DIVISION OF
FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581
p: (508) 389-6300 | f: (508) 389-7890
MASS.GOV/MASSWILDLIFE

MASSWILDLIFE

Request for Certificate of Inclusion for Piping Plover Habitat Conservation Plan
MESA Review Checklist & Application Cover Page

Project Location:

Address/Location	Revere Beach State Reservation, Nahant Beach State Reservation, Winthrop Shores Reservation
City(ies)/Town(s)	Revere, Nahant, Winthrop

Applicant:

Individual	Priscilla Geigis
Organization	Department of Conservation and Recreation
Mailing address	251 Causeway St, Suite 700, Boston MA 02114
Phone & Email	617-626-1250 / priscilla.geigis@mass.gov

Property Owner(s) Information (if different from Applicant): ***Provide separate sheet if multiple landowners***

Individual(s)	
Organization(s)	
Mailing address	
Phone & Email	

Representative (if any):

Individual	Jorge J. Ayub
Organization	Department of Conservation and Recreation
Mailing address	45 Mill St. Foxborough, MA 02035
Phone & Email	857-214-0207 / jorge.ayub@mass.gov

Has this project previously been issued a NHESP Tracking Number (either by previous NOI Submittal or MESA Information Request Form)? Yes If yes, Tracking no. 17-36391

Is coverage for Least Terns also being requested? (Y/N)	Yes			
List additional MESA-listed species in project area (if known):				

REQUESTED COVERED ACTIVITIES FOR PIPING PLOVER

Covered activity:	***Use of roads and parking lots in the vicinity of unfledged chicks***	***Recreation and beach operations***	***Oversand vehicle use in vicinity of unfledged chicks***	***Total****
*No. requested take exposures**	5	5	0	10
Max. % of total pairs at site to be exposed				37%
Acreage affected				10
Max. % of total nesting acreage affected for this species at site				

* The Total *No. requested take exposures* should be a maximum number of exposures for all Covered Activities combined in a given year (i.e., a not-to-exceed value). As beach operators may not be able to predict which Covered Activities will be implemented in a given year, a range of values or maximum value may be presented for each individual activity. For instance, requested exposures under each of the three activities might be 2 while the Total might be less than 6.

REQUESTED COVERED ACTIVITIES FOR LEAST TERN OR OTHER AVIAN SPECIES (identify species): Least Tern

Covered activity:	***Use of roads and parking lots in the vicinity of unfledged chicks***	***Recreation and beach operations***	***Oversand vehicle use in vicinity of unfledged chicks***	***Total****
*No. requested take exposures**	0	6	0	10
Max. % of total pairs at site to be exposed				20%
Acreage affected				1.5
Max. % of total nesting acreage affected for this species at site				

* The Total *No. requested take exposures* should be a maximum number of exposures for all Covered Activities combined in a given year (i.e., a not-to-exceed value). As beach operators may not be able to predict which Covered Activities will be implemented in a given year, a range of values or maximum value may be presented for each individual activity. For instance, requested exposures under each of the three activities might be 2 while the Total might be less than 6.

REQUESTED SPECIFIC METHODS ASSOCIATED WITH IMPLEMENTING COVERED ACTIVITIES (check all that apply)

	Piping Plover	**Least Tern**	**Other (identify):** _____
Reduced proactive symbolic fencing	✔	✔	☐
Reduced fencing around the nest	✔	☐	✔
Beach raking	☐	✔	☐
Physical deterrents (coverboards, flagging, etc.)	☐	☐	☐
Chick herding	☐	☐	☐
Barriers	☐	☐	☐
Nest moving	✔	☐	☐
Other (briefly identify) _____	☐	☐	☐

PROPOSED PIPING PLOVER MITIGATION (Mitigation for other species should be proposed in the IAMP; see below.)

Type	**Y/N**	**Total amount**	**Pairs to benefit (credits)**
*Pay fee for offsite mitigation**	No	$	
Applicant-implemented activities (in lieu of fee):			
· Selective predator management	Yes	Submit details in IAMP (see below)	27.5
· Increased education & outreach	Y/N		MassWildlife will determine value (credits) for these activities
· Increased law enforcement	Y/N		
· Habitat management	Y/N		
· Other	Y/N		

* Mitigation ratios (mitigation credits:exposure) and fees (per pair, nest, brood, or territory) are: Use of Roads and Parking Lots (vehicular, 3:1 or $6,150; non-vehicular, 2.5:1 or $5,800); Recreation & Beach Operations, Oversand Vehicle Use (2.5:1 or $5,800)

OTHER REQUIRED ELEMENTS OF REQUEST FOR COI

*(Please attach. See a*dditional guidance available to applicants; contact coastal.waterbirds@mass.gov.)

☑ Site map – showing parcel boundaries and provide proof of ownership

☐ Written assent of landowner(s) to request coverage, if applicant is not landowner

☑ Site-specific Impact Avoidance and Minimization Plan (IAMP) in format specified by MassWildlife in available guidance

☑ Mitigation plan, including budget

☑ MA Endangered Species Act filing fee Are these two checks ready to be mailed with application?
($300 payable to "**Comm of MA – NHESP**"; https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review)

☑ Conservation and Management Permit fee
($600 payable to "**Comm of MA – NHESP**"; https://www.mass.gov/how-to/apply-for-a-conservation-management-permit)

☐ Draft Escrow/Mitigation Fund Agreement, with applicant-specific edits in TrackChanges/redline (if mitigation fee will be paid)
Contact: Coastal.Waterbirds@mass.gov for template agreement.

SUBMITTAL

☑ Mail a hard copy of entire application (including signed cover sheet) with checks, to:
Environmental Review-HCP, MassWildlife-NHESP, 1 Rabbit Hill Rd., Westborough, MA 01581.

☑ Also email entire application to: **Coastal.Waterbirds@mass.gov**.

REQUIRED SIGNATURES

Provide separate sheet if multiple landowners

I hereby certify under the penalties of perjury that the foregoing HCP/MESA filing and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge.

Signature of  Owner of Property Date 12/30/2022

Signature of Applicant (if different from Owner) Date

MASSWILDLIFE

MASSACHUSETTS
PROJECT REVIEW CHECKLIST

Massachusetts Endangered Species Act M.G.L. c.131A and Regulations (321 CMR 10.00)

Project Details

***Project or Site Name:** Revere Beach, Winthrop Beach, and Nahant Beach HCP COI Application

***Street Address/Location:** 1 Eliot Circle, Revere MA 02151

***Town(s):** Revere, Winthrop, Nahant

***Total Site Acreage:** 205 ***Acreage of Disturbance[1]:** 10

Parcel/lot number: _____ **Assessors map/plat number:** _____

Project Description (If necessary, a project/site description can also be provided as an attachment)**:** _____

DCR Request for HCP COI for Urban Coast Sites (Revere Beach, Winthrop Beach, and Nahant Beach)

Registry of deeds information[2]

Registry: _____ **Certificate #** (if registered land)**:** _____

Book: _____ **Page Number:** _____

Do you have a previous NHESP Tracking number? (Yes / No) If yes, please provide: 17-36391

Will this project require a filing with the Conservation Commission and/or DEP pursuant to the Wetlands Protection Act (WPA)? (Yes / No)

Map

***Required:** Enclose a map with the site location clearly marked and centered on the page.

Landowner Info

***Are you the Record Owner[3] of the property? (Yes / No)**
***If No, are you a representative of the Record Owner or do you have permission from the Record Owner to submit this request or filing?[4] (Yes / No)**

Department of Conservation and Recreation			
***Landowner Name**			
251 Causeway St., Suite 700	Boston	MA	02114
***Street Address/Location**	***City/Town**	***State**	***Zip Code**
	617-626-1250		
Email	**Telephone**		

Comments/Purpose of request[5]:

_____

_____

[1] Please disclose the full acreage of disturbance associated with the project, including areas outside of Priority Habitat.
[2] If your project contains more than one registered property, please attach a document listing the Registry information for each.
[3] Record Owner means any person or entity holding a legal or equitable interest, right or title to real property, as reflected in a written instrument or recorded deed, or any person authorized in writing by such person.
[4] If you are not the record owner, a statement or proof that you are authorized by the record owner must be attached.
[5] Provide the authorization you have to submit this request if you are not the record owner and not a representative of the record owner.

Applicant Info

Priscilla Geigis			
Applicant Name (if different from Landowner)			
251 Causeway St., Suite 700	Boston	MA	02114
Street Address/Location	**City/Town**	**State**	**Zip Code**
priscilla.geigis@mass.gov		617-626-1250	
Email (if available)		**Telephone**	

Representative Info

Jorge J. Ayub			
Applicant Name (if different from Landowner)			
45 Mill St.	Foxborough	MA	02035
Street Address/Location	**City/Town**	**State**	**Zip Code**
jorge.ayub@mass.gov		857-214-0207	
Email (if available)		**Telephone**	

**Required Documents*

- ☐ USGS map (1:24,000 or 1:25,000) with property boundary clearly outlined
- ☑ Project plans for entire site (including wetland Resource Areas, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work)
- ☐ Assessor's map or right-of-way plan of site
- ☑ Statement/proof that applicant is the Record Owner or that applicant is a person authorized in writing by the record owner to submit this filing
- ☐ Photographs representative of the site

Projects altering 10 or more acres, must also submit:

- ☐ A vegetation cover type map of the site
- ☐ Project plans showing Priority Habitat boundaries

The Division will notify you within 30 days if the materials submitted do not satisfy the filing requirements under 321 CMR 10.20. The Division may request additional information, such as, but not limited to, species and habitat surveys. A request for additional information would come within 30 days of receiving a complete filing.

**Filing Fee*

Fee schedule is available at https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review

***Total MESA Fee Enclosed:** $900 Payable via check to **Comm. of MA - NHESP**

**Required Signatures*

I hereby certify under the pains and penalties of perjury that the information contained is true and complete to the best of my knowledge.

12/30/2022

Signature of Property Owner/Record Owner of Property — Date

Signature of Applicant (if different from Owner) — Date

Please mail this completed form, with the required document and fee to:
NHESP Regulatory Review | MassWildlife Field Headquarters | 1 Rabbit Hill Road | Westborough, MA 01581

MASSACHUSETTS – DEPARTMENT OF CONSERVATION AND RECREATION

DCR Request for Certificate of Inclusion in the Massachusetts Habitat Conservation Plan for Piping Plover

Revere Beach State Reservation, Winthrop Shore Reservation, & Nahant Beach State Reservation

2023

Shorebird Protection Program
Natural Resources Office
Bureau of Resource Protection
Department of Conservation and Recreation
251 Causeway St. Suite 700
Boston, MA 02114

12/30/2022

TABLE OF CONTENTS

INTRODUCTION

The Massachusetts Department of Conservation and Recreation (DCR) is requesting a Certificate of Inclusion (COI) as part of the agency's application to participate in the statewide Piping Plover Habitat Conservation Plan (HCP). DCR is requesting the implementation of the following covered activities as described under the HCP section 1.2.1 Covered Activities:

- **1.** Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks
- **2a**. Recreation and Beach Operations Associated with Reduced Symbolic Fencing Around Nests
- **2b**. Recreation and Beach Operations Associated with Reduced Proactive Symbolic Fencing of Piping Plover Habitat
- **2c**. Recreation and Beach Operations at Piping Plover Nest Sites with Nest Moving

DCR is requesting up to ten (10) nesting territories for inclusion in these covered activities – approximately 40% of the 27 breeding pairs of Piping Plovers in 2022. DCR is also requesting up to six (6) nesting territories of Least Terns for inclusion in these covered activities, or approximately 20% of the 32 breeding pairs that made up the 2022 Winthrop Beach colony. The removal or reduction of symbolic fencing and the usage of the recreational pathways on these sites will help maintain access to the beach and reduce potential economic impacts as well as conflicts with recreational activities in an area that hosts over two and a half million visitors per year.

In 2013, DCR launched a new conservation management plan for Winthrop and Revere Beach and expanded to Nahant Beach in 2016 which was approved under the general conditions of the Conservation and Management Permit # 013-216.DFW. The plan consisted of impact minimization, habitat enhancement, increased monitoring, elevated and coordinated enforcement, internal DCR training, and expanded public education. DCR intends with this application amendment to utilize the HCP as an additional conservation management tool to enhance the success of Piping Plovers and Least Terns nesting at these beaches.

The geographic area to be covered under this application includes Revere Beach State Reservation, Winthrop Shores Reservation, and Nahant Beach State Reservation (Figure 1). Revere and Winthrop beaches are located about two miles apart and are connected by public transportation to the Greater Boston Metro Area. Nahant Beach is about 5 miles northeast from the southern part of Revere Beach and is mainly accessible via automobile. However, public transportation options are available nearby via bus, commuter rail, and taxi services. The covered activities permitted under this application include all suitable Piping Plover habitat along the length of Revere Beach, Winthrop Beach, and Nahant Beach, as well as Least Tern habitat on Winthrop Beach.

The current DCR management and protection of listed shorebird species assumes that

Piping Plovers nesting on Revere Beach, Winthrop Beach, and Nahant Beach are represented together as a whole urban population, and that management actions at all three beaches will benefit this entire urban population. Therefore, management efforts to benefit Piping Plovers are applied equally to all three beaches.

Intensive recreational use by residents and visitors from the Boston Metro Area impacts Revere Beach State Reservation, Winthrop Shores Reservation and Nahant Beach Reservation and their nearby salt marsh habitat. The presence of breeding piping plovers, state-listed terns and other coastal bird species of conservation concern (Table 2), including fifteen (15) focal species identified under [1] "Birds of Conservation Concern of 2008" (Table 1), share these urban coastal habitats with hundreds of thousands of visitors annually. DCR takes in consideration this rich biodiversity in our stewardship efforts with a comprehensive approach for conservation in all coastal habitats of the Boston Metro Area.

The combination of popularity for recreation and importance of habitat has created a unique opportunity for urban wildlife conservation, to proactively educate residents and visitors from the nearby communities about the coastal conservation goals and statutory protections for focal priority species.

Table 1. USFWS Birds of Conservation Concern at Nahant, Revere, and Winthrop Area*

American Oystercatcher	Least Bittern	Short-billed Dowitcher
Black Skimmer	Least Tern	Short-eared Owl
Buff-breasted Sandpiper	Peregrine Falcon	Snowy Egret
Greater Shearwater	Pied-billed Grebe	Whimbrel
Hudsonian Godwit	Semipalmated Sandpiper	Wilson's Plover

**Species list compiled from BCC 2008-list 30, table 28 BCR - New England/Mid Atlantic Coast*

Table 2. Federal and State listed species at Nahant, Revere, and Winthrop Beaches

Common Name	Scientific Name	Official Conservation Status
American Oystercatcher	*Haematopus palliatus*	Considered as "Species of High Concern"
Common Tern	*Sterna hirundo*	Threatened under MESA
Least Tern	*Sterna antillarum*	Threatened under MESA
Piping Plover	*Charadrius melodus*	Threatened under MESA & ESA
Rufa Red Knot	*Calidris canutus rufa*	Threatened under ESA

M.E.S.A: M.G.L. c.131A and regulations 321 CMR 10.00; and M.G.L. c.131 S5, 74 & Title 50 CFR Federal E.S.A: Act of 1973, as amended, 16 U.S.C §§ 1531 et seq.

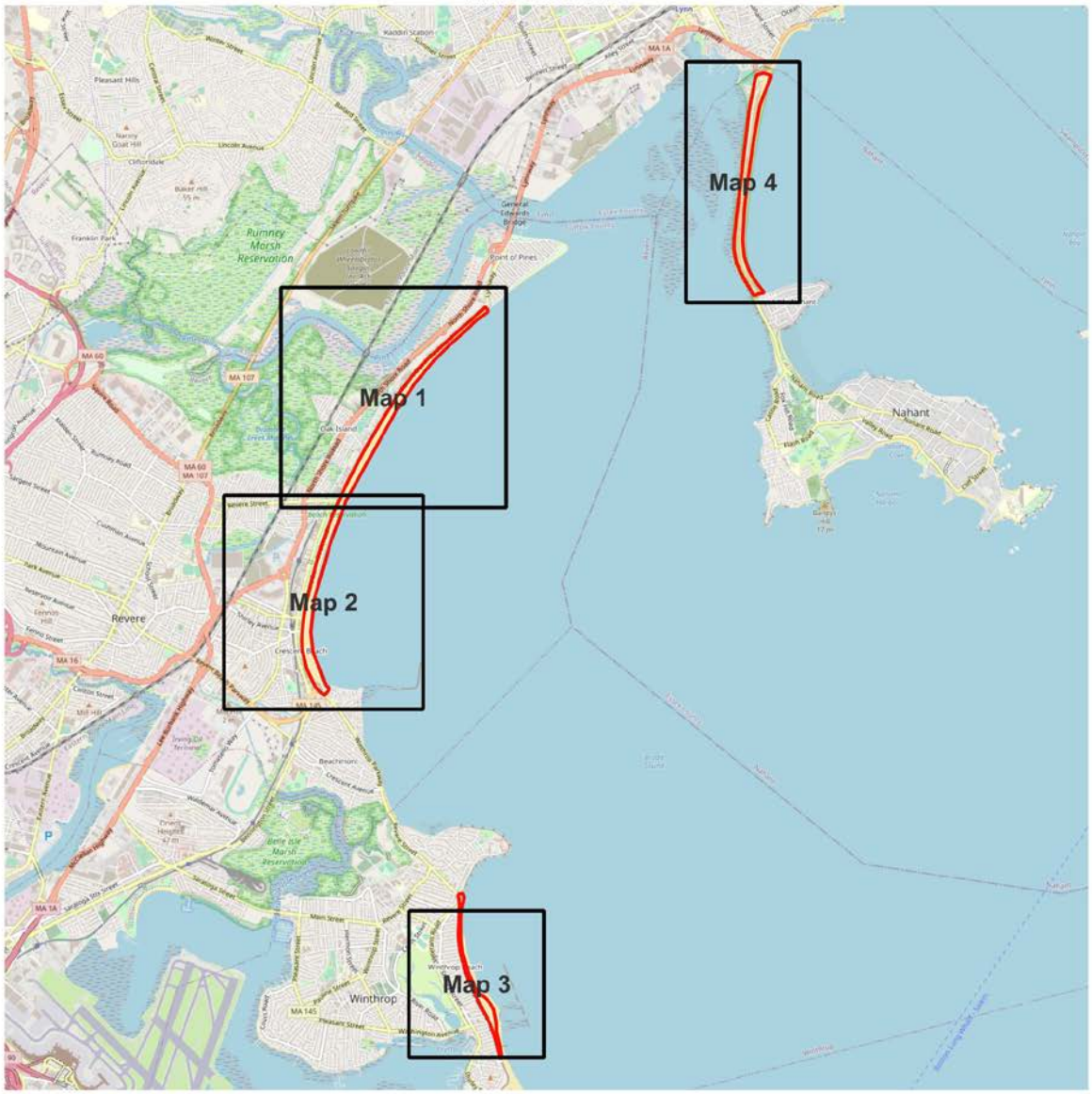
1 The Fish and Wildlife Conservation Act mandates the U.S. Fish and Wildlife Service (USFWS) to identify species, subspecies, and populations of all migratory nongame birds that without additional conservation actions are likely to become candidates for listing under the Endangered Species Act (ESA).

Reference Map

Massachusetts Department of Conservation and Recreation

Urban Beaches with Breeding Piping Plovers and Least Terns

DCR 2023 Piping Plover Habitat Conservation Plan COI Application



- Map 1: Revere Beach North
- Map 2: Revere Beach South
- Map 3: Winthrop Beach
- Map 4: Nahant Beach

0 0.5 1 mi

N W E S

This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr Massachusetts

IMPACT AVOIDANCE AND MINIMIZATION PLAN (IAMP)

I. SITE DESCRIPTION

Revere Beach is the oldest public beach in the United States, founded in 1896. Today, this beach boasts almost 120 acres of shoreline with up to a quarter million visitors each week during the peak of the summer. Along Revere Beach Boulevard there is a bandstand for summer concerts, a bathhouse and many shade shelters. Revere Beach is accessible by public transportation, making it a popular spot for people from the Boston metro area.

Winthrop Beach was used from the mid-1600s until the late-1800s mostly for utilitarian purposes: clam digging, lobster fishing, kelp for fertilizer, rocks and gravel for ship ballast. The arrival of public transportation to the north shore in 1875 along with the acquisition of the reservation in 1900 by the Commonwealth of Massachusetts, spurred the popularity of Winthrop Beach as a destination for city dwellers and tourists alike. Winthrop Beach consists of nearly 18 acres of coastal habitat. Today, Revere and Winthrop Beaches are regarded as centerpieces of a year-round community, which has replaced the hotels and cottages of the past.

Nahant Beach, also called Long Beach, is situated along a human-made causeway connecting the town of Nahant to the city of Lynn. The beach is part of DCR's Lynn Shore Reservation, a protected coastal region covering 67 acres with a connected multi-use paved path. The accessibility of this location and presence of a large parking lot along the beach draws in large crowds during the summer season.

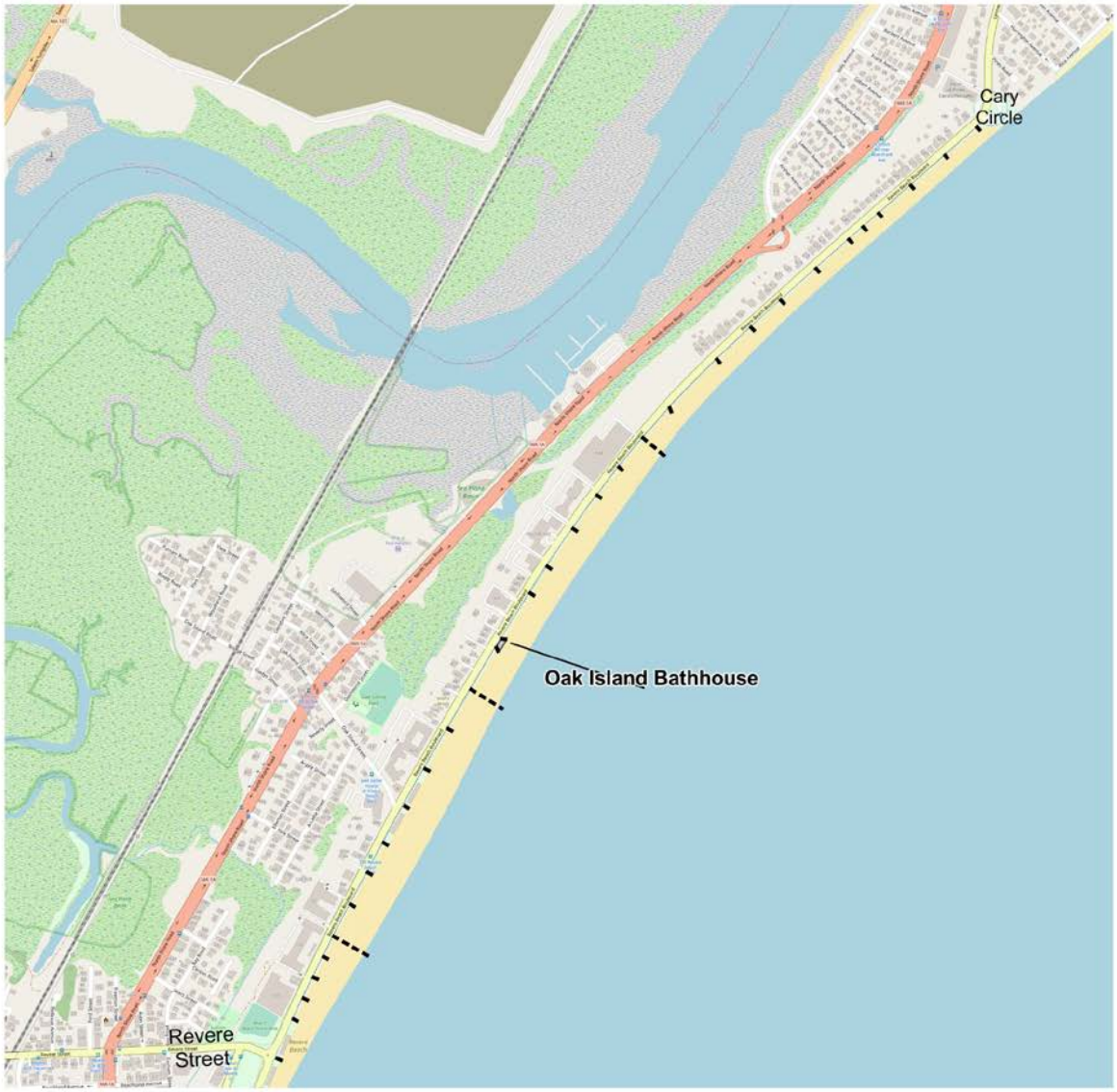
In recent years Revere, Winthrop, and Nahant Beaches have also served as nesting habitat for the urban populations of piping plovers and least terns. Due to the favorable beach conditions, the support of the local communities, and recent resource management efforts by DCR, the nesting habitat has improved on these sites. However, portions of the primary nesting habitat continue to be reshaped year after year, influenced by storm wave activity during the winter months and sand drifting during the summer months. This dynamic environment requires DCR to perform maintenance operations to preserve the sand resources on the beach. In particular, the dune habitat at the northern ends of the Revere Beach and Nahant Beach sites are susceptible to significant erosion from winter storms, which may have a cumulative diminishing effect on available nesting habitat each year.

Map 1

Massachusetts Department of Conservation and Recreation

Revere Beach Reservation (North)

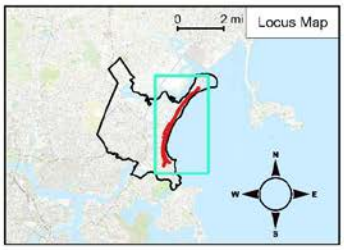
DCR 2023 Piping Plover Habitat Conservation Plan COI Application

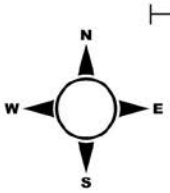


0 100 200 m

DCR Buildings and Landmarks

Beach Access





This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

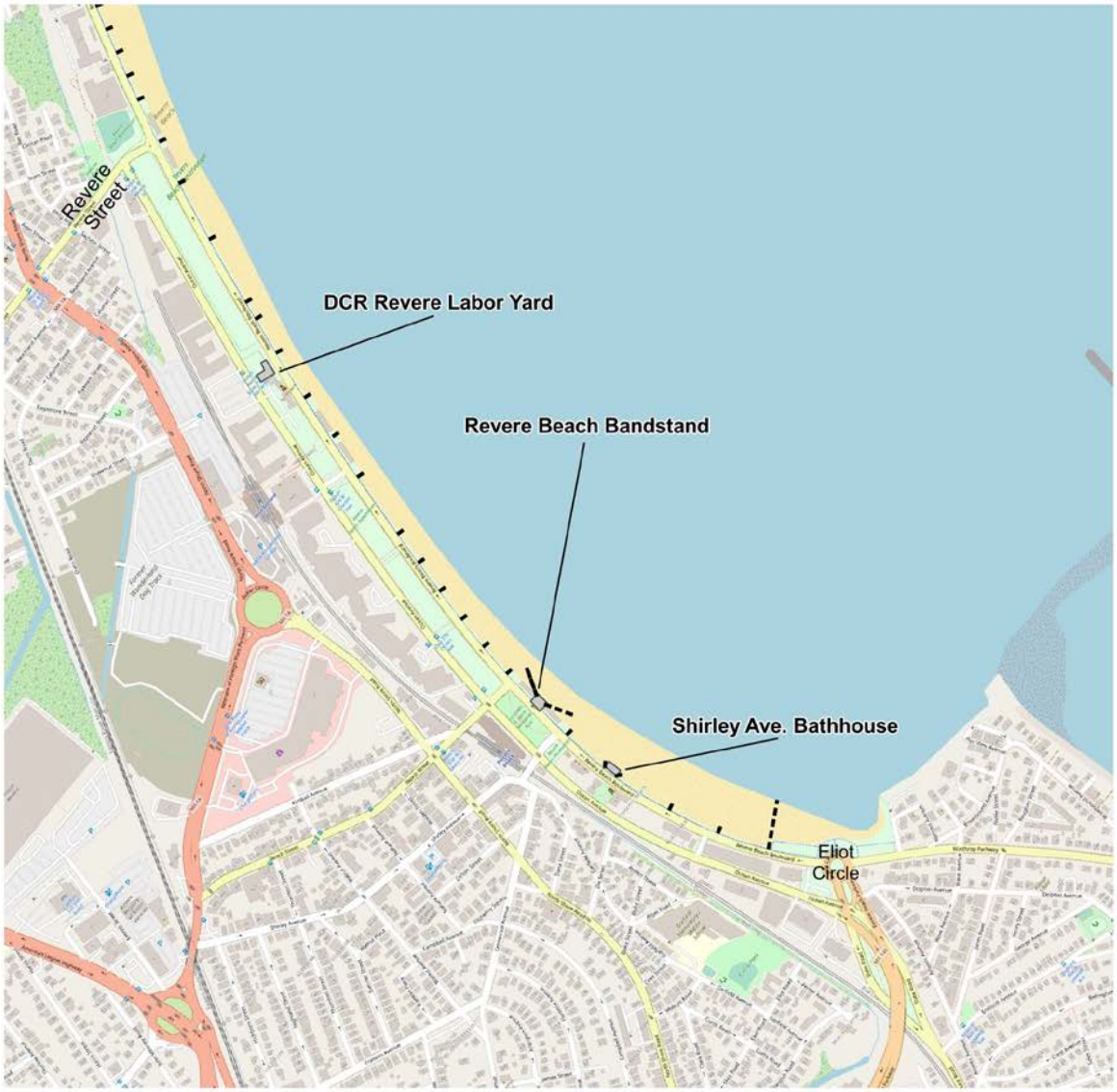
dcr Massachusetts

Map 2

Massachusetts Department of Conservation and Recreation

Revere Beach Reservation (South)

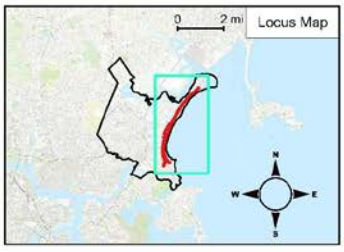
DCR 2023 Piping Plover Habitat Conservation Plan COI Application



0 100 200 m

DCR Buildings and Landmarks

Beach Access



This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr Massachusetts

Map 3

Massachusetts Department of Conservation and Recreation

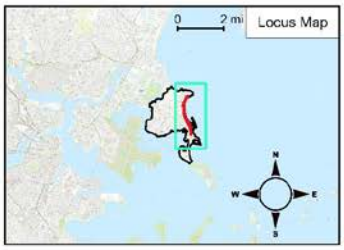
Winthrop Shore Reservation

DCR 2023 Piping Plover Habitat Conservation Plan COI Application

0 100 200 m

DCR Buildings and Landmarks

Beach Access



This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

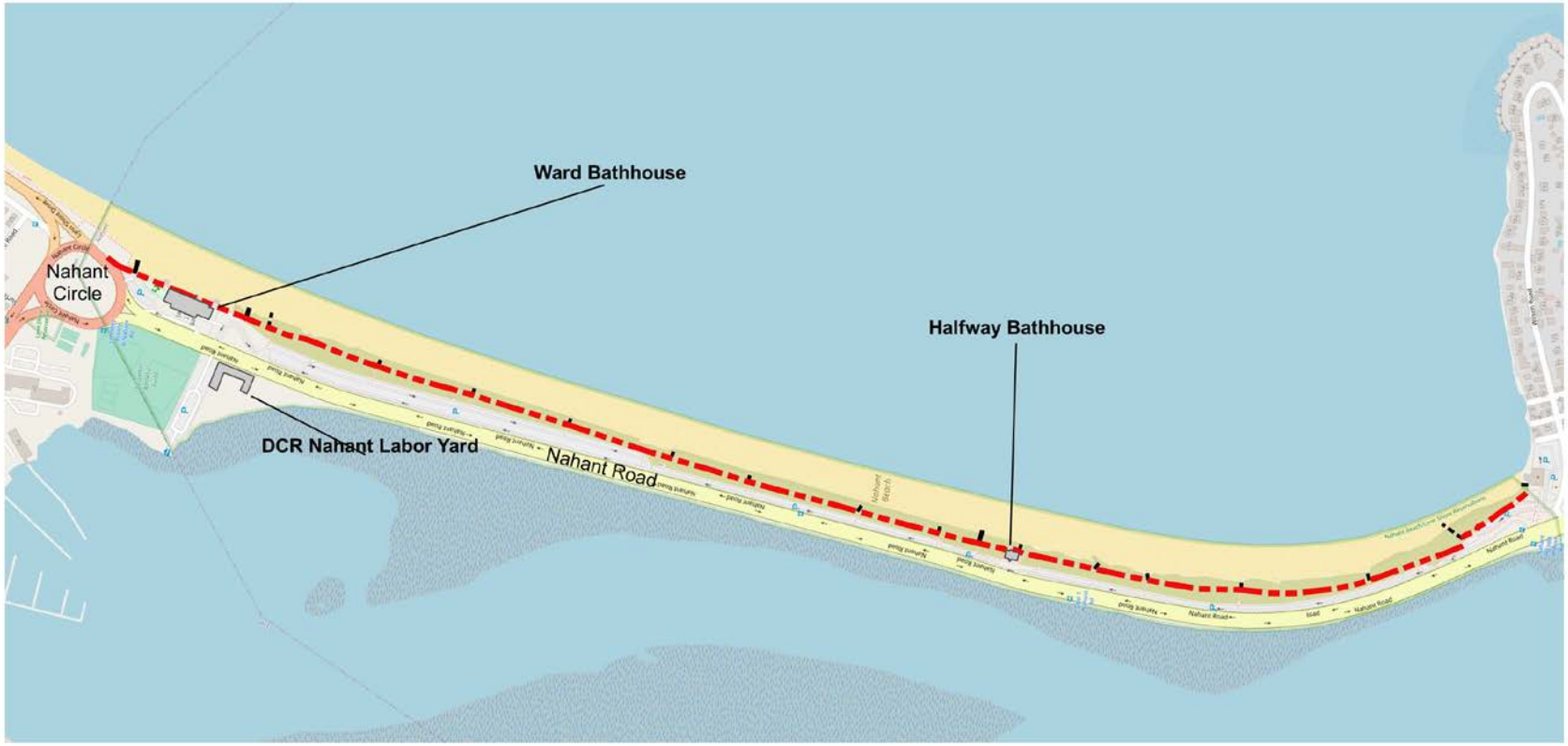
dcr Massachusetts

Map 4

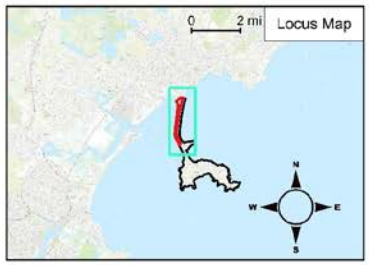
Massachusetts Department of Conservation and Recreation

Nahant Beach Reservation

DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application



- DCR Buildings and Landmarks
- Recreational Path
- Beach Access
- Beach Access (Large Vehicle)



This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

0 50100 m

dcr
Massachusetts

II. OWNERSHIP AND MANAGEMENT ENTITIES

Revere Beach, Winthrop Beach, and Nahant Beach are all owned and managed by the DCR for recreational purposes. All three sites are regularly accessed and patrolled by the respective town or city police departments (Revere Police, Winthrop Police, and Nahant/Lynn Police) as well as the MA State Police and Environmental Police (EPO) for enforcement purposes. All activities at the urban sites that may fall under the Wetlands Protection Act are also subject to the review of the respective Conservation Commissions of the City of Revere, Town of Winthrop, and Town of Nahant.

III. RESPONSIBLE STAFF

Implementation of the HCP on these sites will be managed by DCR's Bureau of Resource Protection, with the Senior Coastal Ecologist, Jorge J. Ayub, (Appendix A) responsible for preparing and updating the HCP plan and the conservation management strategies on-site. The Senior Coastal Ecologist is a full-time permanent employee. The oversight and implementation of the HCP is also aided by one (1) Shorebird Protection Program Coordinator, which is a full-time permanent employee working 40 hours/week Monday through Friday and on call through weekends and after hours during the shorebird nesting season. The Senior Coastal Ecologist, aided by the Shorebird Protection Program Coordinator, hires, trains, and oversees the daily operations of six (6) Conservation Biologists, who are hired every year as Long Term Seasonal (LTS) employees from approximately March 15th through September 1st (see IAMP Section VII and Appendix A for further detail).

IV. PIPING PLOVERS

In July of 1991 a beach nourishment project consisting of 600,000 cubic yards of sand was completed on Revere Beach. Following completion of the project a beach monitoring/survey program was implemented by the Army Corp of Engineers (ACOE), and since 1991 surveys have been taken at least every three years, but typically more frequently. The beach fill material had an approximate D_{n50} of 0.45mm which was significantly coarser than the native beach material. The northern one third of the beach has experienced erosion, which is most likely due to losses at the end of the beach fill project. It is uncertain if this is an issue or not and would have to be evaluated based on flooding and storm damage impacts. The southern two thirds of the project have been stable or subject to minimal loss of sand since construction. This is likely due to the containment at the southern end of the project by the headland feature, and the relatively coarse sand used in the beach fill project. The overall conclusion is that the beach fill project on Revere Beach has been performing well.

Piping plovers first arrived on DCR urban beaches in 2007, in search of nesting habitat at Revere Beach, and they have been back every year since. Up until 2011, there was an average of five (5) piping plover pairs nesting at Revere Beach and Winthrop Beach combined per year. Thanks to the increased DCR conservation efforts and continued support of visitors and the residents, that

number grew to thirteen (13) PIPL pairs in 2012, an unprecedented >250% increase. The overall trend in increasing pair numbers on site has continued from 2012 through 2022 despite some yearly variation (Table 1 and Charts 1-3).

In 2022, DCR's Revere Beach hosted 15 nesting PIPL pairs, Winthrop Beach hosted 8 pairs, and nearby Nahant Beach hosted 4 pairs. Together, these sites have provided a sizable contribution of new birds to support the recovery efforts for the species. DCR has committed funding to promote and improve coastal conservation by developing a staffing plan with six (6) Conservation Biologists to help with shorebird protection, monitoring, and development of outreach programs to engage the local urban communities. In addition to the conservation staff, two (2) seasonal DCR Rangers are hired for 24 weeks to increase enforcement of the guidelines and protection of nesting shorebirds. DCR provides outreach to visitors by conducting formal and informal educational programming. DCR may also install permanent educational panels and boards. This level of monitoring and protection represents a six-fold increase in field presence compared to what is required by the guidelines for shorebird protection.

Emergency circumstances related to public health and safety may arise as observed with the Covid-19 pandemic. Details related to the monitoring and public outreach plan, as well as the enforcement and education programming, may be subject to change with advanced written approval from the Division to mitigate these public health and safety concerns. However, in all cases, both state and federal guidelines for managing recreation uses of beaches will be adhered to and implemented.

Symbolic fencing is installed in late-March on known breeding territories to prepare for the start of pair bonding and territory establishment in early April. For these highly populated areas, symbolic fencing stakes are made of fiberglass of a light gray color, which is less visually intrusive than wood stakes or metal poles. Baling twine is strung between the poles. Materials and signs are made of light blue and white colors that blend in with the local beach environment.

As the numbers of Piping Plover pairs at the urban sites have increased over the last five years (Table 3), distribution across the sites to viable nesting habitat has also increased (Figures 2-5). Reproductive success of Piping Plovers at all three sites varies from year to year, and over the last five years site productivity (number of fledged chicks/number of nesting pairs) has ranged from 0.00-2.00 (average = 0.75) (Table 4). Nesting success at all three sites depends most heavily on the threats of overwash and predation. Avian predators (American Crow, various gull spp., and various raptor spp.) are the most consistent threat facing Piping Plover nests and chicks on the urban sites, while mammalian predation (especially Striped skunk and Eastern coyote) is less common but remains an important factor to consider each year.

Table 3: Numbers of Breeding Piping Plovers at Revere, Winthrop, and Revere from 2007-2020

Site	2007	2008	2009	2010	2011	2012	2013	2014
Revere Beach	1	2	1	3	3	10	9	9
Winthrop Beach	No data	2	2	2	2	3	4	6
Nahant Beach	No data	No data	No data	No data	No data	0	0	1
[redacted]	2015	2016	2017	2018	2019	2020	2021	2022
Revere Beach	16	15	16	12	12	14	18	15
Winthrop Beach	6	8	8	7	6	5	8	8
Nahant Beach	1	1	0	1	6	7	4	4

Table 4: Reproductive Success (Chicks Fledged/Nesting Pair) of Nesting Piping Plovers at Revere, Winthrop, and Nahant Beaches from 2018-2022.

Site	2018	2019	2020	2021	2022
Revere Beach	0.50	1.70	0.70	0.60	0.50
Winthrop Beach	0.90	2.00	0.80	1.30	0.50
Nahant Beach	0.00	0.30	0.10	0.50	0.80

Charts:

Historical Trends of Breeding Piping Plovers at Revere Beach, Winthrop Beach, and Nahant Beach

Chart 1: Breeding Piping Plover pairs at Revere Beach from 2007-2022.

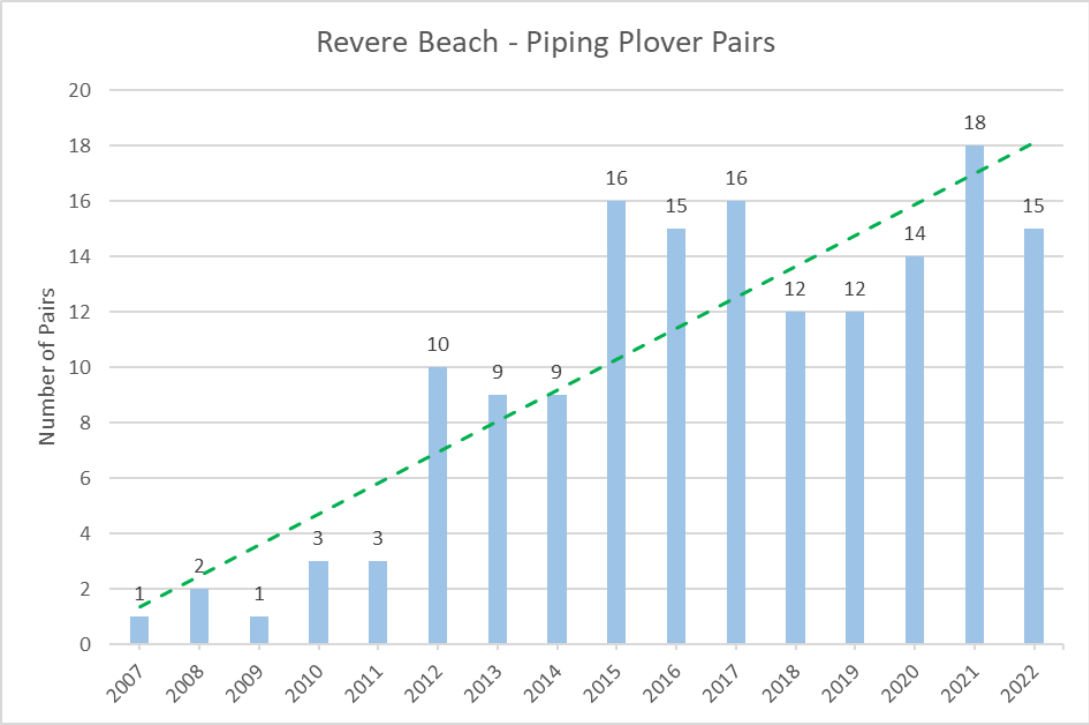


Chart 2: Breeding Piping Plover pairs at Winthrop Beach from 2008-2022

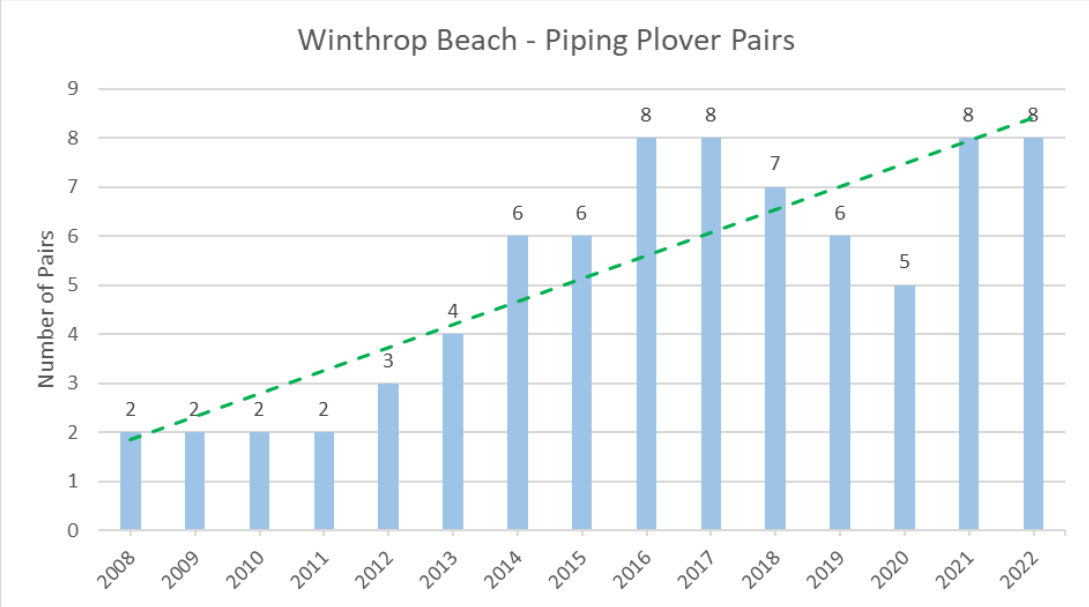
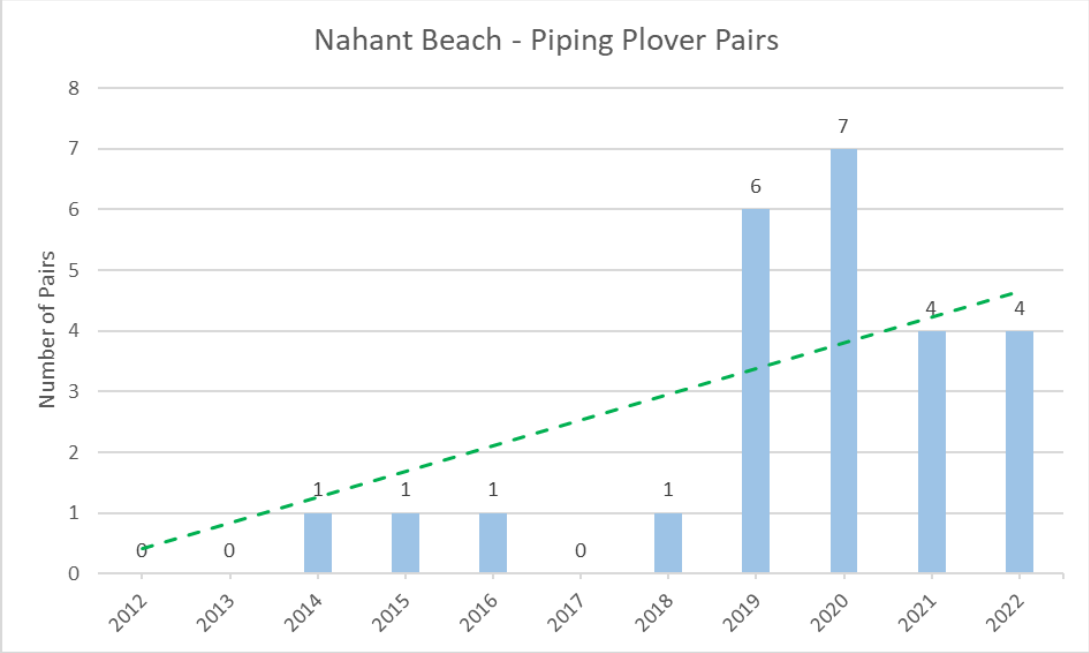


Chart 3: Breeding Piping Plover pairs at Nahant Beach from 2012-2022



Maps

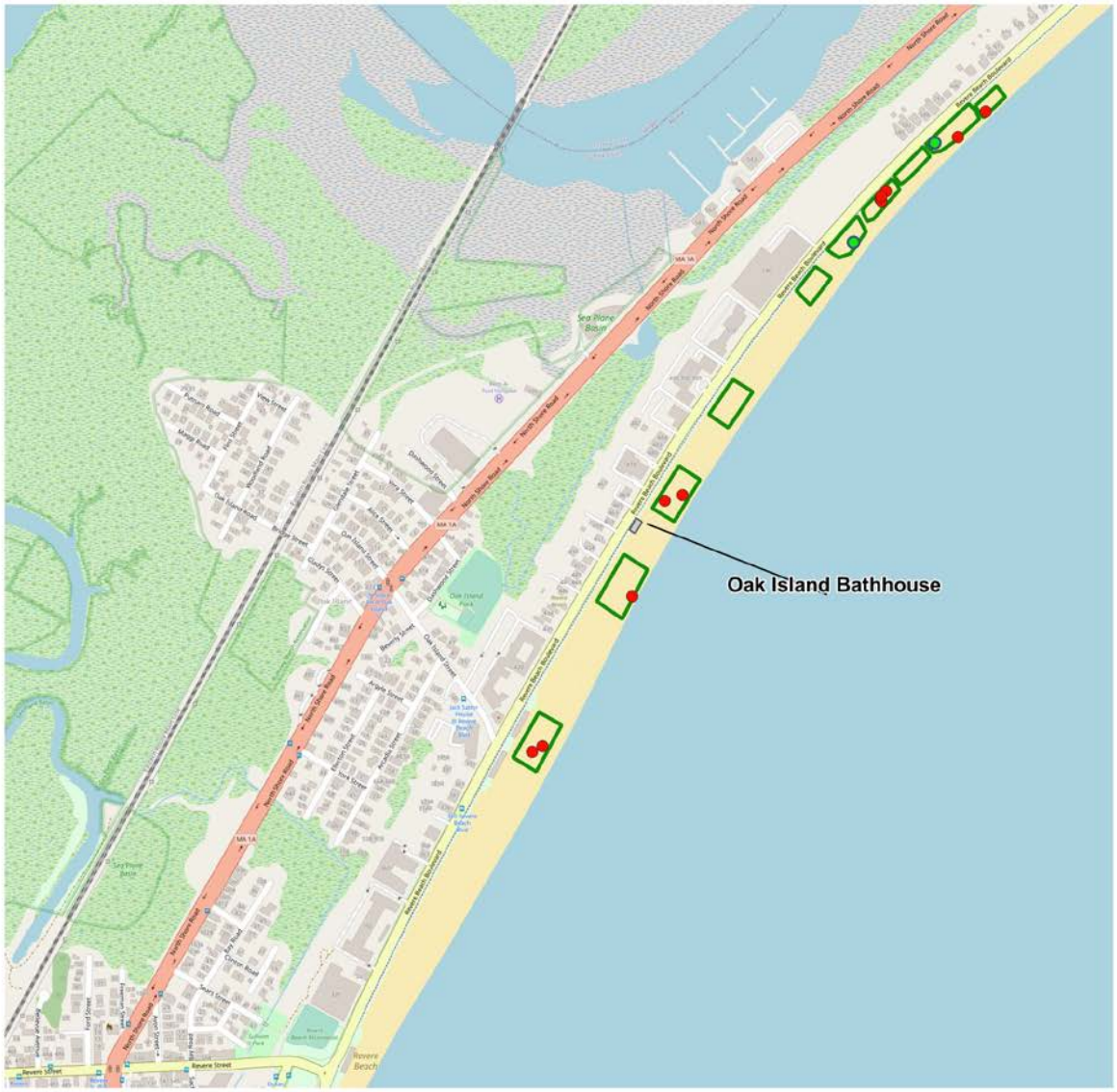
Breeding Piping Plovers at Revere Beach, Winthrop Beach, and Nahant Beach – 2022

Map 1B

Massachusetts Department of Conservation and Recreation

2022 Revere Beach Reservation (North)
Nesting Piping Plovers

DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application



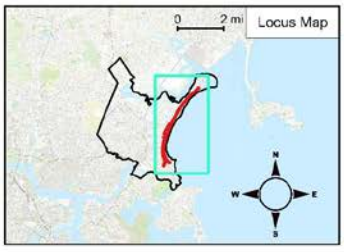
PIPL Nest Fates:

- Brood Fledged
- Nest Lost

PIPL Fencing

DCR Buildings and Landmarks

0 100 200 m



N
W E
S

This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr
Massachusetts

Map 2B

Massachusetts Department of Conservation and Recreation
2022 Revere Beach Reservation (South)
Nesting Piping Plovers

DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application

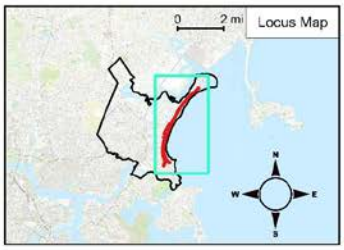
0 100 200 m

PIPL Nest Fates:

- Brood Lost
- Nest Lost

PIPL Fencing

DCR Buildings and Landmarks



This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr Massachusetts

Map 3B

Massachusetts Department of Conservation and Recreation

2022 Winthrop Shore Reservation
Nesting Piping Plovers

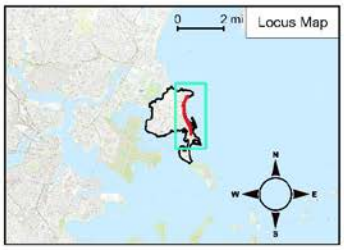
DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application

PIPL Nest Fates:

- Brood Lost
- Brood Fledged
- Nest Lost

- PIPL/LETE Fencing
- DCR Buildings and Landmarks

0 25 50 m



N
W E
S

This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

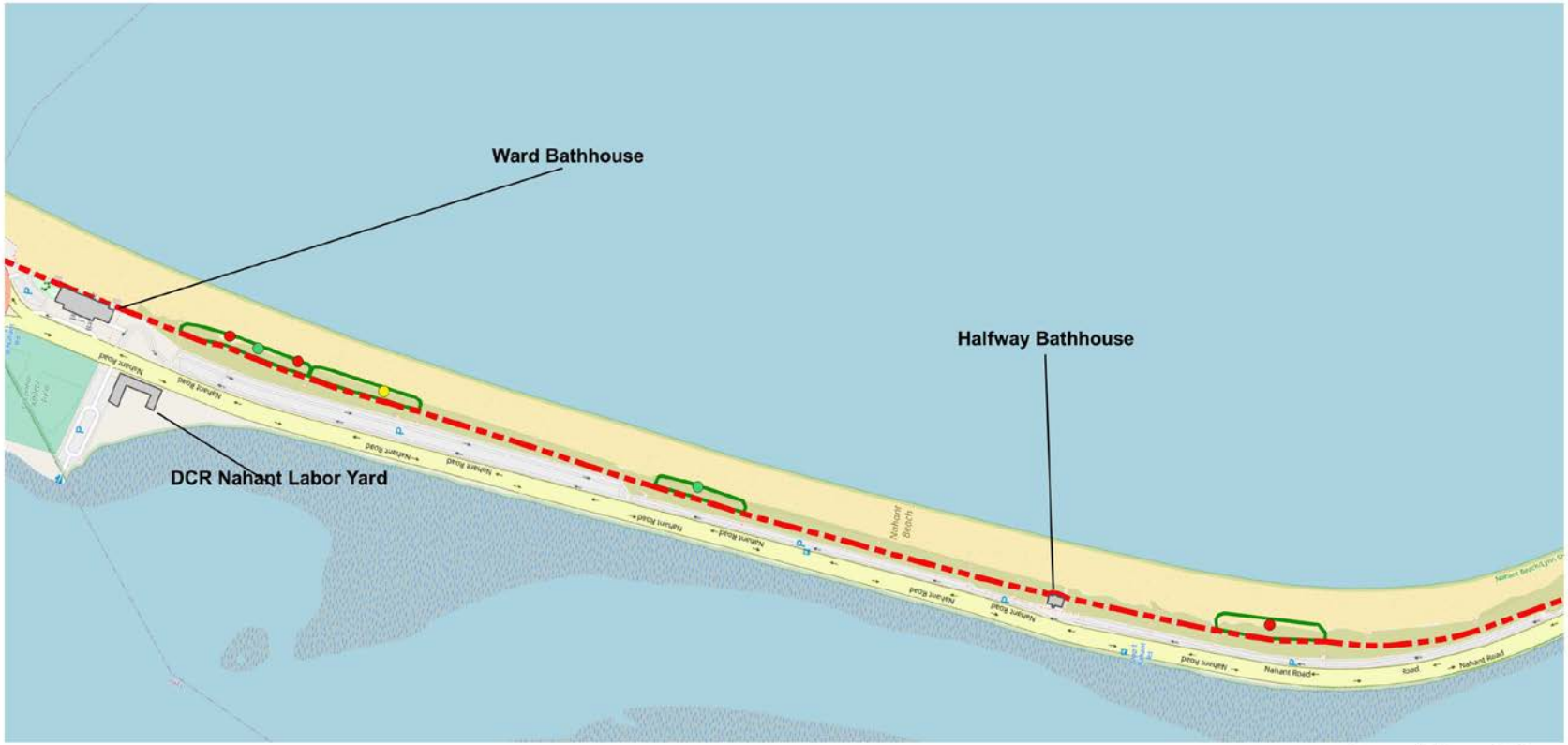
dcr
Massachusetts

Map 4B

Massachusetts Department of Conservation and Recreation

2022 Nahant Beach Reservation Nesting Piping Plovers

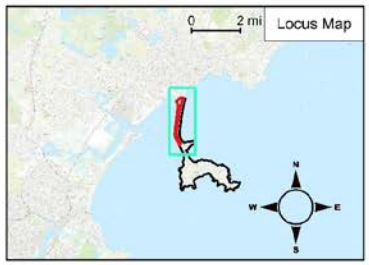
DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application



PIPL Nest Fates:

- Brood Lost
- Brood Fledged
- Nest Lost

- PIPL Fencing
- DCR Buildings and Landmarks
- Recreational Path



0 100 200 m

This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr Massachusetts

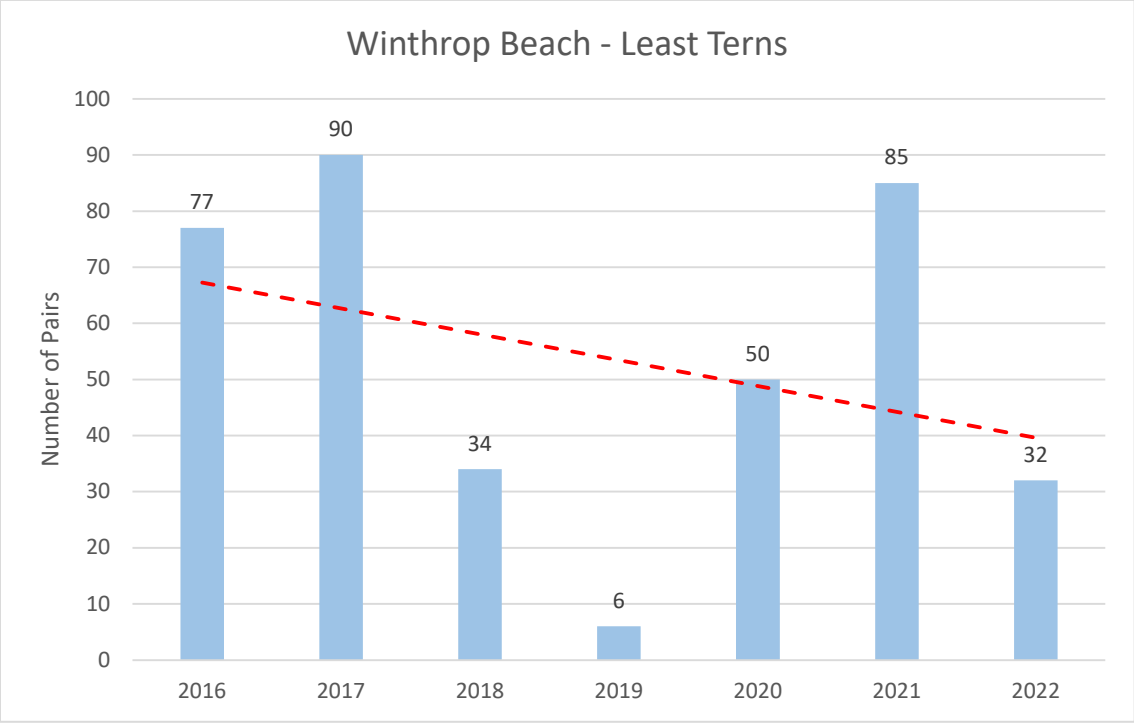
V. LEAST TERNS AND OTHER RARE SPECIES

Winthrop Beach has hosted a significant breeding colony of Least Terns since 2016, where the preferred nesting habitat overlaps with the southern portion of Piping Plover nesting habitat on the site (Map 4C). The Winthrop colony varies greatly in size, time of arrival, and reproductive success each season (Table 5), and overall appears to be decreasing in number of breeding pairs (Chart 4). The colony reached its largest size in 2017 with 90 reported breeding pairs during the A Count period, and averaged approximately 50 pairs per season between 2016 and 2022. Qualitative reproductive success of the colony has varied over the monitoring years from "None" to "Good." The main threats toward Least Tern nests and chicks detected on Winthrop Beach over the monitoring period have been depredation caused by Striped skunk and avian predators (especially American Crow and various gull spp.).

Table 5: Number of Breeding Least Tern Pairs and Fledglings during Pre-A, A, and B Counts at Winthrop Beach from 2016-2022

Year	Pre-A Count	A Count	B Count	Productivity	Fledglings
2022	32	2	4	Poor	7
2021	55	85	3	None	0
2020	35	50	-	Good	55
2019	-	6	2	None	0
2018	-	34	1	Poor	6
2017	-	90	35	Poor	20
2016	-	77	-	Good	50

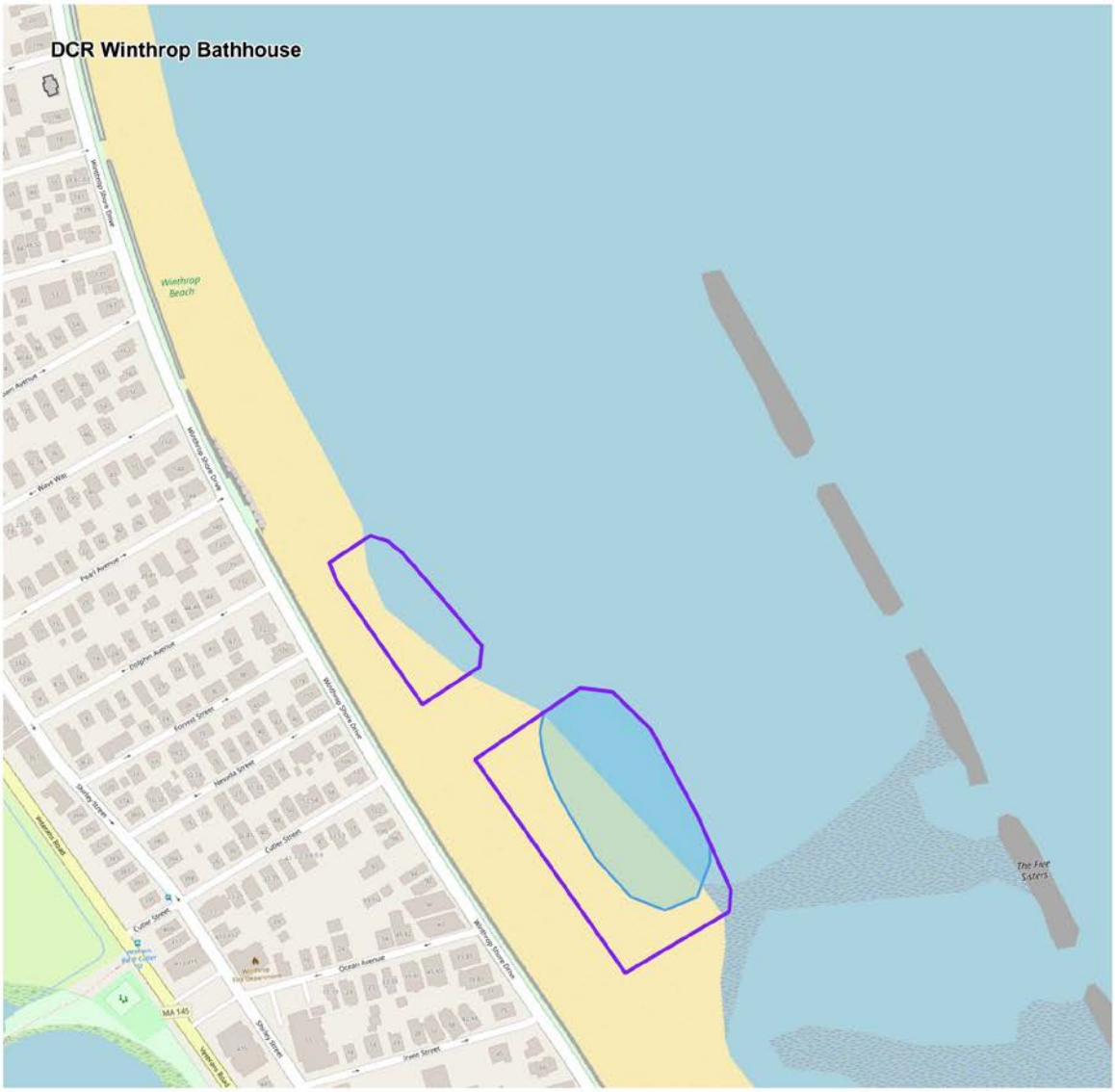
Chart 4: Breeding Least Tern pairs at Winthrop Beach from 2016-2022



Map 3C

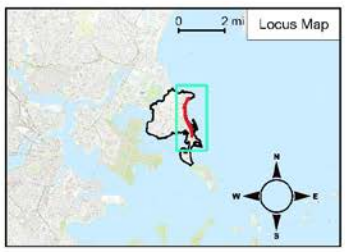
Massachusetts Department of Conservation and Recreation
2022 Winthrop Shore Reservation
Nesting Least Terns

DCR 2023 Piping Plover
Habitat Conservation Plan
COI Application



0 25 50 m

PIPL/LETE Fencing
DCR Buildings and Landmarks
LETE Nesting Area



N
W E
S

This is not a professional land survey document. Figures created using QGIS Geographic Information System, Open Source Geospatial Foundation Project.

dcr
Massachusetts

VI. BEACH OPERATIONS AND MANAGEMENT

All beach operations and site management activities conducted at the beach during the nesting season are strictly coordinated between DCR Park Operations staff and the Conservation Biologists to ensure compliance with the Guidelines.

A. **Beach Hours**: Site infrastructure (including parking lots, public restrooms/bathhouses, and Lifeguard services) on Revere, Winthrop, and Nahant Beach are operational from sunrise to sunset year-round, making the urban beach area itself open and accessible to the public primarily during daylight hours throughout the year, including from April 1-September 30 when nesting and staging Piping Plovers and Least Terns may be present.

B. **Recreational Activities**: Multiple recreational activities are monitored by DCR staff at Nahant, Revere, and Winthrop Beaches, including but not limited to swimming, beach games, paddle boarding, kayaking, and kite boarding, among others. Most of these activities require DCR staff to be available to guide and direct the recreational use to areas away from protected species and in a way that reduces disturbances created. Other activities, such as kite-boarding, requires more coordination between recreational groups and DCR staff to anticipate the participation of the activity and to direct the recreational use away from protected areas of the beach, minimum of 200 yards from designated areas, to reduce potential disturbances.

C. **Parking and Roads:** Parking for Revere Beach and Winthrop Beach is on-street parking along Revere Beach Blvd and Winthrop Shore Drive respectively, while Nahant Beach has a dedicated pay-to-park lot managed by DCR Operations staff.

D. **Beach Rules and Regulations**: Pets are not allowed on Nahant, Revere, and Winthrop Beaches from April 1st through September 15th, and signage reflecting this regulation is posted in every access point in all three beaches. Public outreach is conducted to educate residents and visitors about the potential unintended impacts caused by domestic pets on shorebird nesting.

E. **Fencing and Signage**: DCR Conservation Biologist staff deploy, adjust, and maintain symbolic fencing to delineate critical shorebird nesting areas at Nahant, Revere, and Winthrop Beaches. Significant portions of the suitable nesting habitat that have supported nesting piping plovers and least terns regularly are proactively fenced by April 1st each year. The remainder of the beach is intensively monitored on a daily basis, and symbolic fencing is installed as soon as a territorial pair and or scraping are detected until the time that all included broods have successfully fledged.

F. **Compliance and Law Enforcement**: DCR has dedicated two seasonal Ranger positions to these sites to deter and enforce statutes pertaining to the protection of listed nesting shorebirds. One seasonal Ranger is assigned to cover Nahant daily and the other seasonal Ranger is assigned to cover Revere and Winthrop daily. The positions run from early-

April to late-August. DCR seasonal Rangers coordinate all enforcement efforts with Massachusetts Environmental Police as well as local law enforcement to better manage recreational use of the beach and to effectively acquire compliance of the rules. Enforcement efforts are timed to coincide with high beach use periods including weekends and holidays. The Ranger schedule varies periodically to interact with as many different beach users as possible, and to provide maximum coverage. The scope of enforcement and scheduling of rangers may be subject to change due to emergency public health and safety concerns as has been observed with the COVID-19 pandemic.

G. **Commercial/Vendor Activities**: N/A

H. **Events**: All major events that take place on the urban sites throughout the shorebird nesting season are coordinated through Conservation Biology staff to ensure that the location and recreational pressure of such an event will take place in a way that prevents disturbance to territorial and nesting shorebird species. The exact location of all such events is guided by shorebird staff based on the needs and protections of species present at the time. The schedules of Conservation Biology staff are increased during major events, and shifts may be staggered to achieve a longer duration of coverage on site throughout. All pairs, nests, and chicks are intensively monitored throughout major events, and symbolic fencing is increased or reinforced ahead of time if needed based on expected crowd sizes and locations. During fireworks events Conservation Biologists monitor brood behavior and sound intensity of the show to inform future best management strategy.

I. **Maintenance**: DCR coordinates the type and timing of any beach maintenance operation, such as beach raking for trash removal or removal of large debris using heavy equipment, with the qualified monitors to ensure that shorebirds are not harassed, killed, or injured by these activities at Nahant, Revere, and Winthrop Beaches. Each site has an approved Operations and Maintenance Plan (OMP), approved under the Massachusetts Wetlands Protection Act (WPA), and also reviewed and approved pursuant to the Massachusetts Endangered Species Act.

J. **Installation of Seasonal Infrastructure**: Conservation Biologists coordinate and assist operations staff with the installation of all lifeguard chairs and entrance roll-out mats at the start of the nesting season to ensure that no vehicles or activities involved cause disturbance to territorial or nesting pairs of plovers or terns.

K. **Beach Grooming**: Raking will begin on a regular schedule, up to 5 to 7 days per week as needed in all three sites, starting after May 15th and throughout the remainder of the recreation season. Raking will not occur before dawn or during inclement weather when visibility is limited. This includes maintenance of buffers around incubating pairs where no mechanized raking occurs, and monitoring of adult piping plovers and least terns to ensure that raking activities do not result in harassment. Once chicks hatch, refuge

continues to be provided in symbolically fenced areas, and usually a supplemental buffer where no raking occurs adjacent to the fenced areas. Mechanized raking in the vicinity of chicks may only occur with a qualified shorebird monitor present, who has located foraging chicks prior to raking, and who can halt the rake, if necessary.

L. **Trash Management**: DCR maintains trash receptacles for the public at all major access points to the urban sites. The public is expected to carry their waste off of the sandy beach in order to dispose of it in the provided bins. All trash bins are emptied at least twice per day in the summer by DCR Operations staff, and the frequency of the trash pick-up cycle is increased during busy beach weekends or planned events. Operations staff also manages trash left on the beach by "picking" sites on foot using trash pickers and buckets on a rotating daily basis. Hazardous trash that accumulates in fenced nesting areas is removed by Conservation Biologists when appropriate and at times when disturbance to birds using the area would be greatly limited.

M. **Management of Wrack/Seaweed:** The wrack line is retained in the vicinity of nesting piping plovers and least terns, and in adequate levels across all sites in order to provide valuable foraging resources for resident and migrating shorebirds.

N. **Beach Grading:** Beach grading occurs outside of April 1-September 30, and is done so in a way that maintains the natural grain size distribution, topography, and grade variation of the site.

O. **Recreational and Essential Vehicles:** Recreational vehicles are not permitted on Revere, Winthrop, and Nahant Beach at any time of year. Essential vehicles (such as operations and lifeguard vehicles) are permitted on the beaches only under the direct guidance and direction of the Conservation Biologists. Safe travel corridors are maintained throughout the nesting season and any staff operating vehicles are kept updated on any changes to these travel corridors that may occur. All essential vehicles operating on site within 100 yards of unfledged plover or tern chicks are escorted on foot by a qualified monitor, and a log of all essential vehicle travel and operators is maintained by the Conservation Biology staff.

VII. SHOREBIRD MANAGEMENT AND MONITORING

DCR conducts all plover and tern management and monitoring on Revere Beach, Winthrop Beach, and Nahant Beach, and DCR management and protection protocols of listed shorebirds species, including piping plovers, comply with and exceed state and federal guidelines. DCR management includes proactively fencing historical territories by April 1st. In addition, other sections are fenced immediately once additional piping plover pairs demonstrate territoriality or scraping. DCR has been able to provide this kind of protection due to the intensive daily monitoring (7 days a week) that provides coverage from approximately 8-12 hours.

DCR staff currently follows the protocol framework outlined by the USFWS NWRS. This framework ensures for consistent, reliable, repeatable, and appropriate data collection to meet survey objectives. The framework prioritizes the monitoring and data collection of species abundance, distribution, reproductive success, limiting factors, and responses to habitat changes and management of nesting piping plovers and least terns at Revere, Winthrop, and Nahant Beaches. All data is recorded on daily logs that are later analyzed and reported to DFW via PIPLODES and TERNODES (Appendix B).

DCR staff helps deploy, adjust, and maintain symbolic fencing to delineate critical shorebird nesting areas at Nahant, Revere, and Winthrop Beaches. Significant portions of the suitable nesting habitat that have supported nesting piping plovers and least terns regularly are proactively fenced by April 1st. The remainder of the beach is intensively monitored daily, and symbolic fencing is installed as soon as a territorial pair and or scraping are detected.

DCR's Senior Coastal Ecologist ensures that any vegetation management plan implemented at Revere, Winthrop, and Nahant Beaches is compatible with piping plover and least tern habitat protection. Every September since 2012, DCR leads 2 major volunteer programs that include participation of over 150 people, to manually remove invasive species.

Proactive predator control programs consisting of trapping or removing avian or mammalian predators is undertaken early each nesting season. See Mitigation Plan.

The Senior Coastal Ecologist hires, trains and oversees daily operations of six (6) seasonal Conservation Biologists, who provide the biological monitoring, protection, and stewardship for the nesting shorebirds (Appendix A). All Conservation Biologists receive additional training from the Mass Audubon Coastal Waterbird Program. Conservation Biologists are hired every year as Long Term Seasonal (LTS), from approximately March 15th through August 30th. Conservation Biologists work 40 hours/week, and each team member has a different set of two weekdays off to ensure consistent site coverage throughout the week and during weekends when demand for monitoring coverage is highest. Conservation Biologists work a variety of daily shifts depending on site needs – either starting at 5:30am, 7:30am, or at 9:00am during dates/events when later evening coverage is required.

DCR holds formal and informal programming on the beach providing outreach, educational programs, and interpretive signage to educate beach users and divert incompatible beach uses from critical nesting areas. These events mostly occur during popular high use times on the beach like weekends, or in community organized events like the annual International Sand Sculpting Festival.

VIII. COVERED ACTIVITIES

To improve stewardship of piping plovers and other shorebirds, DCR implements protection of shorebirds under management protocols that includes impact minimization to nesting shorebirds, habitat enhancement, increased monitoring, coordinated enforcement, internal DCR training, and expanded public education. Partial beach closures, due to placement of protective fencing for shorebirds resulting in area restrictions, continue to be controversial for some of the residents and visitors. DCR is proposing to implement the covered activities:

- "**Use of Roads and Parking Lots in the Vicinity of Unfledged Piping Plover Chicks**", within the limits set by the HCP. In addition, intensive monitoring will be required when chicks are near roadways and parking lots. Signage alerting motorists and beach goers to watch for crossing birds and to obey speed limits must be strategically deployed. The Recreational Path and the parking lot at Nahant will be within 50 yards of a nest and unfledged chicks. The healthy heart trail is 1.2 miles long and 16 feet wide comprising an area of approximately 2.33 acres predominantly used by the public for bicycling, walking, and running and by DCR staff for essential OSV use. While unfledged piping plover chicks have not been observed entering or crossing the Recreational Path on any occasion in prior years, the proximity of the path to frequently used nesting habitat poses an inherent risk of Take to any unfledged brood on Nahant Beach and maintaining full use of the path throughout the nesting season is subject to the covered activity.

  The DCR is requesting implementation of this covered activity in 2023 in the same way it implemented in 2022. During the 2022 nesting season, Enhanced Intensive Monitoring (EIM) was conducted by the Conservation Biologists for three broods on Nahant as an alternative to accruing Take for maintaining the general use of the path. From the time of hatching up until successful fledging, all three broods were monitored at least twice daily, in the morning and afternoon, for more than an hour at a time and on many days were monitored nearly continuously. GPS locations were recorded for the broods in NestStory during every check. If at any point a brood or part of a brood were observed entering or crossing the Recreational Path, then DFW would have been immediately notified and the following implementation of the covered activity would have been carried out from that point forward:

  Once roaming chicks are present at the site and are determined to be entering into the healthy heart trail, traffic management will consist of intercepting bicyclists as far away from the broods as possible and requesting them to dismount and walk their bicycles through. Dismounting of a bicyclist effectively turns them into pedestrian traffic while crossing the vicinity of the brood. Interception distances will be determined based on the specific location of the occurrence on the healthy heart trail. Limiting factors to preemptive interception will be applicable such as visibility, beach access points, dunes and vegetation acting as barriers.

- "**Recreation and Beach Operations Associated with Reduced Symbolic Fencing around Nests**", in areas where beach operations or recreational activities are within 50 yards of the nest. A fence will be initially placed and then gradually reduced from

50 yards to no less than 10 yards. Fencing will be reduced to only the extent necessary to achieve specific recreational or beach operations objectives. If there is a path or major access point within 10 yards, DFW may allow less than 10 yards of fencing rather than authorize nest moving.

- "**Recreation and Beach Operations at Piping Plover Nests with Nest Moving**," within the limits set by the HCP. Nests will not be moved until at least 48 hours after the clutch is completed. Nests will not be moved during inclement weather, in extreme heat, or during evening hours. Nests will be moved gradually to reduce risk of abandonment. Nests will be moved using the cylinder/plate/platform method and visual landmarks are moved with the nest to serve as visual cues. If incubation is not resumed within 1.5 hours, the nest will be moved halfway back to the original nest location and monitored for signs of incubation.
- **"Recreation and Beach Operations Associated with Reduced Proactive Fencing of Habitat,"** under the maximum exemption's limits set by the HCP. The HCP allows exceptions whereby at up to five sites statewide annually may reduce proactive fencing of up to 20% of habitat or 4 acres, whichever is less (see HCP Section 5.2.2.3). This measure will minimize the risk of displacing a breeding pair from a given site or of significantly increasing competition from other pairs of piping plovers. The covered activity reduces symbolically fenced areas in all sites by no more than 50% or (10) acres, whichever is less. This acreage limit per site will also include any reductions to symbolic fencing associated with least terns.

DCR will implement the covered activities in cases where the location or size of the symbolic fencing for piping plover nests compromises public safety or disrupts routine operations (e.g. inability to deploy lifeguard equipment), or where nesting location may negatively impact the local economy by cancelling organized traditional events (e.g. International Sand Sculpting Festival on Revere), or if the available public recreational area within a portion of the site is deemed reduced to such an extent that it is significantly impairing recreational and associated economic activity. As authorized in the HCP, subject to appropriate impact minimization procedures, some areas of reduced fencing will be mechanically raked, an ongoing management practice at this site. As described in the HCP, if a piping plover nests in an area without symbolic fencing, the nest will be immediately protected with symbolic fencing with a reduced buffer (see impact minimization, below).

DCR is also proposing reduced proactive symbolic fencing to impact up to 6 pairs of least terns or no more than 20% of the average colony size, whichever is less. This request enhances the scope and impact of covered activities on DCR Urban Coast sites for the recreational benefit and operational capacity of the site. Winthrop is the only Urban Coast site with least terns nesting consistently for the past seven (7) years. As a practical matter, it may be difficult to accurately count the number of pairs impacted, therefore DCR will perform several counts over the nesting season.

The implementation of the proposed minimization procedures is applicable for piping plovers on Revere, Winthrop, and Nahant as well as least terns on Winthrop unless otherwise noted:

- **Intensive Biological Monitoring for Piping Plovers**: The entire site will be monitored intensively to ensure early detection of territorial and scraping activity, and symbolic fencing will be installed for all nests and territories as described in Section 8. For each instance where DCR identifies an area/territory to be subject to the covered activity, DFW will be notified at least 24 hours in advance of removing the fencing (see HCP, Table 4-7). The square footage of the area subject to reduced fencing will be recorded and reported to DFW. The Division has indicated that it reserves the right to "assess" a larger square footage impact in some cases based on considerations of changes in symbolic fencing requirements for a given territory over time resulting from changes in habitat use. Frequent monitoring of the entire site should preclude the possibility of a pair being first detected late in the nesting process (i.e. eggs laid). However, if this circumstance occurs, that territory will not be a candidate for implementation of the covered activity and symbolic fencing will be installed. After removal of the fencing, the area will continue to be monitored intensively, at least twice daily for the first five days after fence removal, and at least 5-7 times per week thereafter; and information about the presence of piping plovers and their behavior will be recorded. This will include any observations of continued breeding or territoriality in the absence of fencing. In the event that courtship/territoriality is observed, twice daily monitoring will continue until such activity ceases. If nesting occurs in the area of reduced fencing, fencing will immediately be installed (minimum 10-yard radius around the nest as per HCP section 3.2.2.1). Portions of beach subject to reduced fencing may be mechanically raked in accordance with the monitoring and impact minimization procedures described in Section 8.0.27. In the event of hatched and roaming chicks throughout the site, Conservation Biologists will monitor the broods at least twice a day for the duration of their life or until fledging. Monitoring will consist of understanding the movements and preferred territories of the broods and the erection of additional fencing and signage if broods move into extensively recreated areas (e.g. Recreational Path) and to inform the public of the presence of vulnerable chicks. NestStory will be used to log and track the exact position of roaming broods throughout the life of the brood. GPS points will be taken multiple times a day during monitoring and a seasonal brood movement map will be produced to highlight movements to and from areas important to brood development present at our monitoring sites. DCR Park Operations staff will work with Conservation Biologists to ensure that all OSV operations are conducted under the supervision of a qualified vehicle escort and any vehicle that is operated within 100 meters of an active brood will be monitored and escorted to ensure compliance with the Guidelines and to reduce potential disturbances.

- **Intensive Biological Monitoring for Least Terns**: The entire site will be monitored intensively to ensure early detection of nesting activity. For each instance where DCR identifies an area/territory to be subject to a covered activity, DFW will be notified at least 24 hours in advance. Areas subject to covered activities will continue to be monitored intensively (at least twice daily for the first five days, and at least 5-7 times per week, thereafter), and information about the presence of least terns and their behavior will be recorded. In the event that nesting still occurs in an active covered activity area, fencing may be installed (minimum 5-yard radius around the nest). Portions of beach subject to reduced or non-installation of fencing may be raked in accordance with the procedures described in Section 8.0.

NestStory will be used as DCR's primary data recording tool throughout the nesting season for both compliance monitoring and effectiveness monitoring (Appendix B). This online data application allows DCR to standardize all monitoring protocols across sites as well as provides a means to record the staffing and monitoring effort at all sites. A monitor will log into NestStory to begin each monitoring day, record all required daily data including GPS locations of nests and broods, photo evidence of predation pressures, and behavioral observations of individuals and will then log out of NestStory to end their day. This framework allows DCR to determine the monitoring effort at each site as well as keep track of an individual monitor's time at site. All data collected into NestStory will be downloaded, proofed for accuracy, and summarized to be submitted into PIPLODES and TERNODES.

DCR staffing with participation in the HCP is higher per site than staffing for sites where the HCP participation is absent. Monitoring staff under the supervision of the Senior Coastal Ecologist will also expand their current scope of work to cover the permitted activities as required by the HCP. The scope includes necessary monitoring for shorebird presence, collection of environmental and weather data, protection and management practices, coordination with regulatory agencies, DCR project management staff and contractors, pre-season training for DCR staff and enforcement personnel, and informal onsite public education/outreach to effectively communicate changes regarding visitor access restrictions. The Urban Coast will have six (6) dedicated Conservation Biologists to monitor the sites of Revere, Winthrop, and Nahant Beaches for 8-12 hours a day for seven (7) days a week during the nesting season starting March 15th through August 30th, which provides flexibility to expand coverage for early nesting and/or late brooding. The two (2) seasonal DCR Rangers will be hired in early April and will have schedules to prioritize increased recreational hours to allow for the best opportunity for public interaction. The seasonal Rangers' term will conclude in late August when recreation of the beach is reduced.

If implemented, any covered activities will be monitored daily for the following four (4) weeks or 28 days, or for the duration of the season if necessary. All relevant biological data collected, and any other pertinent operations information will be included in the final report

due by October 15th. When covered activities are in effect, DCR will report weekly to DFW. All documentation of seasonal activities will be recorded in the field on standardized datasheets and online data collection services (i.e. NestStory). Data collection will follow the standard protocol framework as described by the USFWS NWRS. This protocol prioritizes the streamlined collection of Site-level, Survey-level, and Nest-level attributes. These attributes include but are not limited to; Daily staffing and monitoring effort in hours, Number of adults present, Nest and brood locational data, estimated age of nest and brood, Nest and Brood Fates (Appendix B).

Emergency circumstances related to public health and safety may arise as observed with the Covid-19 pandemic. Details related to the monitoring and public outreach plan may be subject to change with advanced written approval from the Division to mitigate these public health and safety concerns. However, in all cases, both state and federal guidelines for managing recreation uses of beaches will be adhered to and implemented.

IX. BUDGET

DCR will dedicate existing full-time professional staff to implement the covered activities. Based on the extensive monitoring provided on a daily basis, the agency believes that additional staff salary allocation will not be required to implement this proposal. The funding provided for mitigation has been secured through the capital budget process and is available prior to the permitted activities. DCR will provide funding for a pest control program through a state license contractor to reduce the population of rats at the urban site of Nahant Beach. Additionally, as per the attached USDA Work Plan (Appendix C), DCR has allocated an annual maximum budget of $50,000 per year to invest on selective predator control programs statewide. The total estimated annual cost for selective predator control on preferred mitigation sites like Sandy Point State Reservation and West Island State Reservation is approximately $11,445 and $10,965 respectively. The total estimated cost of implementation of the HCP on urban beaches is approximately $37,653; including staff time and indirect cost (Table 6).

Table 6. Estimated Total Costs of HCP Implementation on DCR proposed mitigation sites

	Monitoring Implementation and Reporting Cost	Indirect, Fringe and Other Associated Cost	Total
Senior Coastal Ecologist	$4,284.00	$2,276.00	$6,560.00
Conservation Biologists	$5,670.00	$3,013.00	$8,683.00
USDA-APHIS	$17,624.86	$4,785.14	$22,410.00
		Total Cost of Implementation	**$37,653.00**

MITIGATION PLAN

As set forth in the HCP, DCR is proposing mitigation be provided by funding a pest control program through a state license contractor to reduce the population of rats at the urban site of Nahant Beach. DCR will also fund a selective predator management program and implemented by USDA-APHIS at Sandy Point State Reservation and West Island State Reservation as a first option, or at other selected DCR sites as described in the attached USDA-APHIS work plan (Appendix C). The mentioned sites are ideal due the number of nesting pairs at West Island State Reservation with three (3) pairs in 2022 (including five (5) pairs from the Town of Falmouth), and Sandy Point State Reservation with 16 piping plover pairs in 2022, and a least tern colony of 20 pairs in 2021 and 5 pairs in 2022. Additionally, due to the geographic location of Sandy Point, DFW has agreed to provide DCR with mitigation credit for 25% of the nesting piping plover pairs at Parker River National Wildlife Refuge. The mitigation requirement for exposing ten (10) pairs of Piping Plover to the covered activities is 27.5 PIPL pairs to benefit from selective predator management. DCR will fund the cost of the selective predator management work plan, and to the extent possible any mitigation credits will be carried forward to subsequent years on a statewide DCR credit pool managed by DFW, and applicable to any HCP permits held by DCR.

Appendix A:
Staff Credentials and Qualifications

MASSACHUSSETTS, U.S.A.
JORGE.AYUB@OUTLOOK.COM

JORGE J. AYUB

PROFFESIONAL PROFILE

Function as Coastal Ecologist for the Massachusetts Department of Conservation & Recreation. Develops and oversees coastal habitat restoration projects and leads conservation partnerships related to protection of listed wildlife species and key habitats including wetlands, salt marshes, barrier beaches, and other natural communities. Prepares and reviews scientific reports and studies on environmental impacts and processes. Prepares and reviews environmental data associated with applications for environmental permits pertaining to construction impacts, habitat protection and mitigation control measures. Manages rare species protection and recovery and their habitat at state coastal properties and supervises a large team of Conservation Biologists, Science Technicians and contractors in the field. Function as environmental compliance liaison and maintains coordination with state and federal regulatory agencies.

HIGHLIGHTS OF QUALIFICATIONS

- Extensive knowledge of the principles of ecology, biology and wildlife conservation
- Detail-oriented and committed to quality.
- Creative and capable to work in a fast-paced environment.
- Ability to guide and deal tactfully with others.
- Extensive knowledge of the principles, practices and techniques of leadership and supervision.

EDUCATION

- 2022-2023: Harvard University, Cambridge, MA
  Leadership and Communication Professional Certificate (in-progress)

- 2018-2019: Delft University of Technology, Netherlands.
  Professional Certificate: Building with Nature - Hydraulic Restoration

- 2013-2014 – University of Massachusetts Boston Honors College; Boston, MA
  Graduate Certificate: Sustainability & Clean Energy

- 2010-2012: Johnson & Wales University, Providence, RI.
  M.B.A.: Global Leadership.

- 1998-2004: National State University (UNED); San Jose, Costa Rica
  B.Sc.: Ecology - Natural Resources Management. (Cum Lade)

- 1996 -1997: Columbus State University, Georgia, USA.
  E.S.L. Program.

WORK EXPERIENCE

2012-2022: Coastal Ecologist, DCR - Commonwealth of Massachusetts – MA.

- Managing the coastal ecology program for the Department of Conservation & Recreation

2012: Graduate Internship on Environmental Impacts of Marine Invasive Species - Moran Inc. – RI

- Prepared environmental assessments on marine invasive species impacting maritime ballast water systems (BWS). Analyzed project feasibility for operations and future investments. Developed communication strategies as liaison with customers, government agencies and other partners.

2005-2011: Ecologist & Nature Interpreter, Walking Connection – Grand Canyon, AZ.

- As a contractor led nature based programs for organized groups and non-profit organizations. Developed a partnership with the Grand Canyon Institute for staff training on local conservation and nature interpretation. Optimized operational strategies and assisted the agency in working with 8,000+ participants and help raised over 20 million dollars.

2005-2011: Environmental Educator & Tour Director, EF Cultural - Boston, MA.

- As a consultant developed scholar field workshops and classroom content for environmental programs and performed presentations with graded content in various regions in the United States. Coordinated and developed environmental educational programs for academic groups through field interpretation techniques while working with plants, birds, mammals, amphibians, reptiles, and other natural communities. Led other outdoor recreational activities including hiking and rafting.

.

1997-2004: Ecologist specialized in wildlife biology and nature interpretation – Costa Rica

- Developed academic and scientific research on wildlife conservation for protecting trust biological species and vulnerable communities. Created natural interpretation programs to successfully educate students and visitors about the importance of environmental protection and sustainable development.

EXTENDED COURSES

- Wetlands Assessment and Field Techniques; UMass Amherst
- Ecological Restoration for Coastal Habitats; NOAA; Waquoit Bay, MA
- Wilderness First Aid and CPR, National Safety Council , USA
- Rain Forest & Shore Wildlife, O.T.S., Costa Rica

LANGUAGES

Fluent in both English and Spanish

REFERENCES AND CARRER PORTFOLIO AVAILABLE UPON REQUEST

Last name, first name:

POSITION DESCRIPTION, DPA-Form 30-State
Commonwealth of Massachusetts

POSITION TITLE CODE

1. POSITION TITLE
Conservation Biologist III– Shorebird Conservation Program Coordinator

AGENCY
Department of Conservation and Recreation

2. APPROPRIATION/AGENCY CODE	POSITION NO.	REQUISITION NO.	SALARY	DATE PREPARED
				05/20/2022

3. GENERAL STATEMENT OF DUTIES AND RESPONSIBILITIES

The basic purpose of this position is to provide professional scientific services regarding the biological monitoring and the protection and management of the Massachusetts endangered and threatened shorebird species and their habitats. Incumbents must have knowledge of all the biological characteristics and behaviors of such endangered and threatened shorebird species.

Incumbents of positions in this series collect, analyze, and review biological data through field and office work on endangered and threatened species and other features of biological diversity; provide technical assistance and information to the public; help the agency in achieving compliance with laws and regulations and maintaining liaison with other government agencies.

Ability to guide and deal tactfully with others to plan and assign work according to the nature of the job to be accomplished, the capabilities of team members and available resources; controlling work through periodic reviews and evaluations; determining team members training needs and providing or arranging for such training; motivating team members to work effectively.

The incumbent will be assigned and provide coverage statewide and utilization of personal vehicle may be required in exchange for mileage reimbursement at the approved rate of the Commonwealth of Massachusetts.

Qualifications required at hire are mandatory (see below).

4. SUPERVISION RECEIVED (Name and title of person from whom incumbent receives direction)
Jorge J. Ayub, Coastal Ecologist

5A. DIRECT REPORTING STAFF	5B. THEIR STAFF
Seasonal staff	

6. DETAILED STATEMENT OF DUTIES AND RESPONSIBILITIES

1. Analyzes data from a variety of sources on endangered and threatened shorebird species to assess population trends or to make management recommendations regarding course of action for the protection and management of these rare species.
2. Collects and reviews biological data through field work to obtain information relative to population trends and environmental impacts in order to make appropriate management recommendations.
3. Provides biological technical assistance and information on such matters as endangered and threatened shorebird species conservation, management and research for distribution to local, state and federal agencies and the scientific community.
4. Supports the agency in maintaining liaison with local, state and federal agencies for data reporting or to resolve issues related to the biological protection of the state's endangered and threatened species of shorebirds and their habitats.
5. Preparing extensive technical reports for public review and managing data and other scientific records for public distribution.
6. Ability to plan, design and implement scientific research and biological recovery projects relative to endangered and threatened species, including the selection of sampling design, frequency, and scientific equipment to be used to accomplish research objectives.
7. Ability in writing proposals to secure funding through available grants for implementation of the program conservation objectives.
8. Ability to supervise and deal tactfully with others, including planning and assigning work according to the nature of the job to be accomplished, the capabilities of team members and available resources; controlling work through periodic reviews and evaluations; determining team members' training needs and providing or arranging for such training; motivating team members to work effectively.
9. Assist in the management of the hiring process for seasonal staff and perform other duties as assigned.

<u>Incumbents of positions at the Conservation Biologist II level or higher also</u>:
1. Design and implement field research studies relative to wetland habitats and other wildlife conservation, including the selection of sampling design, frequency of sampling, and scientific equipment to be used, among others to accomplish research objectives.
2. Review field studies and research projects for compliance with procedures and scientific standards.

7. QUALIFICATIONS REQUIRED AT HIRE

1. Knowledge of the principles, practices and techniques of leadership and supervision.
2. Knowledge of the principles of ecology and population biology.
3. Knowledge of ornithology or other wildlife conservation science related to assigned responsibilities.
4. Knowledge of research methods and techniques followed in conservation biology.
5. Knowledge of all the characteristics and behaviors of endangered and threatened shorebird species.
6. Knowledge of the principles and techniques of endangered and threatened species habitat management.
7. Knowledge of the types and uses of equipment used in conservation biology research and management.
8. Knowledge of the methods used in the preparation of charts, graphs and tables.
9. Ability to read, interpret, apply and explain the policies, procedures, guidelines, laws, rules and regulations governing agency operations and assigned unit activities.
10. Ability to gather information by examining records and documents.
11. Ability to assemble items of information according to established procedures.
12. Ability to determine the proper format and procedure for assembling items of information.
13. Ability to analyze and determine the applicability of conservation biology data, to draw conclusions and make appropriate recommendations.
14. Ability to follow oral and written instructions.
15. Ability to perform arithmetic and statistical computations (addition, subtraction, multiplication and division; and calculate mean, mode, median and standard deviation).
16. Ability to communicate effectively in oral and written expression.
17. Ability to prioritize work assignments.
18. Ability to prepare extensive general and technical reports.
19. Ability to prepare and use charts, graphs and tables.
20. Ability to maintain accurate records.
21. Ability to deal tactfully with others.
22. Ability to establish and maintain professional and harmonious working relationships with others.
23. Ability to exercise sound judgment.
24. Ability to work independently.
25. Ability to operate a motor vehicle.

Additional qualifications required at hire for Conservation Biologist II and higher positions:

1. Ability to plan and assign work for others according to the nature of the job to be accomplished, the capabilities of team members and available resources; controlling work through periodic reviews and evaluations; determining team members‘ training needs and providing or arranging for such training; motivating team members to work effectively.
2. Ability to plan, design and implement scientific research and biological recovery projects.

Based on assignment, the following additional qualifications may be regard at hire for Conservation Biologist II and higher positions:

1. Ability to supervise, including planning and assigning work according to the nature of the job to be accomplished, the capabilities of team members and available resources; controlling work through periodic reviews and/or evaluations; determining team members’ training needs and providing or arranging for such training; motivating team members to work effectively.

8. QUALIFICATIONS ACQUIRED ON JOB

1. Knowledge of the laws, rules, regulations, policies, and procedures governing assigned activities.
2. Knowledge of the types and uses of state or agency forms.
3. Knowledge of electronic software and processing techniques used in data management and reporting.
4. Knowledge of the methods and techniques followed in the inspection of environmental, monitoring equipment and projects.

Additional qualifications acquired on job in Conservation Biologist II positions:

1. Ability to accomplish work objectives when few precedents or guidelines are available.
2. Ability to coordinate the efforts of others in accomplishing assigned work activities.

Based on assignment, the following additional qualification may be acquired on job in Conservation Biologist II positions:

1. Knowledge of the principles, practices and techniques of supervision.

Additional qualifications acquired on job in Conservation Biologist II and higher positions:

1. Ability to accomplish work objectives when few precedents or guidelines are available.

9. MINIMUM ENTRANCE REQUIRMENTS

Conservation Biologist II:

Applicants must have at least (A) three years of full- time, or equivalent part-time or seasonal, professional or technical experience in leadership work involving the protection, conservation and/or management of endangered and protected shorebird species, of which (B) at least one year must have been in a professional capacity, or (C) any equivalent combination of the required experience and the substitutions below.

Substitutions:

I. Bachelor's degree with a major in biology, ecology, zoology, ornithology and wildlife conservation science, or a related field, may be substituted for a maximum of six months of the required (A) experience.*

II. A Graduate degree with a major in biology, ecology, and ornithology or wildlife conservation science may be substituted for a maximum of one year of the required experience. (Education toward such a degree will be prorated on the basis of the proportion of the requirements actually completed).

10. LICENSE AND/OR CERTIFICATION REQUIRMENTS

Based on assignment, possession of a current and valid Massachusetts Class 3 Motor Vehicle Operator's License or its equivalent.

REMARKS:

SIGNATURE OF APPOINTING AUTHORITY

TITLE

AGENCY

PREPARED BY

SIGNATURE OF INCUMBENT

DATE

SIGNATURE OF SUPERVISOR

DATE

Last name, first name:

POSITION DESCRIPTION, DPA-Form 30-State
Commonwealth of Massachusetts

POSITION TITLE CODE

1. POSITION TITLE
Conservation Biologist I – Shorebird Monitor

AGENCY

2. APPROPRIATION/AGENCY CODE	POSITION NO.	REQUISITION NO.	SALARY	DATE PREPARED

3. GENERAL STATEMENT OF DUTIES AND RESPONSIBILITIES

Incumbents of positions in this series collect, analyze, and review biological data through field, and literature work on endangered and threatened species and other features of biological diversity; provide technical assistance and information to public and/or private groups; help the agency in maintaining liaison with various public and private agencies; and perform related work as required.

The basic purpose of this work is to provide professional scientific services regarding the biological monitoring and the protection and management of the state's endangered and threatened species of shorebirds and their habitats.

4. SUPERVISION RECEIVED (Name and title of person from whom incumbent receives direction)
Jorge J. Ayub, Coastal Ecologist

5A. DIRECT REPORTING STAFF	5B. THEIR STAFF

6. DETAILED STATEMENT OF DUTIES AND RESPONSIBILITIES

1. Analyzes data from a variety of sources on endangered and threatened species to assess population trends or to make management recommendations regarding courses of action for the protection and management of these species.
2. Collects and reviews biological data through field work to obtain information relative to population trends and environmental impacts in order to make appropriate recommendations.
3. Provides biological technical assistance and information on such matters as endangered and threatened species conservation, management and research to the agency, for distribution to various local, state and federal agencies and the scientific community.
4. Supports the agency in maintaining liaison with various private, local, state and federal agencies in order to exchange information or to resolve issues related to the biological protection of the state's endangered and threatened species of shorebirds and their habitats.
5. Performs related duties such as preparing general and technical reports and maintaining data and other scientific records.

Incumbents of positions at the Conservation Biologist I level or higher also:
1. Design and implement field research studies relative to endangered and threatened species, including the selection of sampling design, frequency of sampling, and scientific equipment to be used, among others to accomplish research objectives.
2. Review field studies and research projects for compliance with procedures and scientific standards.

7. QUALIFICATIONS REQUIRED AT HIRE (List knowledge, skills, abilities)

1. Knowledge of the principles of ecology and population biology.
2. Knowledge of a specific area of biology (i.e. ornithology) or other conservation science related to assigned responsibilities.
3. Knowledge of research methods and techniques followed in conservation biology.
4. Knowledge of the characteristics and habits of endangered and threatened species.
5. Knowledge of the principles and techniques of endangered and threatened species habitat management.
6. Knowledge of the types and uses of equipment used in conservation biology research and management.
7. Knowledge of the methods used in the preparation of charts, graphs and tables.
8. Ability to read, interpret, apply and explain the policies, procedures, guidelines, laws, rules and regulations governing agency operations and assigned unit activities.
9. Ability to gather information by examining records and documents.
10. Ability to assemble items of information according to established procedures.
11. Ability to determine the proper format and procedure for assembling items of information.
12. Ability to analyze and determine the applicability of conservation biology data, to draw conclusions and make appropriate recommendations.
13. Ability to follow oral and written instructions.

14. Ability to perform arithmetic and statistical computations (addition, subtraction, multiplication and division; and calculate mean, mode, median and standard deviation).
15. Ability to communicate effectively in oral and written expression.
16. Ability to prioritize work assignments.
17. Ability to prepare general and technical reports.
18. Ability to prepare and use charts, graphs and tables.
19. Ability to maintain accurate records.
20. Ability to deal tactfully with others.
21. Ability to establish and maintain professional and harmonious working relationships with others.
22. Ability to exercise sound judgment.
23. Ability to work independently.
24. Ability to operate a motor vehicle.

8. QUALIFICATIONS ACQUIRED ON JOB (List knowledge, skills, abilities)

1. Knowledge of the laws, rules, regulations, policies, and procedures governing assigned activities.
2. Knowledge of the types and uses of state or agency forms.
3. Knowledge of electronic data processing techniques used in solving environmental science problems.
4. Knowledge of the methods and techniques followed in the inspection of environmental, monitoring equipment and projects.

Additional qualifications acquired on job in Conservation Biologist I positions:
1. Ability to coordinate the efforts of others in accomplishing assigned work activities.

Based on assignment, the following additional qualification may be acquired on job in Conservation Biologist I positions:
1. Knowledge of the principles, practices and techniques of supervision.

Additional qualifications acquired on job in Conservation Biologist I and higher positions:
1. Ability to accomplish work objectives when few precedents or guidelines are available.

9. MINIMUM ENTRANCE REQUIRMENTS

Conservation Biologist I**:**
Applicants must have at least (A) one year of full- time, or equivalent part-time or seasonal, professional or technical experience in work involving the protection, conservation and/or management of endangered and protected species, or (B) any equivalent combination of the required experience and/or the substitution below.
Substitutions:

I. Bachelors or higher degree with a major in biology, ecology, zoology, ornithology and conservation science, or a related field, may be substituted for the required experience.*Education toward such a degree will be prorated on the basis of the proportion of the requirements actually completed.

10. LICENSE AND/OR CERTIFICATION REQUIRMENTS
Based on assignment, possession of a current and valid Massachusetts Class 3 Motor Vehicle Operator's License.

REMARKS:

SIGNATURE OF APPOINTING AUTHORITY

TITLE

AGENCY

PREPARED BY

SIGNATURE OF INCUMBENT

DATE

SIGNATURE OF SUPERVISOR

DATE

Appendix B:
Data Collection for Compliance and Effectiveness Monitoring
(Sample Data Logs and NestStory Data Forms)

USFWS NWRS Data Collection Framework Protocol

Table SOP 2.1. List of site-level attributes to be entered into PIPLweb at the beginning of the season.

Attribute Name	Description	Required
Site Name	Name of site	Y
Site Code	3-7 letter code for each site Note that NWR sites use three-letter LIT code, with 2-4 letters added to each site if there is more than one site per Refuge	Y
Site Boundary	Shapefile or digitized map of site	Y (required for NWRS only)
Predator Management	Yes or No	N

Table SOP 2.3. List of survey-level attributes collected during each survey event.

Attribute Name	Description	Required
Site Name	Name of site	Y
Date	Date of survey	Y
Start time	Time monitor starts the survey	Y
End time	Time monitor ends the survey	Y
Number of monitors	Number of monitors conducting the survey	Y
Number adults	Total number of adults observed at the site during the survey	N
Number of territorial pairs	Number of pairs displaying territorial behavior plus number of pairs with current nests	N
Banded birds	Band combinations for each bird, if applicable. Note band information is only stored in PIPLweb for birds associated with established nests (Table SOP 2.4).	N
Comments	Can include comments on ORV use, dog presence, and human disturbance here or any other important observations from the survey	N

Table SOP 2.4. List of nest-level attributes collected during each survey event. Attributes in bold are only entered once on the data sheet at the top of Nest/Brood Survey Form (SM2).

Attribute Name	Description	Required
Site Name	**Name of site**	**Y**
Nest ID	**Identifier for nest; Pair # coupled with letter; A=first nest, B=second nest, etc. Ex. 01A**	**Y**
GPS coordinates	**x- and y-coordinates for nest location (or brood if nest never found). Can be taken in decimal degrees or UTM.**	**Y**
Coordinate system	**Name or EPSG code of the coordinate reference system used when recording GPS coordinates.**	**Y**
Estimated hatch date	**Estimated date nest hatched (observed or unobserved)**	**N**
Actual hatch date	**Enter Yes if nest hatch observed.**	**N**
Estimated age	**Estimated age of chicks if nest was never found**	**Y**
Brood fate	**Fledged, Lost, Unknown**	**Y**
Band combinations for adult(s) 1 and 2	**Band combinations for pair if applicable (see *Reporting Banded Birds*)**	**N**
Exclosure type	**Standard (defined as circular structure with a 10' diameter and netting top) or Non-standard**	**N**
Exclosure description	**Exclosure description if not standard**	**N**
Date	Date of nest check	Y
Observer	Observer initials	Y
Nest status	Active, Hatched, Abandoned, Depredated, Flooded/ Buried, Unknown Fate, Unknown Cause of Failure, Other Cause of Failure	Y
Number adults	Number of adults near or at the nest	Y
Number of eggs	Number of eggs (if observed; do not need to check every time)	Y
Number of chicks	Number of chicks observed; NA if unhatched	Y
Incubating adult observed	Yes or No	Y
Exclosure	Yes or No	Y
Comments	Comments especially on predator activity and evidence of nest/ brood loss	N

Nest Attempt Form DCR 2020 (RBN/RBS/WB/NHT)

Site:_____ **Town:**_____ **Pair Number**_____

Nest Attempt: 1st__ 2nd ___ 3rd ___ 4th ___ (known/suspected/unknown) Lat/Long: _____

Observer Name: _____

Dates

Nest 1st Located: _____ (known___ suspected___ unknown___)

1st Egg Laid: _____ (known___ suspected___ unknown___)

Clutch Completed: _____ (known___ suspected___ unknown___)

Estimated Hatch Date: _____

Banded Adults?

Adult 1: Bands? Y N if yes, enter band info _____

Adult 2: Bands? Y N if yes, enter band info _____

# of Eggs When Nest Found ____ Total # of Eggs ____

Nest Location Information

Nest Location: Oceanside ____ Interdune ____ Bayside ____ Marsh ____

Habitat Type: Open Beach ____ Toe of Dune ___ Dune Slope ____ Overwash ____ Other _____

Substrate Type: Sand ____ Gravel/Sand ____ Gravel ____ Shell/Sand ____ Other _____

Vegetation cover within 1.5m of nest: 0 1-8 9-20 21-72 Over 73 Other _____

Nest Measurements (in meters)

Monthly High Tide _____ Toe of Dune _____ Nearest Vegetation and Type

_____

Actual Hatch Date: _____ # of Eggs Hatched ____ # Unhatched____ # Lost Before Hatch ____

Chick Fledge and Loss

Example Loss Causes: missing/abandonment/depredated/human/vehicle/exposure

	Chick 1	Chick 2	Chick 3	Chick 4
Date of Fledge 25 days or flew 15m				
Date of Loss				
Cause of Loss				
Other comments about chicks				

Estimated Fledge Date _____ Total # of Fledged Chicks ____

Did a Least Tern Colony Form within 15m of Nest? Yes ____ No ____

Predator Occurrence within 10m of Nest (Tally):
Coyote: ____ Fox: ____ Raccoon: ____ Skunk: ____ Crow: ____ Gull: ____ Raptor: ____ Crab: ____ Cat: ____

Unleashed Dogs <50m of Nest? None ____ Light (<5/week) ____ Moderate (5-10/week) ____ Heavy (>10/week) ____

Active Use (Walk\Jogging) <50m of Nest? None ____ Light (<10/day) ____ Moderate (11-50/day) ____ Heavy (>50/day) ____

Passive Use (Sunbathing) <50m of Nest? None ____ Light (<10/day) ____ Moderate (11-50/day) ____ Heavy (>50/day) ____

OSV Use <50m of Nest? None ____ Light(<5 week) ____ Moderate (5-10/week) ____ Heavy (>10/week) ____

Nest Failed Form DCR 2020 (RBN/RBS/WB/NHT)

Site:_____ **Town:**_____ **Pair Number**_____

Nest Attempt: 1st____ 2nd____ 3rd____ 4th____

Discovered by: _____

Date Failed (give range if needed): ____/____/____ - ____/____/____ (known___ estimated___ unknown___)

Time Failed (give range if needed): ____:____ - ____:____ (known___ estimated___ unknown___)

Nest Loss:

Predation-likely
Predation-suspected
Abandonment
Abandonment-suspected
Unknown
Multiple causes
Mortality of both adults
Other:_____

Sanded over
Overwash/flood
Fail to hatch
Vandalism
Trampling
Run over
Substrate collapse

Number of Eggs Found: Abandoned____ Depredated____ Washed____ Buried____ Unhatched____ Missing____

Weather at Site When Nest Loss Found: Temperature_____ Cloud Cover %_____ Precip_____ Wind_____

Weather Over Past 24 Hours: Temperature_____ Cloud Cover %_____ Precip_____ Wind_____

Date/Time Eggs Last Physically Seen: ____/____/____ Time: ____:____

Name of Observer: _____
# of Eggs Seen: ____
Adults Present: _____

Seen with naked eye? Y N

If not, what was used? _____

Nest Logistics:

How long has bird been incubating full time? _____ days

Was double fencing used? Y N
Was triple lining used? Y N
Were predator tracks observed near nest at any point? Y N If yes, when? _____
Predator observed near nest? Y N

If yes, can you identify predator and activity? _____

Tracking Conditions (1= poor, 5=best) 1 2 3 4 5
Has there been a high tide/heavy rain event since nest last observed? Y N
Can vehicles drive near this nest? Y N

Other (please describe any pertinent information):

_____
_____
_____
_____

DCR Interaction Log

Date	Site	Initials	Number of People of Interaction	Positive/Negative/ Neutral	Dog (Y/N)	Enforcement	Duration	Notes

DCR Vehicle Escort Log

Date	Site	Initials of Escort	Driver	Destination	Start Time	End Time	Any Disturbances Caused	Notes

Table 7: Nest Story Data Fields Available for Piping Plover Entry

Mission details	Pair specific details	Brood Locations	Predator observations
Date	Date	Date	Date
Type	Site	Time	Site
Site Code	Species	Species	Activity Level
Leader	Nest Code	Site Code	Predator
Start	Pair	Pair	Evidence
End	Start	Nest	Lat
Weather	End	Lat	Lon
Wind	Eggs	Lon	Notes
Temp	Chicks	Behavior	
High/Low	Status		
Humidity	Male Observed		
Rain	Female Observed		
Clouds	Unknown		
Tide	Observer		
Hours Since High Tide			
# of People			
# Unleashed Dogs			
# Leashed Dogs			
# ORVs			
# of Boats			
# Positive Interactions			
# Negative Interactions			
Incident (H, M, L)?			
Tracking			
% of Site Monitored			
# of Scrapes (approx)			
% of Time Monitoring			
% of Time Fencing			
% of Time Raking			
% of Time Special Projects			
% of Time Education			
Comments			

Table 8: NestStory Data Fields Available for Least Tern Entry

Mission details	Colony specific details	Attachments
Date	Date	Notes
Type	Site	Photos
Site Code	Species	Sightings
Leader	Colony ID	Predators
Start	Colony Location	Scrapes
End	Status	
Weather	Total Adult Count	
Wind	Incubating Adult Count	
Temp	Eggs Observed (Y/N)?	
High/Low	# of Chicks Downy	
Humidity	# of Chicks Feathered	
Rain	# of Fledged Observed	
Clouds	Flight Observed?	
Tide	Did you enter (Y/N)	
Hours Since High Tide	Survey Quality/Confidence	
# of People	Colony Observations	
# Unleashed Dogs		
# Leashed Dogs		
# ORVs		
# of Boats		
# Positive Interactions		
# Negative Interactions		
Incident (H, M, L)?		
Tracking		
% of Site Monitored		
# of Scrapes (approx)		
% of Time Monitoring		
% of Time Fencing		
% of Time Raking		
% of Time Special Projects		
% of Time Education		
Comments		

Figure 1: NestStory Piping Plover Data Entry Interface

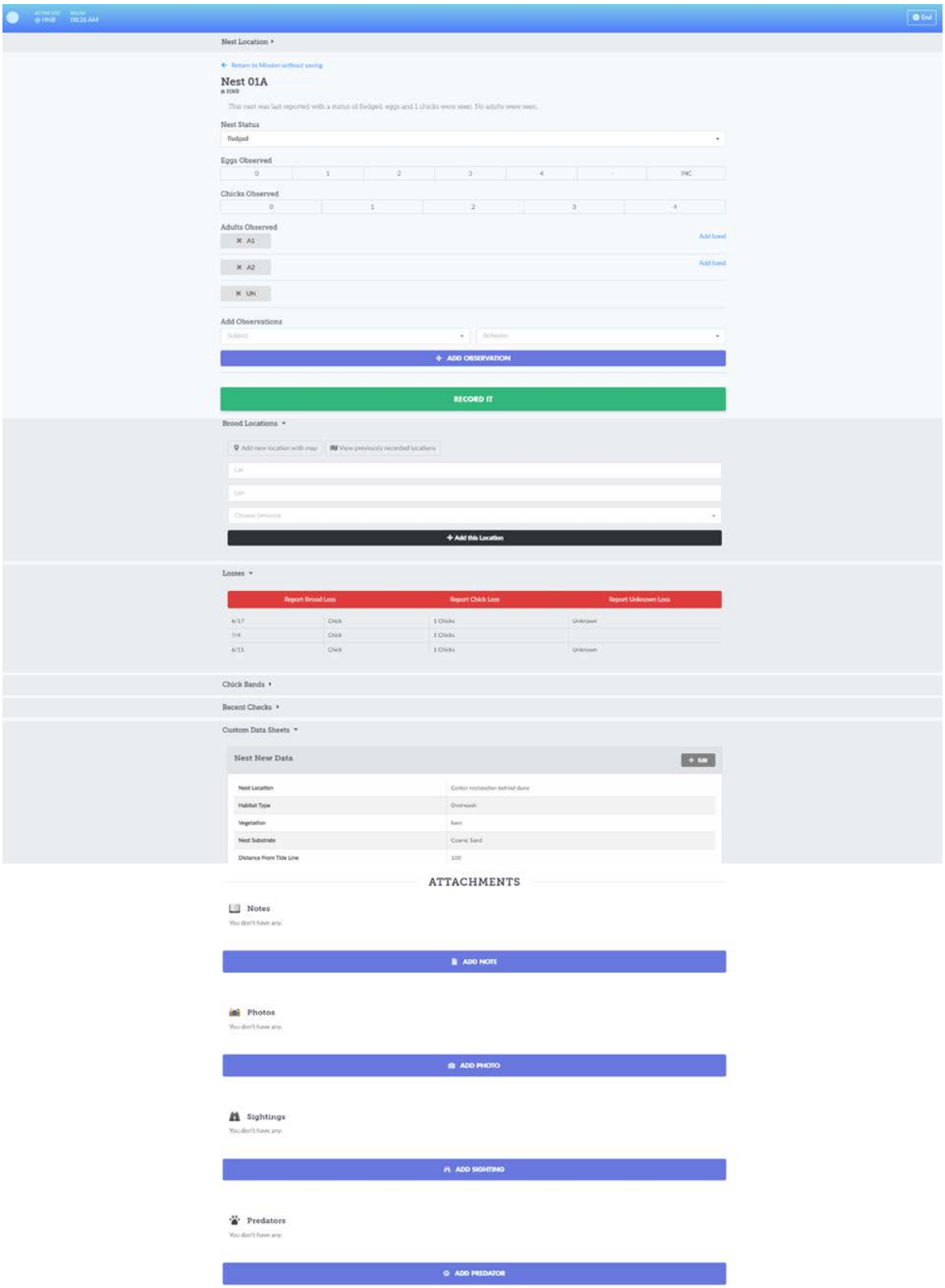
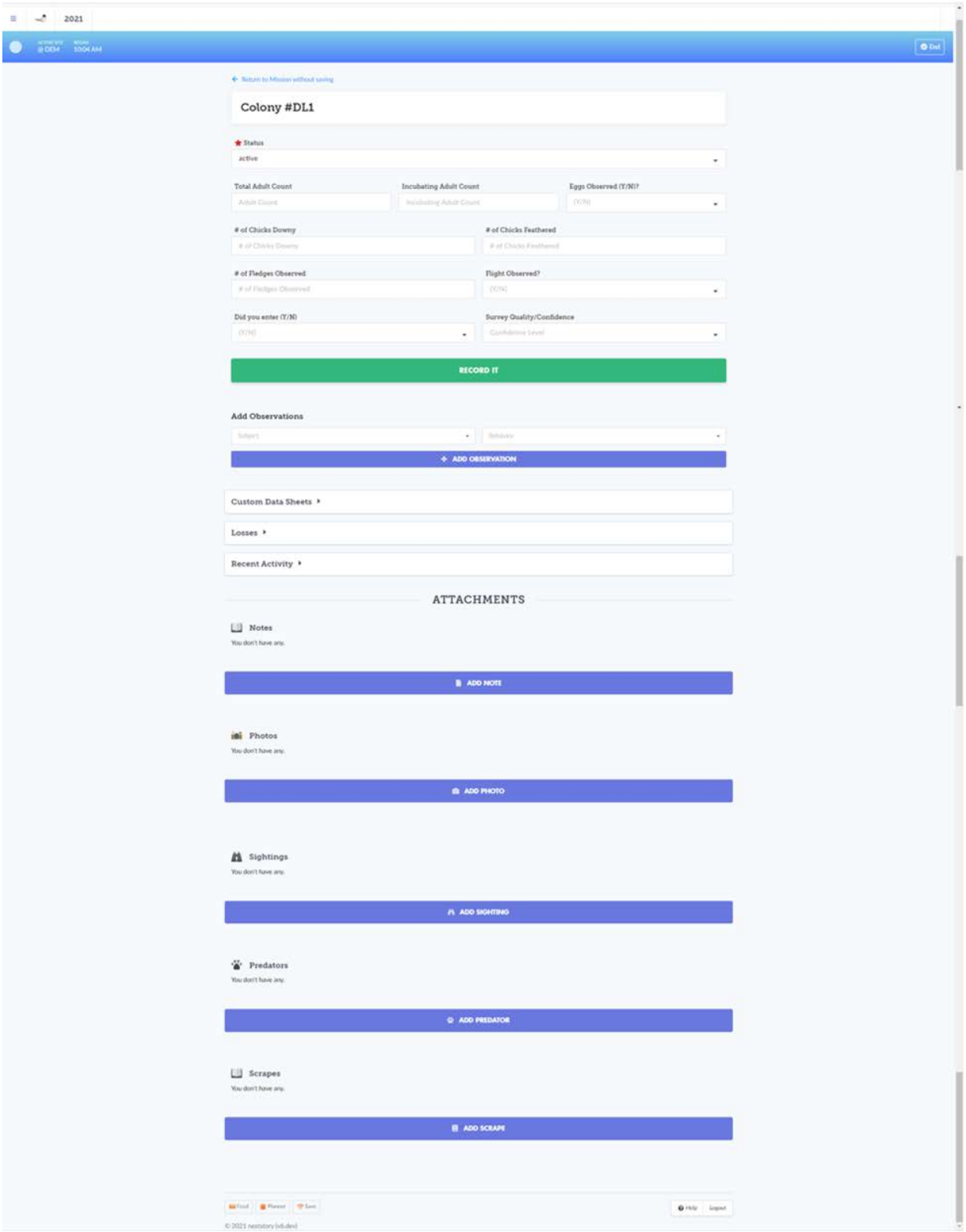


Figure 2: NestStory Least Tern Data Entry Interface



Appendix C:
On-Site Mitigation Service Agreement with USDA-APHIS
(Service Agreement, Work Plan, and Finances)

WS WID #s: **25067, 25068, 25069, 25072, 25092, 25093 25094, 25095, 25109, 25110, 25111**

WS Agreement #: 21-7225-5509-RA
WS Accounting Code: AP.RA.RX25.72.0274

COOPERATIVE SERVICE AGREEMENT BETWEEN MASSACHUSETTS DEPARTMENT OF CONSERVATION RECREATION (MA DCR) AND UNITED STATES DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICE (APHIS) WILDLIFE SERVICES (WS)

ARTICLE 1 – PURPOSE

The purpose of this Cooperative Service Agreement is to conduct a wildlife damage management project that provides professional services to alleviate avian and mammal predation to nesting piping plovers and least and common terns on MA DCR's parks and reservations with nesting beaches in Massachusetts. This predator reduction will enable the MA DCR and adjacent nesting beaches to receive necessary operational support to efficiently and effectively reduce wildlife damage adversely impacting federally and state threatened and endangered bird species and their nesting activities on the property. Sites may include, but not be limited to Demarest Lloyd State Park, Horseneck Beach State Reservation, Sandy Point State Reservation, South Cape Beach State Park, Waquoit Bay National Estuarine Research Reserve: Washburn Island, West Island State Reservation, Revere Beach Reservation, Boston Harbor Islands: Lovell's Island, Salisbury State Reservation, Nahant State Beach, and Winthrop Shores State Reservation.

ARTICLE 2 – AUTHORITY

APHIS-WS has statutory authority under the Acts of March 2, 1931, 46 Stat. 1468-69, 7 U.S.C. §§ 8351-8352, as amended, and December 22, 1987, Public Law No. 100-202, § 101(k), 101 Stat. 1329-331, 7 U.S.C. § 8353, to cooperate with States, local jurisdictions, individuals, public and private agencies, organizations, and institutions while conducting a program of wildlife services involving mammal and bird species that are reservoirs for zoonotic diseases, or animal species that are injurious and/or a nuisance to, among other things, agriculture, horticulture, forestry, animal husbandry, wildlife, and human health and safety.

ARTICLE 3 - MUTUAL RESPONSIBILITIES

The cooperating parties mutually understand and agree that:

1. APHIS-WS shall perform services set forth in the Work Plan, which is attached hereto and made a part hereof. The parties may mutually agree in writing, at any time during the term of this agreement, to amend, modify, add or delete services from the Work Plan.

2. MA DCR certifies that APHIS-WS has advised MA DCR there may be private sector service providers available to provide wildlife damage management (WDM) services that the Cooperator is seeking from APHIS-WS.

3. There will be no equipment with a procurement price of $5,000 or more per unit purchased directly with funds from the cooperator for use on this project. All other equipment purchased for the program is and will remain the property of APHIS-WS.

4. The cooperating parties agree to coordinate with each other before responding to media requests on work associated with this project.

ARTICLE 4 - COOPERATOR RESPONSIBILITIES

MA DCR agree:

1. To designate the authorized representative who shall be responsible for collaboratively administering the activities conducted in this agreement.

   MA DCR: Jorge J. Ayub
   Coastal Ecologist
   251 Causeway Street, Suite 700
   Boston, MA 02114-2119

2. To authorize APHIS-WS to conduct direct control activities as defined in the Work Plan. APHIS-WS will be considered an invitee on the lands controlled by MA DCR. MA DCR will be required to exercise reasonable care to warn APHIS-WS as to dangerous conditions or activities in the project areas.

3. To reimburse APHIS-WS for costs, not to exceed the annually approved amount specified in the Financial Plan. If costs are projected to exceed the amount reflected in the Financial Plan, the agreement with amended Work Plan and Financial Plan shall be formally revised and signed by both parties before services resulting in additional costs are performed. MA DCR agree to pay all costs of services submitted via an invoice from APHIS-WS within 30 days of the date of the submitted invoice(s). Late payments are subject to interest, penalties, and administrative charges and costs as set forth under the Debt Collection Improvement Act of 1996.

4. To provide a Tax Identification Number or Social Security Number in compliance with the Debt Collection Improvement Act of 1996.

5. As a condition of this agreement, MA DCR ensure and certifies that it is not currently debarred or suspended and is free of delinquent Federal debt.

6. To notify APHIS-WS verbally or in writing as far in advance as practical of the date and time of any proposed meeting related to the program.

7. MA DCR acknowledge that APHIS-WS shall be responsible for administration of APHIS-WS activities and supervision of APHIS-WS personnel.

8. To obtain the appropriate permits for removal activities for species listed in the Work Plan and list USDA, APHIS, Wildlife Services as subpermittees.

9. MA DCR will not be connected to the USDA APHIS computer network.

ARTICLE 5 – APHIS-WS RESPONSIBILITIES

APHIS WS Agrees:

1. To designate the following as the APHIS-WS authorized representative who shall be responsible for collaboratively administering the activities conducted in this agreement.

   APHIS WS: Donald J. Wilda, Acting State Director
   USDA, APHIS, WS
   463 West Street
   Amherst, MA 01002
   Cell: (413) 345-8091
   Email: Donald.J.Wilda@usda.gov

2. To conduct activities at sites designated by Cooperator as described in the Work and Financial Plans. APHIS-WS will provide qualified personnel and other resources necessary to implement the approved WDM activities delineated in the Work Plan and Financial Plan of this agreement.

3. That the performance of wildlife damage management actions by APHIS-WS under this agreement is contingent upon a determination by APHIS-WS that such actions are in compliance with the National Environmental Policy Act, Endangered Species Act, and any other applicable federal statutes. APHIS-WS will not make a final decision to conduct requested wildlife damage management actions until it has made the determination of such compliance.

4. In accordance with the Work Plan sets forth the objectives, activities, and budget of this project, APHIS-WS will provide MA DCR with an Annual Summary Report by no later than September 30th of each year of the agreement.

5. MA DCR will choose preferred option for payment by checking the appropriate box:

[X] For APHIS-WS to invoice MA DCR **QUARTERLY** for actual costs incurred by APHIS-WS during the performance of services agreed upon and specified in the Work Plan. Authorized auditing representatives of MA DCR shall be accorded reasonable opportunity to inspect the accounts and records of APHIS-WS pertaining to such claims for reimbursement to the extent permitted by Federal law and regulations.

Or

[ ] To deposit $147,720.00 **UPFRONT** as specified in the Financial Plan upon execution of this Cooperative Service Agreement for services agreed upon and specified in the Work Plan. Authorized auditing representatives of MA DCR shall be accorded reasonable opportunity to inspect the accounts and records of APHIS-WS pertaining to such claims for reimbursement to the extent permitted by Federal law and regulations.

ARTICLE 6 – CONTINGENCY STATEMENT

This agreement is contingent upon the passage by Congress of an appropriation from which expenditures may be legally met and shall not obligate APHIS-WS upon failure of Congress to so appropriate. This agreement may also be reduced or terminated if Congress only provides APHIS-WS funds for a finite period under a Continuing Resolution.

ARTICLE 7 – NON-EXCLUSIVE SERVICE CLAUSE

Nothing in this agreement shall prevent APHIS-WS from entering into separate agreements with any other organization or individual for the purpose of providing wildlife damage management services exclusive of those provided for under this agreement.

ARTICLE 8 – CONGRESSIONAL RESTRICTIONS

Pursuant to Section 22, Title 41, United States Code, no member of or delegate to Congress shall be admitted to any share or part of this agreement or to any benefit to arise therefrom.

ARTICLE 9 – LAWS AND REGULATIONS

This agreement is not a procurement contract (31 U.S.C. 6303), nor is it considered a grant (31 U.S.C. 6304). In this agreement, APHIS-WS provides goods or services on a cost recovery basis to nonfederal recipients, in accordance with all applicable laws, regulations and policies.

ARTICLE 10 – LIABILITY

APHIS-WS assumes no liability for any actions or activities conducted under this agreement except to the extent that recourse or remedies are provided by Congress under the Federal Tort Claims Act (28 U.S.C. 1346(b), 2401(b), and 2671-2680).

ARTICLE 11 – NON-DISCRIMINATION CLAUSE

The United States Department of Agriculture prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. Not all prohibited bases apply to all programs.

ARTICLE 12 - DURATION, REVISIONS, EXTENSIONS, AND TERMINATIONS

This agreement shall become effective on March 20, 2021 and shall continue through September 30, 2023, not to exceed five years. This Cooperative Service Agreement may be amended by mutual agreement of the parties in writing. MA DCR must submit a written request to extend the end date at least 10 days prior to expiration of the agreement. Also, this agreement may be terminated at any time by mutual agreement of the parties in writing, or by one party provided that party notifies the other in writing at least 60 days prior to effecting such action. Further, in the event the Cooperator does not provide necessary funds, APHIS-WS is relieved of the obligation to provide services under this agreement.

In accordance with the Debt Collection Improvement Act of 1996, the Department of Treasury requires a **Taxpayer Identification Number** for individuals or businesses conducting business with the agency.

MA DCR' Tax ID No.: 04-6002287 APHIS-WS's Tax ID: 41-0696271

COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF CONSERVATION AND RECREATION

Priscilla Geigis
Deputy Commissioner for Conservation and
Resource Stewardship
MA Department of Conservation and Recreation
251 Causeway Street, Suite 700
Boston, MA 02114-2119

3-16-21
Date

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
WILDLIFE SERVICES

DONALD WILDA
Digitally signed by DONALD WILDA
DN: c=US, o=U.S. Government, ou=Department of Agriculture, cn=DONALD WILDA, 0.9.2342.19200300.100.1.1=12001000204753
Date: 2021.03.17 15:48:08 -04'00'

Donald J. Wilda, Acting State Director MA,CT, RI
USDA, APHIS, Wildlife Services
463 West Street
Amherst, MA 01002

3-17-2021
Date

WILLIE HARRIS
Digitally signed by WILLIE HARRIS
Date: 2021.03.17 17:58:07 -04'00'

Willie Harris, Director, Eastern Region
USDA, APHIS, Wildlife Services
920 Main Campus Drive; Suite 200
Raleigh, NC 27606

3-17-2021
Date

ATTACHMENT A
WORK PLAN

Introduction

In accordance with the Cooperative Service Agreement between MA DCR and the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Wildlife Services (WS), this Work Plan sets forth the objectives, activities and budget of this project during the period of this agreement March 20, 2021 to September 30, 2023.

Program Objective

To conduct a wildlife damage management projects that provide professional services to alleviate avian and mammalian predation to nesting piping plovers, least terns and other nesting sea and shorebirds on MA DCR parks and reservations. Locations of primary concern are Demarest Lloyd State Park, Horseneck Beach State Reservation, Sandy Point State Reservation, South Cape Beach State Park, Waquoit Bay National Estuarine Research Reserve: Washburn Island, and West Island State Reservation. Sites of secondary concern include, but are not limited to Revere Beach Reservation, Boston Harbor Islands: Lovell's Island, Salisbury State Reservation, Nahant State Beach, and Winthrop Shores State Reservation. This predator reduction will enable MA DCR and adjacent nesting beaches to receive necessary operational support to efficiently and effectively reduce wildlife damage adversely impacting federally threatened and state endangered bird species and their nesting activities on the designated nesting areas. WS will focus on, but not limit activities to, American crow, fish crow, common raven, great-horned owl, Eastern coyote, red fox, gray fox, striped skunk, raccoon, and Virginia opossum.

Plan of Action

WS program will provide wildlife damage management assistance to alleviate problems caused by avian and mammalian predators on MA DCR properties. The benefits expected from the WS program include WS expertise through evaluation and enhancement of existing damage management strategies; organizational support; and provision of additional predation management activities and equipment through operational assistance to the cooperator experiencing wildlife damage problems.

Conflict resolutions will be sought using an integrated approach. The determination of methods to alleviate damage will depend on considerations of selectivity, humaneness, human safety, effectiveness, practicability, and cost.

Damage Management Strategies: Operational work in authorized areas will be conducted using integrated nonlethal and lethal strategies as directed by and in close cooperation with MA DCR staff. WS program personnel will direct operational work toward specific depredating individual animals or local populations by selecting the time, location, technique and specific application of management methods or tools.

Damage Management Methods and Techniques: The basic operational methods incorporated under this project for managing avian and mammal predation will include and be limited to: (1) shooting with suppressed weapons and night-vision/infrared equipment, (2) shooting with shotguns and non-toxic shot, (3) placement and monitoring of live traps or lethal snap traps (4) using the avicide DRC-1339 COR in and around areas where depredation has

occurred by avian predators, and (5) using the rodenticide Diphacinone-50 in and around areas where depredation has occurred by rats or mice.

WS will assist MA DCR in applying for and maintaining any required state or federal permits for take of predators and WS will be listed as subpermittees. Any animals taken under this agreement will be disposed of at WS discretion based on requirements of applicable permits.

Depending on the circumstances at any given time, the use of a particular method may have advantages and disadvantages. Therefore, these methods will be used in various combinations and degrees of intensity depending on local conditions and history of specific damage situations or other circumstances.

The WS State Director or immediate next line supervisor located in Amherst, Massachusetts will provide WS project direction. One primary WS personnel will be assigned the responsibility for conducting the wildlife damage management work at each MA DCR facility where MA DCR has requested assistance with predator management. WS will deploy 1 to 2 Wildlife Technicians/Biologist for 1 to 2-day intervals to be determined collaboratively between MA DCR and WS prior to and during the nesting season (February to August) at sites determined to require predator management by MA DCR.

As previously stated, primary concern will be the 6 parks and reservations listed in the Program Objective above which have annual budgets outlined in the Financial Plan below. The organization and scheduling of assistance at a site of secondary concern or at a MA DCR site not discussed in this agreement will only occur at the request of MA DCR. Planning of activities at these sites will be conducted cooperatively between WS and MA DCR. Since no funding for additional sites is outlined in this agreement, funds will come from funding intended for the 6 primary sites and may result in a reduction of control activity at these sites.

On a not-to-exceed basis, the 3-year budget for this agreement is $149,295.00. This is $49,765.00 annually for an estimated 7 to 14 visits at Demarest Lloyd State Park, Horseneck Beach State Reservation, Sandy Point State Reservation, West Island State Reservation, and South Cape Beach State Park, Waquoit Bay National Estuarine Research Reserve: Washburn Island. However, more or fewer visits may be conducted based on the needs to manage predators and available funding.

The actual number of visits will be determined by which sites MA DCR requests WS work at, as well as the species being targeted, the kind of control methods requested, the number of staff required, and number of visits requested. MA DCR agrees to reimburse the WS Massachusetts program the total cost of this project. If the actual cost will exceed $49,765.00 annually and/or $149,295.00 over 3 years, then a signed modified agreement may be required by both parties.

Effective Dates

The cooperative agreement shall become effective on March 20, 2021 and shall expire on September 30, 2023.

FINANCIAL PLANS

Annual Financial Plan Demarest Lloyd State Park and Horseneck Beach State Reservation

Cost Element		Full Cost
Personnel Compensation		$6,220.41
Vehicles		$1,345.34
Other Services		$107.28
Supplies and Materials		$574.92
Equipment		$336.40
Subtotal (Direct Charges)		$8,584.35
Pooled Job Costs [for non-Over-the Counter projects]	11.00%	$944.28
Indirect Costs	16.15%	$1,386.37
Annual Project Total		$10,915.00

Annual Financial Plan Sandy Point State Reservation

Cost Element		Full Cost
Personnel Compensation		$6,594.79
Vehicles		$1,406.16
Other Services		$107.28
Supplies and Materials		$556.55
Equipment		$336.40
Subtotal (Direct Charges)		$9,001.18
Pooled Job Costs [for non-Over-the Counter projects]	11.00%	$990.13
Indirect Costs	16.15%	$1,453.69
Annual Project Total		$11,445.00

Annual Financial Plan South Cape Beach State Park and Waquoit Bay National Estuarine Research Reserve: Washburn Island

Cost Element		Full Cost
Personnel Compensation		$9,953.17
Vehicles		$1,910.41
Other Services		$125.16
Supplies and Materials		$580.29
Equipment		$360.58
Subtotal (Direct Charges)		$12,929.61
Pooled Job Costs [for non-Over-the Counter projects]	11.00%	$1,422.26
Indirect Costs	16.15%	$2,088.13
Annual Project Total		$16,440.00

Annual Financial Plan West Island State Reservation

Cost Element		Full Cost
Personnel Compensation		$6,527.68
Vehicles		$1,005.48
Other Services		$107.28
Supplies and Materials		$621.24
Equipment		$362.00
Subtotal (Direct Charges)		$8,623.68
Pooled Job Costs	11.00%	$948.60
Indirect Costs	16.15%	$1,392.72
Annual Project Total		$10,965.00

Annual Financial Plan MA DCR T&E Predator Management

Cost Element		Full Cost
Personnel Compensation		$29,296.05
Vehicles		$5,667.39
Other Services		$447.00
Supplies and Materials		$2,333.00
Equipment		$1,395.38
Subtotal (Direct Charges)		$39,138.82
Pooled Job Costs	11.00%	$4,305.27
Indirect Costs	16.15%	$6,320.91
Aviation Flat Rate Collection		$0.00
Annual Agreement Total		$49,765.00
The annual distribution of the budget from this Financial Plan may vary as necessary to accomplish the purpose of this agreement, but may not exceed: **$49,765.00**		

3-Year Financial Plan MA DCR T&E Predator Management

Cost Element		Full Cost
Personnel Compensation		$87,888.15
Vehicles		$17,002.17
Other Services		$1,341.00
Supplies and Materials		$6,999.00
Equipment		$4,186.14
Subtotal (Direct Charges)		$117,416.46
Pooled Job Costs	11.00%	$12,915.81
Indirect Costs	16.15%	$18,962.73
Aviation Flat Rate Collection		$0.00
Agreement Total		$149,295.00
The total distribution of the budget from this Financial Plan may vary as necessary to accomplish the purpose of this agreement but may not exceed: **$149,295.00**		

Financial Point of Contact

MA DCR:

Jorge J. Ayub, Senior Coastal Ecologist
Department of Conservation and Recreation
Phone: (617) 626-1434
Cell: (857) 214-0207
Email: jorge.ayub@state.ma.us

APHIS, WS:

Dawn Wanczyk, Budget Analyst
USDA, APHIS, Wildlife Services
463 West Street
Amherst, MA 01002
Phone: (413) 253-2403 ext. 3
Fax: (413) 253-7577
Email: Dawn.M.Wanczyk@usda.gov