

Massachusetts Habitat Conservation Plan for Piping Plover

2024 Annual Report

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Massachusetts Division of Fisheries & Wildlife

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Table of Contents

I.	Executive Summary.....	2
II.	Annual Report Requirements.....	4

Appendices

- A. MassWildlife FY 2025 and FY 2026 Director's and CFO's Funding Letter

I. Executive Summary

On July 8, 2016, the United States Fish and Wildlife Service (USFWS) issued a 26-year Incidental Take Permit (ITP) to the Massachusetts Division of Fisheries and Wildlife (MassWildlife) in accordance with Section 10(a) (1) (B) of the Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. 1539 (a) (1) (B). Pursuant to the ITP, MassWildlife is responsible for administering the Massachusetts Statewide Habitat Conservation Plan (HCP). The HCP identifies covered activities that are authorized by the ITP that could expose Piping Plovers (*Charadrius melodus*) to “take.” Incidental Take coverage can be extended by MassWildlife to approved landowners and beach managers through Certificates of Inclusion (COIs).

During the 2024 beach season, nine beach operators held valid COIs encompassing ten permit-sites. Covered activities were carried out at eight beaches:

1. Curley Community Center, South Boston (“Curley Center”);
2. Duxbury Beach Reservation, Duxbury (“Duxbury Beach”);
3. Horseneck Beach State Reservation, Westport (“Horseneck Beach”);
4. Nauset Beach, Orleans;
5. Plymouth Long Beach, Plymouth (“Plymouth”);
6. Sandy Neck Beach Park, Barnstable (“Sandy Neck”); and
7. Wollaston Beach, Quincy (“Wollaston”). There were no covered activities carried out at other beaches included in the same COI, which are: Revere Beach State Reservation, Revere; Winthrop Shore Reservation, Winthrop; Nahant Beach State Reservation, Nahant; Carson Beach, South Boston; and M St. Beach, South Boston;
8. Wychmere Beach Club, Harwich (“Wychmere”).

Statewide, 20 pairs of Piping Plovers, including 40 to 43 chicks, were exposed to covered activities:

- *Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks* – 9 pairs;
- *Oversand Vehicle (OSV) Use in the Vicinity of Unfledged Chicks* – 1 pair;
- *Recreation and Beach Operations* – 10 pairs;
 - *Reduced Fencing Around the Nest* – Five pairs;
 - *Reduced Proactive Symbolic Fencing* – Eight pairs; and
- Multiple covered activities – Within *Recreation and Beach Operations*, three pairs were exposed to both *Reduced Fencing Around the Nest* and *Reduced Proactive Symbolic Fencing*. These pairs are included above in each of those categories but counted only once each in Recreation and Beach Operations.

Intensive impact avoidance and minimization measures were implemented at sites where the HCP was implemented this year. Required HCP compliance and effectiveness monitoring were carried out by both MassWildlife and COI-holders.

- The 20 pairs that were exposed to covered activities fledged 26 chicks (1.3 fledglings per pair). Of the nine broods that were exposed to use of roads and parking lots, seven fledged at least one chick for a total of 16 fledglings.
- The one brood exposed to OSV use fledged one chick (1.0 fledglings per pair).
- Of the eight pairs that were subject to reduced proactive symbolic fencing, three fledged at least one chick for a total of seven fledglings. (0.88 fledglings per pair) (*Note three pairs are also counted in “reduced fencing around the nest,” below.*)
- Of the five pairs subject to reduced fencing around the nest, two fledged at least one chick for a total of three fledglings. 0.6 fledglings per pair) (*Note three pairs are also counted in “reduced proactive fencing,” above.*)

Participation in the HCP expanded recreational opportunities at all eight beaches where covered activities were implemented.

- **Curley Center.** Reduced fencing and nesting deterrence allowed the center of L Street Beach to remain open to recreation throughout the season.
- **Duxbury Beach.** The Duxbury Beach Reservation operated roads and parking lots contributing to 130 days of recreational activity on Duxbury Beach.
- **Horseneck Beach.** Reduced fencing in plover territories and around a nest allowed for 2.05 acres of additional recreational beach use.
- **Nauset, Orleans.** The OSV corridor on South Beach opened with self-escorting 10 days earlier than would have been allowed without the HCP.
- **Plymouth Long Beach.** The Town of Plymouth allowed recreational vehicle access and unescorted essential vehicle access to a road and parking areas for 89 days this summer. The HCP was implemented for Piping Plovers for 58 days and Least Terns for 67 days (36 overlapped with plover implementation and 31 were for Least Terns only).
- **Wollaston.** Reduced fencing around nests allowed for 0.8 acres of additional beach to be open to recreation.
- **Sandy Neck.** The OSV beach remained open for 30 days when there likely would have been a full beach closure absent implementation.
- **Wychmere.** Reduced fencing and nesting deterrence allowed for an additional 0.44 acres of beach area available for recreational activities and scheduled events (e.g., weddings).

On-site/internal mitigation (*i.e.*, implemented by COI-holders) consisted of selective predator management designed to increase productivity and more than offset any harm resulting from exposure to the covered activities. Two off-site mitigation projects occurred in 2024. In all, 220 breeding pairs of Piping Plovers benefited from selective predator management under the HCP, substantially more than the minimum benefit of 54.5 pairs required pursuant to the HCP. This report documents compliance with the HCP and provides information about other state-listed species, Least Terns, and Diamond-backed Terrapins, which may be exposed to take by covered activities.

II. Annual Report Requirements

This annual report summarizes HCP implementation activities during 2024 and has been prepared by MassWildlife in accordance with the requirements of the HCP.

The goals of the annual report are as follows:

- To provide the information and data necessary for MassWildlife to demonstrate to the USFWS and the public that the HCP is being implemented properly.
- To disclose any problems with HCP implementation and the corrective measures planned or implemented to address the problems.
- To identify administrative or minor changes to HCP components required to increase the success of conservation actions.
- To identify the results and/or need for adaptive management and changed circumstances, and whether any HCP or ITP changes may be subsequently proposed as a result pursuant to Chapter 3.3.3. of the HCP.

A bulleted list of the required contents of the annual report is provided on pages 5-9 to 5-10 of the HCP. To facilitate review by the USFWS and the public, the remainder of this report systematically addresses each item on the list. Supporting documentation and data are included in the Appendices, which are available upon request.

II.1 Description of all covered activities implemented during the reporting period by activity type and location.

Twenty pairs of Piping Plovers were exposed to three activities covered under the HCP. **Tables 1a, 1b, and 1c** provide details of permits and implementation at each site, including duration of covered activities and nest productivity of exposed pairs.

1. *Use of Roads and Parking Lots in Vicinity of Unfledged Chicks.* Nine broods were exposed.
 - **Duxbury Beach.** Three broods were exposed to recreational traffic while crossing Gurnet Rd. or parking lots. One of those broods was exposed to a barrier and two broods were herded. Seven chicks were exposed to recreational traffic; all fledged.
 - **Plymouth Long Beach.** Six broods were in the vicinity of Ryder Way and parking lots, including four broods that crossed the road. Two of these broods were exposed to barriers. Nine of 17 exposed chicks fledged.
2. *Oversand Vehicle Use in Vicinity of Unfledged Chicks.* One brood was exposed.
 - **Nauset Beach, Orleans.** Up to 180 vehicles were escorted past one brood three times per day through 15' wide corridor over distance of 450 ft. One of two exposed chicks fledged.
3. *Recreation and Beach Operations.* Ten pairs/broods were exposed.
 - *Reduced Proactive Fencing of Habitat.* Eight pairs/broods were exposed.

- i. **Curley Center.** An area of nesting habitat totaling 0.24 acres was left unfenced. Beach raking by hand (approximately 16 times) across 0.18 ac was conducted to deter two pairs from nesting in the unfenced area. Both nests hatched, but only one of seven exposed chicks fledged.
 - ii. **Duxbury Beach.** One territorial pair was exposed to reduced proactive fencing with deterrents, including raking, pallets, and flagging across 1.9 ac of unfenced habitat to deter them from nesting near an OSV access trail. They were deterred from the area but nested nearby, where they continued to prevent OSV access. Two of two exposed chicks fledged.
 - iii. **Horseneck Beach.** An area totaling 1.75 acres was left unfenced and raked daily to deter two territorial pairs from an important recreational area. Neither pair fledged any chicks.
 - iv. **Sandy Neck.** In all, 2.33 acres of nesting habitat were impacted. Fencing was initially close to the base of dune through the 0.7-mile mark in the Recreation Zone (RZ), but on two occasions, portions of it (0.55 – 0.7-mile mark and 0.35 – 0.5-mile mark; total, 0.3 miles) were expanded to the dimensions recommended in the Guidelines to allow two pairs to settle in areas that did not impede use of OSV trails in the RZ. Beach raking (114 times) over 2.21 acres and 1,671 linear ft (0.12 ac or 5,013 ft²) of coverboards were used to deter two pairs from a portion of the RZ. Both pairs nested elsewhere at Sandy Neck. One fledged 4 chicks and the other lost its nest to predation and did not reneest.
 - v. **Wychmere.** An area of nesting habitat totaling 0.44 acres was left unfenced. Beach raking (approximately 87 times) was used in an attempt to deter one pair. The female of one pair was killed by a predator (possibly a Kestrel) before laying eggs and the male left the site.
- *Reduced Fencing Around the Nest.* Five pairs were exposed.
 - i. **Curley Center.** Fencing was reduced around nests of two pairs to keep an area open for recreation. Both nests hatched, but only one of seven exposed chicks fledged.
 - ii. **Horseneck Beach.** One nest was exposed. The nest hatched but no chicks fledged.
 - iii. **Wollaston.** One pair and its two nests were exposed. The first nest was lost to overwash and the second to crow predation, so no checks fledged.
 - iv. **Wychmere.** One pair and its two nests were exposed; the first nest hatched but the chicks (one to four) were lost, probably due to poor weather. The pair fledged two chicks from its second nest.
- *Nest Moving.* Not implemented.

Massachusetts Habitat Conservation Plan for Piping Plover

Table 1a. Covered activities permitted (X) and implemented (gray shading) in 2024.

Location	Covered Activities			Specific Permissions					
	Roads & Parking Lots	Rec. & Bch. Ops.	Oversand Vehicle Use	Reduced proactive symbolic fencing	Reduced symbolic fencing around nests	Nest moving	Barriers	Chick herding	Deterrents (incl. raking)
Cape Poge Wildlife Refuge, Leland Beach, and Wasque Reservation, Edgartown (The Trustees of Reservations)		X	X	X	X				X
Curley Community Center, South Boston		X		X	X	X	X	X	X
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	X	X	X	X	X	X	X	X	X
Horseneck Beach State Reservation, Westport (DCR)	X	X		X	X	X	X	X	X
North (Nauset) Beach, Chatham		X	X	X	X				
Nauset Beach, Orleans			X						
Plymouth Long Beach, Plymouth	X		X				X	X	
Revere Beach State Res., Revere; Winthrop Shore Res., Winthrop; Nahant Beach State Res., Nahant; Carson Beach, S. Boston; M St. Beach, S. Boston; and Wollaston Beach, Quincy (DCR)	X	X	X	X	X	X	X	X	X
Sandy Neck Beach Park, Barnstable		X	X	X					X
Wychmere Beach Club, Harwich		X		X	X	X	X	X	X

Massachusetts Habitat Conservation Plan for Piping Plover

Table 1b. Take exposures permitted and implemented, productivity, and habitat affected in 2024.

Location	Description of Covered Activity Implementation	No. permitted take exposures	No. take exposures used	% of total pairs exposed	Productivity, exposed pairs (fledglings/ pair)	Productivity, unexposed pairs (fledglings/ pair)	Overall site productivity (fledglings/ pair)	Nesting habitat affected (acres)
Cape Poge Wildlife Refuge, Leland Beach, and Wasque Reservation, Edgartown (The Trustees of Reservations)	None	3	0	0	n/a	1.38	1.38	0
Curley Community Center, South Boston	Proactive fencing was reduced, raking occurred, and fencing around nests was reduced to keep areas open for recreation.	2	2	40	0.5	2.33	1.6	0.24
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	Roads and parking lots were open to non-essential vehicles. Proactive fencing was reduced and raking and flagging occurred to deter birds from nesting. Occasional use of herding and barriers.	24	4	8	2.25	0.74	0.86	1.95
Horseneck Beach State Reservation, Westport (DCR)	Proactive fencing was reduced, raking occurred, and fencing around nests was reduced to keep areas open for recreation.	5	2	15.3	0	0.27	0.23	2.05
North (Nauset) Beach, Chatham	None	2	0	0	n/a	n/a	0.64	0
Nauset Beach, Orleans	OSVs were escorted past a brood	2	1	2.7	1	0.72	0.73	0.15
Plymouth Long Beach, Plymouth	Ryder Way and parking areas were open to non-essential vehicles and unescorted essential vehicles. A barrier was used along part of the roadway.	8	6	12	1.5	1.6	1.59	0.72
Revere Beach State Res., Revere; Winthrop Shore Res., Winthrop; Nahant Beach State Res., Nahant; Carson Beach, S. Boston; M St. Beach, S. Boston; and Wollaston Beach, Quincy (DCR)	Reduced symbolic fencing around nests was installed to allow for continued recreational and operational activities	15	1	3.13	0	1.17	1	0.8
Sandy Neck Beach Park, Barnstable	Proactive fencing was reduced, beach raking was conducted, and coverboards were installed to deter nesting and keep a recreational area open.	3	2	3.1	2.00	1.3	1.32	2.33
Wychemere Beach Club, Harwich	Proactive fencing was reduced in an area prioritized for recreation. Fencing was reduced around nests. Raking and streamers were used as deterrents.	3	2	57	1.33	2	1.71	0.44

Massachusetts Habitat Conservation Plan for Piping Plover

Table 1c. Details of take exposures in 2024.

Location	Description of Covered Activity Implementation	Pair identifier	No. chicks exposed	No. fledged from exposed pairs	Start of implementation	End of implementation	No. days pair/ brood exposed to covered activity	Age of chicks when first exposed (days)
Curley Community Center, South Boston	Recreation & beach operations: reduced proactive symbolic fencing & reduced fencing around the nest	3A	4	1	5/4/2024	7/12/2024	70	0
Curley Community Center, South Boston	Recreation & beach operations: reduced proactive symbolic fencing & reduced fencing around the nest	2A	3	0	5/4/2024	6/6/2024	33	0
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	Use of roads & parking lots in the vicinity of unfledged chicks (crossing and herding)	4	2	0	6/28/2024	7/1/2024	4	4
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	Use of roads & parking lots in the vicinity of unfledged chicks (crossing and herding)	16	4	4	6/25/2024	7/22/2024	28	1
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	Use of roads & parking lots in the vicinity of unfledged chicks (crossing & barriers)	26	3	3	6/9/2024	7/9/2024	31	3
Duxbury Beach, Duxbury (Duxbury Beach Reservation)	Recreation & beach operations: reduced proactive symbolic fencing (deterrence)	28	2	2	4/1/2024	7/17/2024	107	0
Horseneck Beach State Reservation, Westport (DCR)	Recreation & beach operations: reduced proactive symbolic fencing, with deterrence	HNB 05	0	0	4/15/2024	5/13/2024	28	n/a
Horseneck Beach State Reservation, Westport (DCR)	Recreation & beach operations: reduced proactive symbolic fencing and reduced fencing around the nest, with deterrence	HNB 07	0	0	4/15/2024	6/12/2024	60	0
Nauset Beach, Orleans	OSVs were escorted past a brood three times per day	RW1b	2	1	7/22/2024	8/1/2024	10	20
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks, with barrier	5A	4	2	6/1/2024	6/30/2024	30	0
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks	8A	4	1	6/2/2024	7/4/2024	33	0
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks	11A	2	2	6/11/2024	7/11/2024	30	6
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks	22A	4	2	6/7/2024	7/5/2024	28	0
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks	29A	2	2	7/1/2024	7/13/2024	12	18
Plymouth Long Beach, Plymouth	Use of roads & parking lots in the vicinity of unfledged chicks, with barrier	6B	1	0	7/8/2024	7/22/2024	15	0
Revere Beach State Res., Revere; Winthrop Shore Res., Winthrop; Nahant Beach State Res., Nahant; Carson Beach, S. Boston; M St. Beach, S. Boston; and Wollaston Beach, Quincy (DCR)	Recreation & beach operations: reduced fencing around the nest	WOL 05 (2 nests)	0	0	5/3/2024	6/11/2024	26	n/a
Sandy Neck Beach Park, Barnstable	Reduced proactive symbolic fencing with raking, flagging, and coverboards	38	0	4	4/4/2024	7/9/2024	32	n/a
Sandy Neck Beach Park, Barnstable	Reduced proactive symbolic fencing with raking, flagging, and coverboards	39	0	0	4/4/2024	7/9/2024	21	n/a
Wychmere Beach Club, Harwich	Reduced proactive symbolic fencing, with deterrence;	1	0	0	4/3/2024	5/6/2024	34	n/a
Wychmere Beach Club, Harwich	Reduced proactive symbolic fencing, with deterrence; Reduced fencing around the nest	2	4 to 7	2	4/3/2024	8/15/2024	134	0

II.2 Summary of annual take exposure.

The total allowable take exposure for a given year is based on a three-year rolling average of the statewide Piping Plover breeding population (**HCP Table 3-1**). The average breeding population size for 2021 – 2023 was 1059.3 breeding pairs, based on Adjusted Total Count, resulting in an allowable exposure to covered activities of 7%, or a maximum of 74 territories, pairs, nests, and/or broods that could be exposed to covered activities statewide (**Table 2**). During 2024, 20 territories/pairs/nests/broods were exposed to covered activities, and exposure at three sites was >15% of the breeding population size at that site (**Tables 1, 4**).

Under a formal Section 7 consultation in 2010 with the Cape Cod National Seashore (CACO), the USFWS issued an incidental take statement for the exposure to take of up to three pairs of Piping Plovers to flexible management. The USFWS completed a second formal consultation with the CACO in 2021 for additional flexible management actions and locations at which the management could be implemented. Annually, up to five Piping Plover pairs may be exposed to take beginning in 2022. Although take exposure for recreational activities on federal properties is not associated with the Massachusetts Piping Plover HCP, MassWildlife is required to subtract these authorizations from the total allowable statewide take exposure available to HCP participants each year.

Table 2. Abundance of breeding Piping Plovers in Massachusetts, 2021-2023, and allowable and actual take exposure for 2024 under the Massachusetts Piping Plover HCP and the National Park Service’s flexible management program at the Cape Cod National Seashore.

	YEAR		
	2021	2022	2023
MA breeding pairs (<i>adjusted total count</i>)	967	1033	1178
MA <i>adjusted total count</i>, 3-year average (2021 – 2023):	1059.3		
Maximum allowable 2024 Exposure (7%):	74 territories/pairs/nests/broods		
Maximum allowable exposure, statewide HCP	69 territories/pairs/nests/broods		
Maximum allowable exposure, Cape Cod National Seashore	5 territories/pairs/nests/broods		

II.3 Summary of the annual mitigation implemented and any mitigation credits or deficits outstanding from previous years.

Offsite mitigation. MassWildlife partially funded two organizations to conduct offsite mitigation projects (selective predator management) during the 2024 season.

1. The Town of Plymouth, contracting with USDA-Wildlife Services, conducted selective predator management at Plymouth Long Beach; this benefitted 49 pairs of plovers.
2. The Trustees of Reservations, contracting with USDA-Wildlife Services, conducted selective predator management at Cape Poge, Leland, and Wasque beaches on Martha’s Vineyard; this benefitted 18 pairs of plovers (14.83 credits accrued to the state and 3.17 to the Trustees, as the work was cost-shared), and 53 pairs of Least Terns.

Onsite/internal mitigation. Three COI-holders used their own resources to offset take exposures at twelve sites. In all cases, USDA APHIS Wildlife Services carried out selective predator management in

accordance with plans approved by the New England Field Office of the USFWS for the purpose of HCP mitigation. This work was not cost-shared with MassWildlife.

1. **Department of Conservation and Recreation.** Onsite and offsite internal work benefitted 58 pairs of plovers at: Horseneck Beach, Westport; Revere Beach, Revere; Winthrop Beach, Winthrop; Nahant Beach, Nahant; Demarest Lloyd State Park, Dartmouth; Sandy Point, Ipswich; and West Island, Fairhaven.
2. **Duxbury Beach Reservation.** Work onsite at Duxbury Beach benefitted 50 pairs of plovers.
3. **The Trustees of Reservations.** Work offsite at Crane Beach benefitted 45 pairs of plovers. As described under “*Offsite mitigation*,” above, work onsite at Cape Poge, Leland, and Wasque beaches on Martha’s Vineyard benefitted 18 pairs of plovers, with credits shared by the Trustees and the state.

COI-holders implemented more than enough selective predator management to meet the 2024 mitigation requirements. Therefore, there is a mitigation credit that carries forward (**Table 3**). At the mitigation ratios of 2.5:1 (OSV Use and Reduced Fencing) and 3:1 (Roads and Parking Lots), selective predator management was required to benefit 54.5 pairs to mitigate for exposures that occurred during 2024. In fact, selective predator management benefitted 220 pairs: COI-holders implementing on-site/internal mitigation benefitted 156.17 pairs while the portion of offsite mitigation funded through escrow benefitted 63.83 pairs. Including unexpired credits carried forward from previous years (2021 – 2023), at the end of 2024 there were 50.96 credits statewide and an additional 372.67 credits allocated to individual sites (*i.e.*, because the COI-holder directly funded mitigation activities). No statewide credits from 2021 expired after 2024 because there were no surplus credits in 2021; therefore, 50.96 statewide credits carry into 2025. Similarly, 172 individual site credits expired after 2024 (126.5 for DCR and 45.5 for Duxbury), yielding 200.67 site credits carrying into 2025. **Tables 3 a-c** provide additional detail on mitigation requirements, deficits, and credits.

Massachusetts Habitat Conservation Plan for Piping Plover

Table 3a. Predator management mitigation requirements and credits for COI-holders under the Massachusetts Piping Plover HCP in 2024.

2024 COI Site	No. authorized exposures	No. actual exposures, 2024	Selective predator management mitigation, required credits	Site credits gained, 2024 ^a	Annual site credit balance, 2024 ^{ab}	Total site credit balance, end of 2024 ^{ac}	Non-expired credits carrying into 2025 ^a	Year credits will expire ^d
Sandy Neck Beach Park	3	2	5	7.5	2.5	2.5	2.5	2026
North (Nauset) Beach, Chatham	2	0	0	5	5	5	5	2026
Curley Center	2	2	5	5	0	0	0	2027
Revere/ Winthrop/ Nahant/ Carson/M St./ Wollaston	15	1	2.5	*same as Horseneck	*same as Horseneck	*same as Horseneck	*same as Horseneck	2027
Horseneck	5	2	5	58	50.5	184.5	58	2027
Duxbury	24	4	11.5	50	38.5	95.5	50	2025
Nauset Beach, Orleans	2	1	2.5	0	-2.5	2.5	2.5	2025
Plymouth Long Beach	8	6	18	0	-18	32	32	2026
Cape Poge, Leland, Wasque (Edgartown)	3	0	0	48.17	48.17	48.2	48.2	2027
Wychmere Beach Club	3	2	5	5	0	2.5	2.5	2026
Total	67	20	54.5	178.67	124.17	372.67	200.67	

^a From selective predator management or escrow/mitigation fund only

^b Annual site credit balance includes site credits and take exposures from the current season only; it does not include credits or deficits from previous years

^c Total site credit balance includes site credits or deficits from previous years in addition to the current season

^d Credits from a previous permit term expire in the first year of a subsequent, consecutive term.

Massachusetts Habitat Conservation Plan for Piping Plover

Table 3b. Predator management mitigation programs and credits under the Massachusetts Piping Plover HCP in 2024.

2024 Mitigation site	Total cost	HCP cost (COI-holder or grant awardee)	HCP cost (State)	HCP cost-share (COI-holder or grant awardee)	Actual pairs benefitting	Site credits gained (selective pred. mgmt. only)	Site credits gained (escrow)	State credits gained (selective pred. mgmt. only)	Site credits used	Location(s) of credit use
Duxbury Beach	14,695.21	14,695.21	0.00	1.00	50	50	n/a	0	11.5	Duxbury Beach
Plymouth Long Beach	6,523.00	0.00	6,523.00	0.00	49	0	n/a	49	18	n/a (offsite mitigation)
Horseneck, DemLloyd, Sandy Pt, Revere, Winthrop, Nahant, West I.	14,854.65	14,854.65	0.00	1.00	58	58	n/a	0	7.5	Horseneck, Revere, Winthrop, Nahant, Carson, Wollaston
Cape Poge, Leland, Wasque	12,134.97	2,134.97	10,000.00	0.18	18	3.17	n/a	14.83	0	Cape Poge, Leland, Wasque and offsite mitigation
Crane Beach	1,308.86	1,308.86	0.00	1.00	45	45	n/a	0	0	
<i>Subtotal, mitigation sites</i>	<i>\$49,516.69</i>	<i>\$32,993.69</i>	<i>n/a</i>		<i>220.0</i>	<i>156.2</i>	<i>0</i>	<i>63.83</i>	<i>37.0</i>	<i>-</i>
<i>Subtotal, State & escrow sites</i>	<i>n/a</i>	<i>n/a</i>	<i>\$16,523.00</i>		<i>0</i>	<i>0</i>	<i>22.5</i>	<i>-22.5</i>	<i>17.5</i>	<i>22.5 escrow credits from Barnstable (7.5), Chatham (5), Curley Center (5) & Wychmere (5) are subtracted from 'State credits gained' so that they are not double-counted when the State funds mitigation.</i>
TOTAL	\$49,516.69	\$32,993.69	\$16,523.00		220.0	156.17	23	41.33	54.5	

Table 3c. Statewide predator management net mitigation credits under the Massachusetts Piping Plover HCP in 2024.

2024 Credit Type	Credits, end of 2023	Credits gained, 2024	Credits used, 2024	Net credits, end of 2024	Credits expiring, 2024	Credits carrying into 2025
Credits Allocated to Individual Sites (includes escrow credits)	248.5	178.67	54.5	372.67	172	200.67
Credits Available Statewide	9.63	41.33	n/a ^a	50.96	0	50.96
TOTAL NET CREDITS	258.13	220	54.5	423.63	172	251.63

^a Statewide (escrow) credits used are accounted for under credits allocated to individual sites.

II.4 Summary of exceptions to the restrictions on the number or territories/nests/broods affected (15% vs. 75%) and habitat impacts (2 acres/10% vs. 4 acres/20%) employed for the covered activities (as provided for in the Plan).

- *Restriction on the number of territories/pairs/nests/broods affected (15% vs. 75%)* – The limit on the number of pairs that can be affected is calculated based on the number of pairs present during the previous breeding season (HCP Section 3.2.2.2., p. 3-9). Up to eight sites annually may exceed 15%. In addition, sites with six or fewer pairs may impact one pair.
 - **Number of exceptions.** Based on the number of authorized take exposures and the 2023 population size, seven sites had potential to exceed 15% of pairs affected, although only three did so in 2024 (**Table 4**). At all three sites, pairs were impacted by *Recreation and Beach Operations (Reduced proactive symbolic fencing and/or Reduced fencing around the nest)*. Proactive fencing was reduced, raking occurred, and fencing around nests was reduced to keep areas open for recreation.
 - **Curley Center.** Two of five pairs (40%) were impacted.
 - **Horseneck Beach.** Two of 13 pairs (15.4%) pairs were impacted.
 - **Wychmere Beach Club.** Two of 3.5 pairs (57%) were impacted.
- *Restriction on habitat impacts (2 acres/10% vs. 4 acres/20%)* – This restriction refers specifically to the covered activity *Recreation and Beach Operations-Reduced Proactive Symbolic Fencing* (HCP Section 3.2.2.2, pp. 3-8 – 3-9). Up to five sites annually may exceed 2 acres or 10% of habitat impacted, whichever is less, up to a maximum of 4 acres or 20%, whichever is less.
 - **Number of exceptions.** Two sites exceeded 10%/2 acres in 2024 (**Table 4**).
 - **Sandy Neck.** See description above. Two pairs were impacted across 2.31 acres (<4%).
 - **Wychmere Beach Club.** See description above. 0.44 acres (20% of nesting habitat) were impacted.

Table 4. Percent of pairs and nesting habitat impacted by covered activities, 2024. Shaded cells indicate authorized and actual exceptions to restrictions.

Permit-site, 2024	No. PIPL take exposures permitted	No. PIPL pairs in previous year, 2023	Max. % PIPL pairs authorized to be exposed at site	No. take exposures (actual), 2024	No. PIPL pairs, 2024	% PIPL pairs exposed (actual), 2024	Implemented exception to % pairs exposed, 2024	Authorized for exception to "Reduced proactive symbolic fencing": acreage or % habitat impacted	Implemented exception to "Reduced proactive symbolic fencing": acreage or % habitat impacted, 2024
Cape Poge, Leland, Wasque	3	15	0.20	0	16	0.0	N	N	N
Curley Center, Boston	2	4	0.50	2	5	40.0	Y (40%)	Y	N
Duxbury Beach	24	46	0.52	4	50.5	7.9	N	N	N
Horseneck Beach	5	18	0.28	2	13	15.4	Y (15.4%)	Y	N
Nauset, Orleans	2	44	0.05	1	37.0	2.7	N	N	N
North (Nauset) Beach, Chatham	2	23	0.09	0	28	0.0	N	N	N
Plymouth Long Beach	8	50	0.16	6	47.5	12.6	N	N	N
Revere, Winthrop, Nahant, Carson, M St., Wollaston	15	28	0.54	1	29.0	3.4	N	Y	N
Sandy Neck Beach Park	3	57	0.05	2	65	3.1	N	Y	Y (<4%; 2.31 ac)
Wychmere Beach Club	3	5	0.60	2	3.5	57.1	Y (57%)	Y	Y (20%; 0.44 ac)

II.5 Year-to-date cumulative summary (i.e., from the start of the permit term) of temporary impacts to Piping Plover habitat resulting from covered activities (Table 5).

Table 5. Annual and cumulative temporary impacts to Piping Plover habitat under the activity *Recreation and Beach Operations - Reduced Proactive Symbolic Fencing*

Year	Temporary habitat impacts ^a (ac)	Cumulative temporary habitat impacts ^a (ac)	Description
2016	0	0	Covered activities were confined to existing roads, parking lots, and OSV corridors, and, therefore, did not result in any additional impacts to habitat.
2017	1.8	1.8	Reduced proactive fencing and beach raking to deter plovers at 2 sites: Winthrop Shore (0.6 ac) and Sandy Neck Beach Park (1.2 ac).
2018	11.66	13.46	Reduced proactive fencing and beach raking to deter plovers at 3 sites: Sandy Neck Beach Park (1.2 acres), Revere Beach (0.96 acres), and Horseneck Beach (9.5 acres). To deter Least Terns only: Winthrop Shore (0.44 acres).
2019	2.1	15.56	Reduced proactive fencing, beach raking, and/or coverboards to deter plovers at 3 sites, Sandy Neck Beach Park (1.2 acres), Revere Beach (0.6 acres), and Horseneck Beach (0.3 acres). To deter Least Terns only: Horseneck Beach (5.7 acres).
2020	4.92	20.48	Reduced proactive fencing, beach raking, and/or physical deterrents (coverboards, tarps, flagging) at 3 sites: Horseneck Beach (0.3 ac), Sandy Neck Beach Park (3.12 ac), and Duxbury Beach (1.5 ac in a gravel parking lot).
2021	1.55	22.03	Reduced proactive fencing, beach raking, and coverboards to deter plovers at Sandy Neck Beach Park (1.55 ac).
2022	1.618	23.648	Reduced proactive fencing, beach raking, and coverboards to deter plovers at Sandy Neck Beach Park (1.618 ac).
2023	6.75	30.398	Reduced proactive fencing, beach raking, and coverboards to deter plovers at Sandy Neck Beach Park (2.31 ac). Reduced proactive fencing, beach raking, and streamers to deter plovers at Wychmere Beach Club (0.44 ac). Proactive fencing was reduced, raking occurred, and fencing around nests was reduced to keep areas open for recreation at Horseneck Beach (4 ac).
2024	6.66	37.058	Reduced proactive fencing, beach raking, and coverboards to deter plovers at Sandy Neck Beach Park (2.33 ac). Reduced proactive fencing, beach raking, and pallets to deter plovers at Duxbury Beach (1.9 ac). Reduced proactive fencing and beach raking to deter plovers at the Curley Community Center (0.24 ac). Reduced proactive fencing and beach raking to deter plovers at Wychmere Beach Club (0.44 ac). Reduced proactive fencing and beach raking to deter plovers at Horseneck Beach (1.75 ac).

^aFor Piping Plovers only, under the activity *Recreation and Beach Operations - Reduced Proactive Symbolic Fencing*

II.6 Year-to-date and cumulative (*i.e.*, from the start of the permit term) quantification of exposure to incidental take of Piping Plover individuals for the purpose of demonstrating compliance with the authorized level of take on the ITP (Table 6).

Table 6. Annual and cumulative quantification of Piping Plover take exposure under the Massachusetts Piping Plover HCP, 2016 – 2024.

Year	No. Pairs/ Territories/ Nests/ Broods Exposed	Total Statewide Allowable Take Exposures	% of Statewide Allowable Exposure	Cumulative No. Pairs/ Territories/ Nests/ Broods Exposed
2016	3	47	6.4	3
2017	5	46	10.9	8
2018	19	46	41.3	27
2019	19	46	41.3	46
2020	22	48	45.8	68
2021	14	51	27.5	82
2022	16	58	27.6	98
2023	25	65	38.5	123
2024	20	74	27.0	143

II.7 Description of all experimental vegetation management actions implemented during the reporting period including a year-to-date and cumulative summary of the extent and location of land cover types enhanced through vegetation management.

To date, two experimental habitat management projects have been implemented, both in 2017.

1. **Duxbury Beach.** Vegetation in five experimental plots was scraped or buried, creating and maintaining five areas of potential nesting habitat totaling approximately 0.77 acres. Two pairs nested in the replicated habitats in both 2017 and 2018. Duxbury Beach maintained these sites by burying vegetation in February 2019, and three pairs subsequently nested within the experimental plots. In 2020, two pairs nested and each fledged three chicks. In 2021, one pair nested and fledged one chick. In 2022, three pairs nested and fledged nine chicks. In 2023, three pairs nested and fledged seven chicks. In 2024, three pairs nested and fledged 11 chicks.
2. **Winthrop Shore Reservation.** Cobble was removed from the southern portion of the shorebird nesting area, where two pairs of Piping Plovers and 20-25 pairs of Least Terns nested in 2017. Plovers and terns continued to nest in this area annually through 2024.

II.8 Assessment of the efficacy of vegetation management actions in achieving performance objectives and recommended changes to improve the efficacy of the methods.

Piping Plovers continued to nest in the experimental habitat areas at both Duxbury Beach and Winthrop Shore in 2024. In ~2021, MassWildlife recommended cessation of vegetation management in habitat

areas at Duxbury, as plovers in these areas are immediately adjacent to the road and presumably at higher risk of mortality.

II.9 List of all plan participants and activities authorized for take coverage.

See **Table 1**.

II.10 Accounting of all mitigation funds collected from plan participants during the previous year, and any unspent funds from previous years (Table 7).

Table 7. Accounting of Offsite Mitigation Funds, 2024.

Statewide Mitigation Funds Balance (end of 2024)	
<i>Balance from Previous Years</i>	
\$61,968.15	Unspent funds, reported at end of 2023
\$5,800.00	Rectified erroneous Chatham escrow balance - not a new deposit
<i>Income</i>	
\$17,400.00	Barnstable escrow
\$11,600.00	Chatham town mitigation account
\$11,600.00	Curley Community Center escrow
\$11,600.00	Wychmere escrow
<i>Expenses</i>	
\$10,000.00	Predator Management on Martha's Vineyard, 2024
\$8,505.20	Predator Management at Plymouth Long Beach, 2024
\$7,894.04	Duxbury Beach Reservation, Education and Outreach at Duxbury Beach, 2024
<i>Unspent Funds, end of 2024</i>	
\$93,568.91	

II.11 If appropriate, any updates to the mitigation fee as described under the adjustment process in Section 5.2.2.1 and an updated annual budget for MassWildlife's plan implementation.

No adjustments to the mitigation fee or MassWildlife implementation budget are required at this time.

II.12 If available at the time of the annual report, evidence that MassWildlife's needed funding has been assured for the coming year by the State legislature, and the funds have been earmarked or segregated for their intended purpose within MassWildlife's accounting system.

Funding for Massachusetts Fiscal Year 2024 (ending June 30, 2025) has been secured and funding for Fiscal Year 2026 (beginning July 1, 2025) has been requested (**Appendix A**).

II.13 Accounting of the cost of all mitigation measures implemented in the previous fiscal year and the expected cost of mitigation measures in the upcoming fiscal year.

An accounting for the costs of all mitigation measures implemented in 2024 is provided in **Table 3b**. Additional information on off-site mitigation is provided in **Table 5**. The cost of onsite/internal mitigation is expected to be similar in 2025. MassWildlife has already established contracts totaling ~\$30,000 for offsite mitigation activities in 2025, including selective predator management and education and outreach.

II.14 Record of any grants and Plan implementation contracts awarded to plan participants, other landowners, or implementation partners.

None. See “II.3 Offsite mitigation.”

II.15 Description of the adaptive management process used during the reporting period, if applicable.

No adaptive management took place during the 2024 reporting period.

II.16 Summary for the reporting period of the monitoring program objectives, techniques, and protocols, including monitoring locations, variables measured, sampling frequency, timing and duration, and analysis methods.

The monitoring program documented implementation of covered activities, compliance with the Guidelines, and mitigation programs. COI-holders kept required logs of initiation dates of covered activities; number of broods and chicks exposed; locations of exposed broods and any impacts to the broods associated with the covered activity; and monitoring frequency. MassWildlife was notified at least 24 hours in advance of implementing the covered activities and subsequently conducted COI compliance site visits at each site implementing a COI. Compliance with the impact avoidance and minimization protocols was documented in logs and summarized in the COI-holder final reports. Final reports and invoices also document implementation of required mitigation, which was also reported by USDA APHIS.

The monitoring program also aimed to assess the impacts of covered activities and effectiveness of impact minimization measures and mitigation programs. Effectiveness monitoring consisted of documenting pair behavior, chick behavior, road-crossing frequency, and nesting and fledging success at the covered activity implementation sites. Measures of reproductive success were also collected at the selective predator management implementation sites. Monitoring information was provided to MassWildlife in HCP annual site reports and through the PIPLODES online database. MassWildlife coordinated the synthesis of 2024 Piping Plover data by cooperators, performed quality control, and has finalized the 2024 index count, adjusted total count, and productivity of breeding Piping Plovers.

II.17 Assessment of the efficacy of the monitoring and research program and recommended changes to the program based on interpretation of monitoring results and research findings, if applicable.

Compliance monitoring.

Compliance monitoring occurred at all sites that implemented covered activities in 2024.

Effectiveness monitoring. Making inferences about the effectiveness of mitigation measures and impacts of covered activities on productivity is methodologically challenging and will require larger sample sizes and possibly other methods, such as establishment of predator management control sites. There are no recommended changes to the monitoring program currently.

II.18 Description of all Plan-directed studies undertaken during the reporting period; a summary of study results; and a description of integration with monitoring, assessment, and compliance elements.

No Plan-directed studies were undertaken in 2024.

II.19 Description of any actions taken or expected regarding adaptive management and/or changed circumstances, including remedial actions resulting from any Plan or permit amendments granted in the prior years, if applicable.

No actions were taken or expected regarding adaptive management and/or changed circumstances in 2024.

II.20 Description of any unforeseen circumstances that arose and responses taken, if applicable.

The Town of Plymouth was issued an emergency amendment to install additional barrier fencing along the roadway to protect Least Tern chicks.

II.21 Summary of any administrative changes, minor modifications, or major amendments proposed or approved during the reporting year (see Section 5.3.3, *Modifications to the Plan*). Any information about mitigation measures other than selective predator management, the associated funding, and monitoring is being provided for informational purposes only, as the USFWS has indicated that these activities do not count as mitigation to offset take associated with the ITP.

None.

II.22 Other state or federally listed species affected by HCP implementation

Least Tern (*Sternula antillarum*)

COI-holders at covered sites developed impact minimization and mitigation plans for Least Terns and obtained Conservation and Management Permits (CMP) to ensure Massachusetts Endangered Species Act (MESA) compliance. Status of implementation at sites with coverage for take of Least Terns during 2024 is shown in **Table 8**.

Table 8. 2024 implementation status for covered activities affecting Least Terns at sites with Least Tern coverage.

Site with Least Tern coverage	Take exposure in 2024?
Cape Poge, Leland, and Wasque	No
Duxbury Beach, Duxbury	Yes
Horseneck Beach, Westport	Yes
Nauset Beach (North Beach), Chatham	No
Nauset Beach, Orleans	No
Plymouth Long Beach, Plymouth	Yes
Sandy Neck Beach Park, Barnstable	No
Revere; Winthrop; Nahant; Carson; M St.; and Wollaston (DCR beaches)	No
Wychmere Beach Club, Harwich	Yes

- **Sites with take exposure.** At the four sites where take exposure occurred, the COI-holders conducted on-site mitigation (three sites) or contributed to offsite mitigation (one site).
 - **Duxbury.** There were 25 take exposures.
 - *Recreation and beach operations – Reduced proactive fencing.* An estimated 19 pairs were exposed in the mid-OSV colony to reduced fencing, and raking. Ten of these were also exposed to reduced fencing around nests.
 - *Recreation and beach operations – Reduced fencing around the nest.* Fifteen pairs were exposed, including ten already exposed through reduced proactive fencing.
 - *“Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks.”* Six chicks were exposed to barriers and reduced buffers, five of which had already been exposed to reduced fencing. Of two chicks exposed to barriers, one had already been exposed to reduced fencing. All four chicks exposed to reduced buffers had already been exposed to reduced fencing.
 - Onsite mitigation in the form of selective predator management benefitted 385 pairs. DBR entered 2024 with a credit balance of 1073.5, 37.5 of which were used for implementation in 2024, leaving a balance of 1421 credits. 1036 credits expired after 2024, so 385 will carry forward into 2025.
 - **Horseneck Beach.** There were four take exposures.
 - *Recreation and beach operations – Reduced fencing around the nest.* Fencing around four Least Tern nests was reduced to 10 yd around the nests to preserve space for recreational activities. This impacted 1.6 ac of habitat over about 7 weeks. All nests hatched. Approximately eight chicks were exposed and six fledged.
 - Onsite and offsite mitigation in the form of selective predator management benefitted 127 pairs. DCR entered 2024 with a credit balance of 343, six of which were used for implementation in 2024, leaving a balance of 464 credits. 343 credits expired after 2024, 121 will carry forward into 2025.
 - **Plymouth Long Beach.** There were 59 take exposures.
 - *Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks.* Silt fence barriers were installed along Ryder Way adjacent to the Lot O and Day Parking Least Tern colonies to prevent chicks from accessing the road. In the Lot O

colony, 61 of 93 exposed chicks fledged; they benefitted from electric fence installation. No exposed chicks from the Day Parking area fledged; predation was suspected. No negative impacts of silt fencing were observed.

- On-site predator management benefitted 182 pairs of Least Terns. Broods from 59 pairs were exposed to covered activities (118 debits). Going into 2024, Plymouth had a credit balance of 36. No credits expired after 2024. Therefore, 100 credits from on-site predator management in 2024 will carry into 2025.
- **Wychmere.** There were four take exposures.
 - *Recreation and beach operations – Reduced proactive symbolic fencing.* Fencing reductions affected four Least Tern territories but no scrapes.
 - *Recreation and beach operations – Reduced fencing around the nest.* Fencing reductions affected three pairs. All nests hatched. The chicks moved eastward and where they were not distinguishable from other broods. Productivity was good for the colony.
 - Most pairs, including those exposed to reduced fencing around the nest, appeared to be more tolerant of the presence of the rake than of pedestrians. The exposed pairs did exhibit higher levels of disturbance, primarily due to pedestrian presence, than did non-exposed pairs.
 - Wychmere Beach Club provided funds for offsite mitigation of Least Terns.

Diamondback Terrapin (*Malaclemys terrapin*)

- **Sites with coverage for take of Diamondback Terrapins.** COI-holders for these sites developed impact minimization and mitigation plans, including nest protection, for Diamondback Terrapin and obtained CMPs to ensure MESA compliance: Sandy Neck Beach Park, Barnstable; Nauset Beach, Orleans. The Nauset Beach CMP covered limited exposure of terrapins, which sometimes cross the OSV corridor to nest. The Sandy Neck CMP also covered limited exposure of terrapins, which are sometimes found crossing or nesting within the Marsh Trail used by essential vehicles and campers.
- **Sites with no take exposure.** Sandy Neck Beach Park and Nauset Beach, Orleans.
- **Sites with take exposure.** None.

Massachusetts Habitat Conservation Plan for Piping Plover

B. Appendix A. MassWildlife FY 2025 and FY 2026 Director's and CFO's Funding Letter



DIVISION OF FISHERIES & WILDLIFE

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February 14, 2025

Audrey Mayer
Supervisor – New England Field Office
US Fish & Wildlife Service
Northeast Region – Ecological Services
70 Commercial St., Suite 300
Concord, NH 03301

RE: Funding assurances for implementation of the Massachusetts Statewide Piping Plover Habitat Conservation Plan in 2025 and 2026 per conditions L. and M. of the USFWS Incidental Take Permit TE01281C-0

Dear Ms. Mayer:

We are writing to confirm that the Massachusetts Division of Fisheries and Wildlife (MassWildlife) has secured adequate funding to fulfill its Statewide Piping Plover Habitat Conservation Plan (HCP) obligations for Fiscal Year 2025 in accordance with the budget presented in the Final HCP.

Additionally, MassWildlife has requested from the legislature adequate funding to fulfill its HCP obligations for Fiscal Year 2026, in accordance with the budget presented in the Final HCP.

Sincerely,

A handwritten signature in blue ink that reads "Mark S. Tisa".

Mark S. Tisa, Ph.D., M.B.A.
Director

A handwritten signature in blue ink that reads "Kristin D. McCarthy".

Kristin D. McCarthy
Associate Director, Chief Fiscal Officer
Massachusetts Division of Fisheries and Wildlife

cc: Karen Dolan, MassWildlife Finance and Projects Administrator, NHESP
Carolyn Mostello, MassWildlife Coastal Waterbird Biologist, NHESP
Jesse Leddick, Assistant Director, NHESP
Margaret Harrington, USFWS

MASSWILDLIFE