF	

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

Site	Index Count ^a (no. pairs)	Total Count ^b (no. pairs)	No. chicks fledged ^c	No. pairs with fledge data ^c	No. unpaired adults ^d	Source ^e	Notes
Tom Nevers/Wanoma, Nantucket	1	1	2	1	0	MAS	
Tuckernuck Is. - Bigelow's Point, Nantucket	1	1	0	1	0	TLT	
Tuckernuck Is. - East Pond, Nantucket	0	Nd	Nd	0	0	TLT	
Tuckernuck Is. - North Pond, Nantucket	1	1	0	1	0	TLT	
Tuckernuck Is. - Whale Point, Nantucket	1	1	2	1	0	TLT	
UMass Field Station, Nantucket	0	0	0	0	0	NCF	
Washing Pond, Nantucket	1	1	0	1	0	MAS	
Wauwinet, Nantucket	0	0	0	0	0	MAS	One pair observed courting scraping on 5/27, 5/20 and 5/23. One adult observed 5/24, 5/31 and 6/3. This pair and individual adult are not counted in the Index, Total and unpaired statewide totals.
Western Ave, Nantucket	0	1	0	1	0	MAS	This pair had two failed nest attempts before the Index Window. Pair was last seen on 5/31 after second nest failed. This pair is included in Total Count and pairs with fledge data.
UNADJUSTED TOTALS	633	668	688	657	14		
ADJUSTED TOTALS		650.5		640			

^a *Index Count* = number of pairs counted between 1-9 June 2016, the standardized *Index Count* period for the Atlantic Coast population.

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

^c *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.

^d *Unpaired adults* = total number of territorial single adults present at a site for at least 2 weeks during the breeding season.

SUMMARY OF THE 2017 MASSACHUSETTS PIPING PLOVER CENSUS

^e Source = primary source(s) that provided monitoring data: Barnstable = Town of Barnstable, BW = BiodiversityWorks, Chatham = Town of Chatham, DCR = Department of Conservation and Recreation, Dennis = Town of Dennis, DFW = Massachusetts Division of Fisheries & Wildlife, 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, TTOR = The Trustees of Reservations, USACOE = U.S. Army Corps of Engineers, USFWS = U.S. Fish & Wildlife Service, Winthrop = Town of Winthrop