PIPING PLOVER HABITAT CONSERVATION PLAN
CERTIFICATE OF INCLUSION REQUEST

HORSENECK BEACH STATE RESERVATION

Bureau of Resource Protection
Prepared by: Jorge J. Ayub, Coastal Ecologist

3/15/2018

Photo by Sean Ridley

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1. INTRODUCTION

The Massachusetts Department of Conservation and Recreation (DCR) is requesting a Certificate of Inclusion (COI) for Horseneck Beach State Reservation (HBSR) as part of the agency's application to participate in the statewide Piping Plover Habitat Conservation Plan (HCP). DCR is requesting the implementation described under the **HCP section 1.2.1:** ***Covered Activities, (1) "Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks"; and (2a) "Recreation and Beach Operations Associated with Reduced Symbolic Fencing around the Nest".*** DCR is requesting up to three (3) Piping Plover and up to twenty five (25) Least Tern nesting territories for inclusion in these covered activities.

The removal or reduction of symbolic fencing and maintaining the roadways open on this site will help maintain access to the beach; reduce potential economic impacts resulting from parking lots closure, as well as conflicts with recreational activities to an area that hosts approximately 8,000 visitors each weekend day during the summer.

In 2016, DCR executed an ecological habitat restoration around the main plaza and its administrative facilities that created, restored and merged 103,000 square feet of new nesting habitat for listed shorebird species. In 2017, 3 pairs of Piping Plovers (PIPL) and 39 pairs of Least Terns (LETE) successfully nested in the restored habitat.

In 2018, DCR will continue implementing changes for improving the shorebird habitat stewardship and associated management activities at Horseneck Beach. These improvements will consist of impact minimization, habitat enhancement, increased monitoring, coordinated enforcement, internal DCR staff training, and expanded public education. DCR intends with this application to utilize the HCP as an additional conservation management tool to enhance the success of PIPL and LETE nesting at HBSR.

The proposed management actions and protection of listed shorebird species assumes that both Piping Plovers and Least Terns nesting on Horseneck Beach will continue to greatly benefit from the improved management of recent years.

2. GEOGRAPHIC SCOPE

The geographic area covered under this application is located along the western shore of Buzzards Bay (Figure#1). HBSR is a barrir beach that protects the Westport River estuary from the open ocean (Figure#2). The specific area within HBSR includes the main recreational beach (Figure#3), approximately half mile in length, and connected by foot pathways and roadways to the main administrative facilities, bathrooms, and parking lots. The covered activities permitted under this application include all suitable Piping Plover habitat along and around the described length of the beach.

3. SITE DESCRIPTION

For more than a half century, HBSR has offered high quality, affordable opportunities for outdoor recreation in a scenic coastal setting. The beach is continually being reshaped by coastal forces, including wind, waves, and currents. Massachusetts and Rhode Island residents, and to a lesser degree residents of other states and countries, visit this popular state reservation to find relaxation and fun with their families and friends. HBSR, which is well known for its active surf, is one of the most highly visited ocean beach facilities in the Department of Conservation and Recreation (DCR) system.

Historically, Horseneck Beach has served as shelter and nesting habitat for the populations of PIPL and in most recent years for LETE. Due to the favorable beach width, the dunes located behind it and the recent stewardship efforts by DCR, the nesting habitat has improved along the entire beach. However, portions of the primary nesting habitat continue to be the 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 yearly maintenance operations to preserve the sand resources on the beach.

FIGURE #1: Horseneck Beach State Reservation-USGS Map

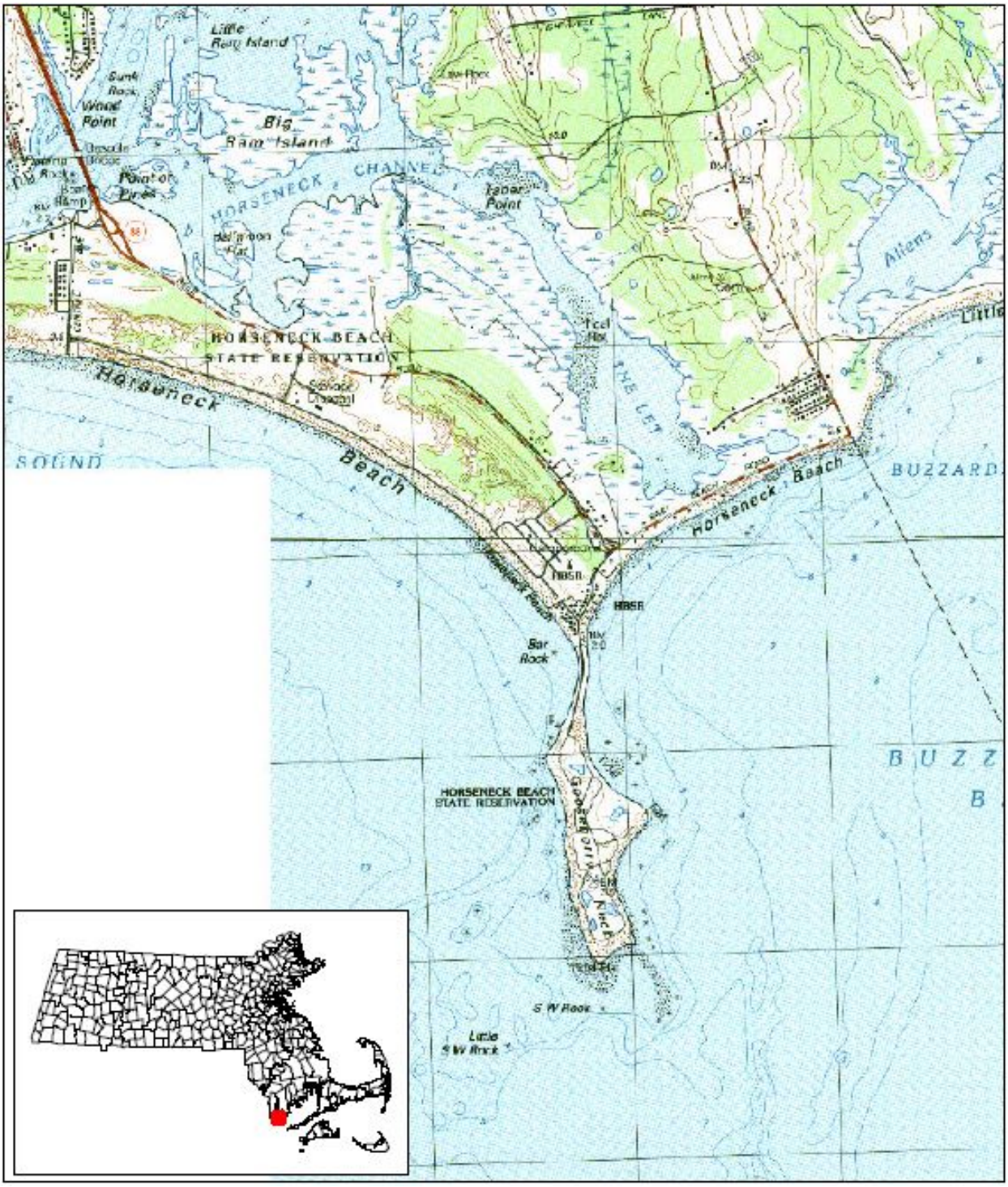

FIGURE #2: Horseneck Beach State Reservation- Overview Image

FIGURE #3: Daily Use Main Recreational Beach

4. DCR STEWARDHIP EFFORTS FOR SHOREBIRD SPECIES

HBSR is intensively utilized for recreational activities by visitors from communities in Massachusetts, Rhode Island and other nearby states. Breeding Piping Plovers, state-listed terns and other coastal bird species of conservation concern, share this valuable coastal habitat with tens of thousands of visitors annually. DCR takes into consideration the variety of shorebird species in our stewardship efforts with a comprehensive approach for coastal conservation at HBSR. The combination of popularity for recreation and importance of nesting habitat has created a challenges and opportunity for wildlife conservation. DCR intends to proactively educate visitors about the coastal conservation goals and statutory obligations to protect rare shorebird species.

Table 1: Federal and State listed shorebird species at Horseneck Beach State Reservation.

Common Name	Scientific Name	Official Conservation Status
Piping Plover	*Charadrius melodus*	Threatened under MESA & ESA
Least Tern	*Sterna antillarum*	Threatened under MESA
Common Tern	*Sterna hirundo*	Threatened under MESA
Roseate Tern	*Sterna dougallii*	Endangered under ESA & MESA
Artic Tern	*Sterna paradisaea*	Special Concern under MESA

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

5. DCR CONSERVATION MANAGEMENT FOR PIPING PLOVERS

There was a historical average of seven (7) PIPL pairs nesting at Horseneck Beach until the year 2012. Thanks to increased conservation and management efforts, that average number grew by approximately 40% to ten (10) PIPL pairs from 2012 through 2016. The growth trend continued in 2017, bringing the nesting population to fifteen (15) PIPL pairs, an unprecedented 115% increase over a five year period (Table#2). This site has become an important PIPL nesting ground providing 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 hiring Conservation Biologists to help with protection, monitoring, and development of outreach programs to engage the visitors. This level of monitoring and protection represents a two-fold increase in field presence compared to prior years of coastal bird protection. In addition, two seasonal DCR Rangers will be hired to increase enforcement of the guidelines and protection of nesting shorebirds. DCR will provide outreach to visitors by conducting educational programming. DCR may also install permanent educational panels and boards.

Symbolic fencing is installed in late-March on suitable and known breeding territories to prepare for the start of pair bonding and territory establishment in early-April. Starting in 2018, symbolic fencing stakes will be made of fiberglass of light gray color, which is less visually intrusive than wood-stakes or metal poles. Twine will be strung between the poles. Signs will be made of light blue and white colors that blend in with the local beach environment.

TABLE 2: Number of PIPL Breeding Pairs & Fledglings at Horseneck Beach from 2008-2017.

	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Breeding Pairs	6	7	7	7	7	10	10	12	10	15
Fledglings	3	6	9	3	4	2	15	23	24	23

CHART 1: Number of breeding Piping Plover pairs and fledglings in the period of 2008-2012

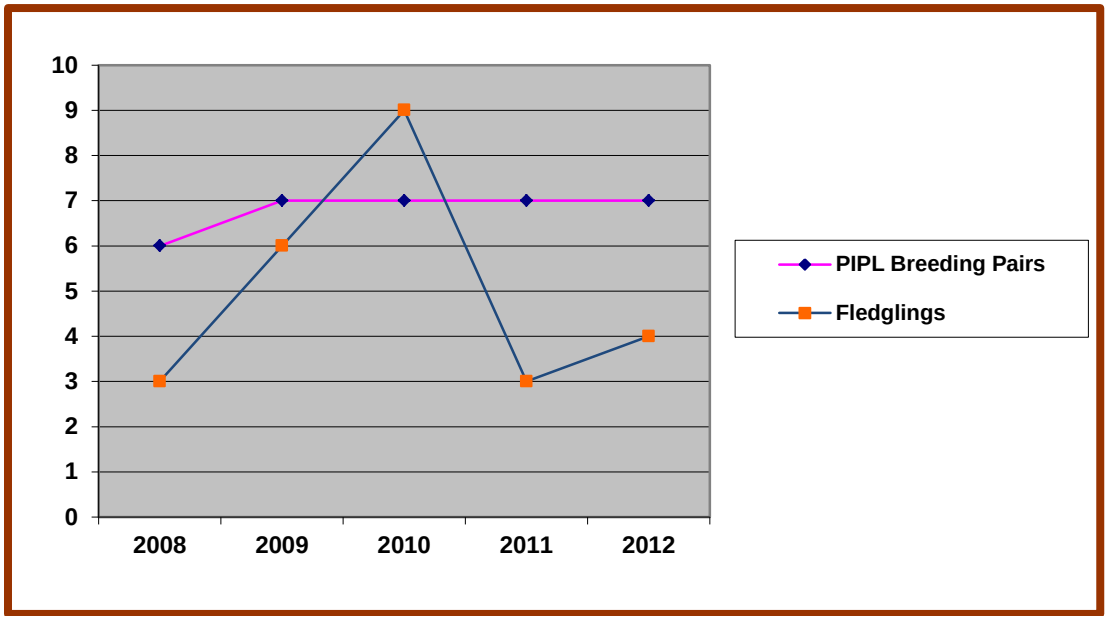

CHART 2: Number of breeding Piping Plover pairs and fledglings in the period of 2013-2017

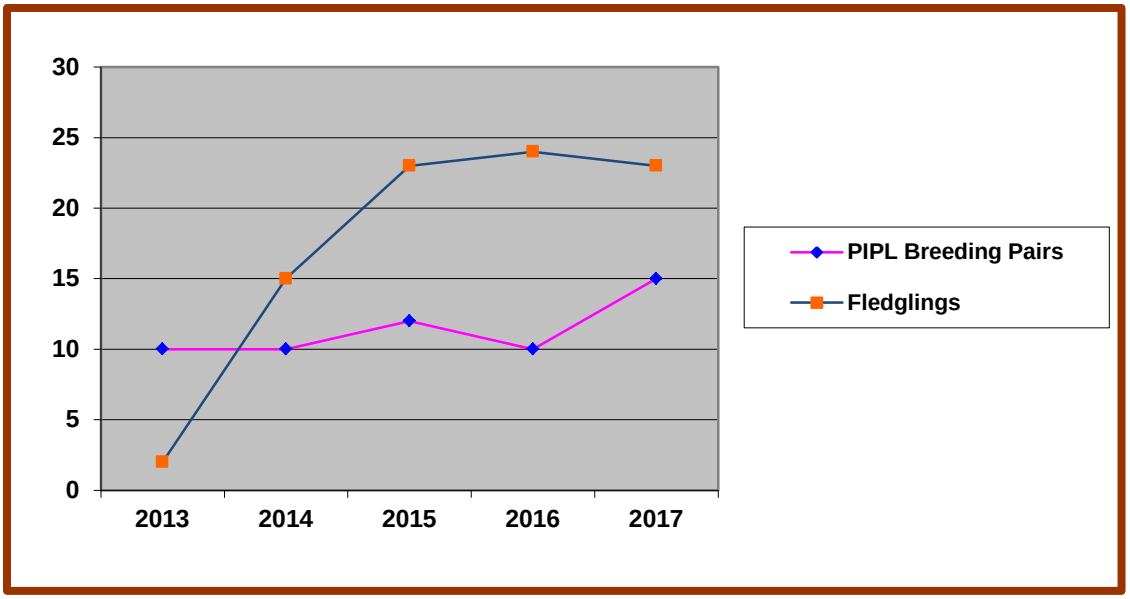

FIGURE #4: Map of Piping Plover and Least Tern Nesting Territories, delineated by symbolic fencing

Map Symbology

- **Blue Lines: PIPL nesting territories**
- **Brown Lines: PIPL and LETE nesting territories in the 2016 restoration area**
- **Red Lines: LETE nesting territories**
- **Green Lines: Supplemental Buffer for LETE chicks**
- **N= nest**
- **B=brood**

6. PREDATOR MANAGEMENT

Predator exclosures have historically been the primary tool used to deter predators, and are constructed following the USFWS 1996 protocol, and installed in circular shapes of various sizes with a cage mesh size of 2X4 inches. Exclosure use was reduced over the past five years from most nests to very few, with the amount of exclosures dependent upon predator activity, proximity to human passage and substrate for construction.

Since 2013, DCR implemented predator controls though the approved personnel and protocols provided by the United States Department of Agriculture (USDA), focusing on American Crow removal, and also night monitoring and removal of nocturnal avian and mammalian predators.

7. ADDITIONAL CONSERVATION EFFORTS

a. Ecological Restorations: DCR implemented a large scale ecological restoration in 2016 to create nesting habitat for listed shorebird species and create resiliency against storm surge. The project helped restore and protect the natural habitat by removing 103,000 square feet of impervious surface and restoring natural substrate to sand (Figure#5). Additionally, 15,000 native plants were planted to help stabilized the primary dunes and to provide shelter to the shorebirds during the summer months.

b. DCR adheres to the state guidelines provided under the Massachusetts Endangered Species Act (MESA), and currently protects and monitors a Least Tern colony on the main beach.

FIGURE #5: Timeline Images of the Restoration Area

March, 2016

June, 2017

8. RESPONSIBLE STAFF

Compliance with this plan will be managed by DCR's Bureau of Resource Protection, specifically by the Coastal Ecologist (Appendix B). In addition, the Coastal Ecologist trains and oversees daily responsibilities of three (3) seasonal Conservation Biologists, providing the biological monitoring, protection and stewardship for the nesting PIPL and LETE. The qualifications and requirements can be found in Appendix C. In addition, all Conservation Biologists receive additional training from the Mass Audubon Coastal Waterbird Program.

9. CURRENT BEACH MANAGEMENT

Current DCR management and protection of listed shorebirds species including PIPL complies with state and federal statutory guidelines. DCR management includes proactively fencing historical territories by April 1st. Additional sections of the beach are fenced once additional PIPL pairs demonstrate territoriality or scraping.

The following is a list of general beach management activities and operations currently conducted by DCR at Horseneck Beach:

A. Recreational Activities: Multiple recreational activities are available at Horseneck Beach, including camping, walking, bathing, fishing, paddle boarding, and kayaking among others.

B. **Biological Monitoring**: DCR currently monitors abundance, distribution, reproductive success, limiting factors, and responses to habitat changes and management of nesting PIPL and LETE. All data is recorded on daily logs and subsequently analyzed and reported to DFW via PIPLODES and TERNODES. This conservation effort is provided on a daily basis.

C. **Fencing and Signage**: DCR staff helps deploy, adjust, and maintain symbolic fencing and signage to delineate critical shorebird nesting areas on significant portions of the suitable nesting habitat that have supported nesting PIPL and LETE in recent years. The remainder of the beach is monitored on a daily basis, and symbolic fencing is installed as soon as territorial pairs and/or scraping are detected. In addition, other fencing (e.g. sand fencing) may be used to delineate and protect some of the native vegetation along the upper portion of the beach to help with beach stabilization.

D. **Public Outreach and Education**: DCR holds formal and informal programming on the beach. Staff members provide outreach, educational programs, and interpretive signage to educate beach users and divert incompatible beach uses from critical nesting areas.

E. **Enforcement**: DCR has a dedicated seasonal Ranger position at this site, providing a suitable level of law enforcement on the beach to deter and enforce statutes pertaining to

the protection of listed nesting shorebirds. The maximum presence of law enforcement activities on the beach runs from April to August. The DCR Ranger follows an enforcement protocol in coordination with law enforcement to improve compliance and protection of the listed shorebird. Compliance efforts by the Ranger are timed to coincide with high beach use periods including weekends and holidays; as well some lower use periods. The Ranger schedule varies from day to day and week to week, to interact with as many different beach users as possible, and to provide maximum coverage.

F. **Operations & Maintenance Coordination**: DCR executes maintenance operations by following the procedures approved in the Operations and Maintenance Plan (OMP), approved under the Massachusetts Wetlands Protection Act (WPA), and reviewed and approved by NHESP. DCR coordinates the type and timing of maintenance operations like mechanized raking, lifeguard equipment deployment by OSV, vendor deliveries, oversize rubbish collection, or small trash barrels collection with qualified monitors to ensure that shorebirds are not harassed, killed, or injured by these activities. Protection guidelines include monitoring of PIPL and LETE and creating 50 yards buffers around incubating pairs where no mechanized raking occurs, to ensure that mechanized raking activities do not result in harassment. Once chicks hatch, refuge continues to be provided in symbolically fenced areas, and sometimes a supplemental buffer is established adjacent to the fenced areas where no raking occurs. Mechanized raking in the vicinity of chicks may only occur with a qualified shorebird monitor present; the monitor has located the chicks prior to raking, and has the ability to halt the machinery, if necessary.

G. **Predator Control** - Proactive predator control programs consisting of trapping or removing avian and mammalian predators are underway at this time.

H. **Pets:** Pets are not allowed on the beach from April 1st through September 15th. Public outreach and signage is utilized to educate visitors about impacts on the nesting shorebirds that can be caused by domestic pets.

10. COVERED ACTIVITIES

DCR is proposing to implement the covered activity, **"Recreation and Beach Operations Associated with Reduced Proactive Fencing of Habitat around the Nest**," within the limits set by the HCP. In no event will the covered activity reduce the overall symbolically fenced area by more than 20% or two acres, whichever is less. The two acre cumulative limit across the site will also include any reductions to symbolic fencing associated with LETE (see below). In addition, the covered activity will be limited to a maximum of three PIPL territories or breeding pairs. DCR recognizes that DFW will lower the number of territories that may be affected during a given year of the three year COI, to ensure that no more than 30% of territories/breeding pairs are impacted. DCR is requesting also reduced proactive symbolic fencing to impact up to 20% of the LETE nesting colony or 25 pairs, whichever is less. In 2017, HBSR held a LETE colony of 95 pairs.

DCR is also proposing for implementation the covered activity **"Use of Roads and Parking Lots in the Vicinity of Unfledged Chicks"**, by allowing vehicles to drive on a roadway to access a parking lot that is being actively used by adults PIPL and unfledged chicks. In addition, intensive monitoring will be required when chicks are near roadways and parking lots. LETE don't utilize this roadways, therefore are excluded from the impacts of this proposed covered activity.

DCR will implement the covered activities in cases where the daily movement or location ,or size of the symbolic fencing for PIPL nests compromises public safety (e.g. inability to deploy lifeguard equipment), or where nesting location or daily movement may negatively impact the economic activities by closing any roadways or parking lots, 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 the site. As described in the HCP, in the event that a PIPL nests in an area without symbolic fencing, the nest will be immediately protected with symbolic fencing with a reduced buffer.

11. IMPACT MINIMIZATION PROCEDURES

Partial beach closures, due to placement of protective fencing for shorebirds resulting in area restrictions, continue to be controversial for some of the visitors. Current DCR management and protection of listed shorebirds species including PIPL complies with state and federal statutory guidelines. DCR is proposing to launch a new plan in 2018 for Horseneck Beach that consists of impact minimization to nesting shorebirds, habitat enhancement, increased monitoring, elevated and coordinated enforcement, internal DCR staff training, and expanded public education in an effort to improve our stewardship of the listed PIPL and LETE species.

Maintenance activities would be implemented by DCR in a manner that enhances and minimizes long-term impacts to the federally and state priority shorebird habitat. All maintenance operations conducted at the beach during the nesting season are coordinated between DCR Ops staff and the onsite Conservation Biologists. These activities include mechanized raking, vendor deliveries, trash collection and lifeguard OSV operations. DCR monitoring staff escorts any vehicle that requires driving on the beach near or around PIPL territories. Mechanized raking is performed three (3) times a week on average, and the activity is conducted under the monitoring and guidance of the Conservation Biologist staff.

The entire site will be monitored intensively seven days a week for approximately 12 hours per day 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. DFW 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, in the event that this circumstance arises, that PIPL territory will be a candidate for implementation of the covered activity of reduced symbolic fencing, and 10 yard radius fencing will be immediately installed (HCP section 3.2.2.1). In the event that LETE nesting occurs in the area of reduced fencing, fencing will be immediately installed with a minimum 5 yard radius around the nest. Portions of beach subject to reduced fencing may be raked in accordance with the monitoring and impact minimization procedures described in this section.

In the event that fencing is removed under the guidance of an approved HCP, 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 PIPL 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.

As a proposed covered activity, maintaining open a roadway located behind the main plaza where the administrative facilities are located is a priority (Figure#6). The roadway is being actively used by adult PIPL and unfledged plover chicks in some years, and since there is an increased risk of "Take" from this covered activity under the HCP, all or some of the following impact minimization measures may be implemented for this covered activity, based on the specific reported PIPL daily movement, timing of the occurrences and site-specific characteristics.

a. Barriers to prevent adults and chicks from accessing road and parking areas: DCR may install temporary or permanent barriers to enhance the protection of the nesting PIPL without impairing their movement. This will only be done in consultation with NHESP, with the default approach to not place a barrier.

b. Signage: DCR installs temporary signage to help provide guidance to the public regarding the implemented minimization procedures.

c. **Staff training:** DCR trains at the beginning of the recreational season selected lifeguards and other park staff to become "approved vehicle escorts", whom will provide supplemental support to the qualified monitors if they are not available at a specific time or location. By default, all broods will be monitored at least once daily, and most cases multiple times per day given the high level of staffing. As required by the HCP, if the brood shows a tendency to range with 50-100 yards of the road, it will be monitored at least twice daily, and more during high traffic periods. If the broods ranges within 0-50 yards of the road, monitoring intensity will be increased further in consultation with NHESP, especially during weekends with favorable weather and other high use periods. During monitoring periods when broods are observed less than 50 yards from the road, every effort will be made to continously monitor the brood until in moves away, and to manage traffic if the brood enters the roadway (see below).

d. **Managing traffic during periods when PIPL are crossing:** DCR has approved an additional Ranger position to be assigned to this location for 12 weeks, coinciding with the hatchling of the PIPL nests, and the busier recreational season, hence increased visitation and vehicle use. This determination effectively increases to two (2) the available Rangers for the Reservation. Both of the Rangers will assist and coordinate with the Conservation Biologists on traffic patterns or temporary closures to prevent any harm to the PIPL.

FIGURE #6: PIPL movement along the main plaza and the roadway

12. MONITORING/COMPLIANCE REQUIREMENTS

DCR professional monitoring staff under the supervision of the Coastal Ecologist will 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 and DCR project management staff, pre-season training for DCR staff and enforcement personnel, and informal onsite public education and outreach to effectively communicate changes regarding visitor access restrictions and timeframes. Formal public outreach programs or meetings may also be conducted if directed by DCR Office of External Affairs.

If implemented, any covered activities will be monitored daily for the duration of the season. All biological data collected and any other pertinent operations data will be included in the final report. When covered activities are in effect, DCR will report weekly to DFW.

13. BUDGET

DCR will dedicate existing full time professional staff to implement the covered activities. Based on the extensive monitoring provided in 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 has allocated an annual budget of $24,000 per year to invest in the implementation of the HCP. The total current annual cost of the proposed selective predator control at Horseneck Beach State reservation and Demarest Lloyd State park (see mitigation plan) is estimated to be $9,785.00 per year (Appendix C).

	Monitoring, Implementation & Reporting Cost	**Indirect, Fringe & Other Associated Cost**	
Coastal Ecologist	$4,284.00	$2,276.00	$6,560.00
Conservation Biologists	$5,670.00	$3,013.00	$8,683.00
Rangers	$2,835.00	$1506.00	$4,341.00
USDA-APHIS	$9,785.00	*Included in subcontract	$9,785.00
		Total Cost of Implementation	**$29,369.00**

14. MITIGATION PLAN

DCR is proposing that mitigation be provided by funding a selective predator management program and implemented by USDA-APHIS (Appendix A), at Horseneck Beach State Reservation and Demarest Lloyd State Park. These sites are ideal due to the number of nesting PIPL (20 pairs combined in 2017), and two LETE colonies, 95 LETE pairs at Horseneck Beach and 15 pairs at Demarest Lloyd. The mitigation requirement for exposing three pairs of PIPL to the covered activity is calculated as up to: 3x3=9 PIPL pairs, to benefit from selective predator management. DCR will fund the entire cost of the 2018 mitigation plan, and to the extent that >7.5-9.0 pairs breed on the selected sites, mitigation credits will be carried forward to 2019.

15. APPENDICES

United States Department of Agriculture

Animal and Plant Health Inspection Service

Wildlife Services

463 West Street
Amherst, MA 01002

Toll free
866-4USDA WS
Phone
413-253-2403
Fax
413-253-7577

February 13, 2018

Jorge J. Ayub
Environmental Analyst and Coastal Ecologist
MA Department of Conservation and Recreation
251 Causeway Street, Suite 700
Boston, MA 02114-2119

Mr. Ayub,

This proposal is in regard to the management of beach predators at Demarest Lloyd State Park in South Dartmouth, MA and Horseneck Beach State Reservation in Westport, MA during the 2018 shorebird nesting season. The context of this proposal will be a comprehensive outline of Wildlife Services (WS) projected activities that should be conducted to reduce predation on shorebird populations.

During previous nesting seasons, WS has deemed seven (7) wildlife species as "major predators". These species are Eastern coyotes, gray and red fox, raccoons, striped skunks, American crows, and great-horned owls. Fish crows have been documented depredating piping plover nests in nearby Rhode Island and may also become an issue in Massachusetts. These species have been labelled major predators because of confirmed observations within nesting habitat. Each species has been responsible for shorebird predation at various times of the year and will require different management practices.

In 2017 and prior years, Eastern coyotes, gray and red fox were responsible for a portion of the overall predation on MA DCR properties and should be managed to alleviate predation. During 2018, WS will conduct all site visits to conduct shooting activities with the use of suppressed rifles and/or shotguns with non-toxic shot. Attempts to remove Eastern coyotes, gray and red fox should be conducted prior to nesting and should continue through the nesting season. While conducting coyote and fox removal, WS will also remove raccoons and striped skunks observed in or near shorebird nesting habitat.

In 2018, WS proposes the use of mock piping plover exclusions baited with hard-boiled chicken eggs monitored by infrared cameras to monitor for corvid predation. If American and/or fish crows are observed, WS recommends using DRC-1339 COR to control these predators that may "key in" on piping plover exclusions. Mock exclosure setup and pre-baiting will be conducted by WS staff. WS suggests constructing three (3) mock exclusions in similar locations as 2017. When WS staff observes 100% pre-bait uptake, WS will conduct a DRC-1339 COR application.

WS recommends the MA DCR maintain their USFWS migratory bird depredation permit for the removal of great horned owls, because they pose a threat to nesting of least terns and piping plovers. The permit should list employees of USDA WS as subpermittees. In the event that great-horned owl predation occurs WS will conduct direct control activities with the use of live capture techniques such as bal-chatri traps, Swedish goshawk traps, pole traps or lethal removal with firearms. The disposition of animals live captured will be determined by applicable permits issued by the U.S. Fish and Wildlife Service (USFWS) and Massachusetts Department of Fisheries and Wildlife (MADFW). It is very important that MA DCR staff or other monitoring staff take notes on predator activity while working on the beach. Dates, times, weather conditions and pictures of unknown tracks are all important data that should be recorded and relayed to WS during the nesting season.

All of the above activities listed are what WS believes need to be done to show a positive impact to nesting success of shorebirds at Demarest Lloyd State Park and Horseneck State Beach Reservation. Every year brings different weather patterns, habitat changes and predator activity. Management activities need to be flexible enough to manage changes in predator species and/or predation threats. This work plan is prepared to have this flexibility to allow changes during the nesting season.

At your request, our office has developed this proposal for a program to conduct direct control of both mammalian and avian predators at both Demarest Lloyd State Park and Horseneck State Beach Reservation. The cost for a Cooperative Service Agreement (CSA) providing six (6) months of control, with a minimum of thirteen (13) control visits will be for a total of $9,785. These visits can be used for any of the activities; shooting, DRC-1339 COR applications, or trapping. Wildlife Services will schedule control visits and may increase or decrease visits during the agreement depending on predator presence and activity.

Wildlife Services will also provide MA DCR with a report of all activities conducted within the 2018 nesting season to include a qualitative assessment of how effective the effort was, unanticipated challenges that were encountered during the 2018 nesting season and preliminary recommendations for future efforts.

The start date for the proposed CSA drafted is March 1, 2018 until August 31, 2018. This date can be changed to any date agreed upon by both WS and MA DCR.

Thank you,

Colby E. Cousineau, Wildlife Specialist
USDA, APHIS, Wildlife Services
463 West Street, Amherst, MA 01002
866-487-3297 toll free in MA, CT & RI
413-253-7577 fax
413-658-4446 cell

MASSACHUSETTS, USA
617-626-1434 JORGE.AYUB@STATE.MA.US

JORGE J.AYUB

PROFFESIONAL OBJECTIVE

Develop and advance the position of Coastal Ecologist for the Department of Conservation & Recreation of the Commonwealth of Massachusetts, by utilizing my professional training and extensive education on ecology, habitat assessment and natural resources management and protection

HIGHLIGHTS OF PROFESSIONAL SKILLS

- Advance knowledge and experience of environmental and biological monitoring, natural resources management, interpretation and biological research
- Strong communication, interpersonal, management and leadership skills
- Detail-oriented and committed to quality
- Ability to learn quickly to improve and achieve goals
- Creative and capable of working in a fast-paced environment
- Public service experience
- Advance bilingual skills, English/Spanish

AREAS OF KNOWLEDGE

Ecology	Biology	Ornithology	Sustainability
Wetlands	Botany	Vegetation Sampling	Environmental Science
Earth science	Soil Science	Plant taxonomy	Natural Resource Mgmt.
Monitoring	Land Use	Habitat Management	Social Responsibility
Land Use & Zoning	Habitat Assessment	Environmental Impacts	Public Outreach

EDUCATION

University of Massachusetts - UMass — Boston, Massachusetts
Graduate Degree Certificate Candidate — Expected Graduation, 05/2017
Sustainability & Clean Energy — GPA: 3.5/4.0

Johnson & Wales University - JWU — Providence, RI
MBA Global Leadership — Degree, 05/2012
Professional Internship: Maritime Environmental Analyst — GPA: 3.8/4.0

National State University - UNED — San Jose, Costa Rica
B.Sc. Management of Natural Resources — Degree, 12/2004
Emphasis: Environmental Protection — Cum laude, GPA 8.5/10

OTHER EDUCATION

Latin-American University of Science and Technology - ULACIT — San Jose, Costa Rica
General Science & Biology Program — GPA 9.2/10

Columbus State University - CSU — Georgia, USA. 1997
Core Classes & ESL Program — GPA: 3.5/4.0

WORK EXPERIENCE

April, 2012-Current: **Coastal Ecologist, Department of Conservation & Recreation, Massachusetts**

- Coordinates rare species protection and habitat management at state properties
- Statewide Project Manager for coastal and wetland ecological restoration projects
- Prepares and review scientific reports, studies and analytical data on environmental impacts and processes including those associated with resource protection and baseline operations
- Review and summarize environmental data pertaining to biological research, habitat protection and wetland mitigation measures
- Actively representing DCR in ecological partnerships and task forces, related to protection of key habitats including wetlands, salt marshes, barrier beaches, and other ecological communities
- Writing grant proposals and applications including those associated with resource protection
- Maintain ongoing liaison with staff from other state, federal, or non-governmental organizations
- Conducts ecological assessments including GIS data gathering, baseline inventories and monitoring
- Conducts ecological assessments of potential and/or recent land acquisition properties
- Assist in the preparation of scientific data for agency testimony
- Assist in development and maintenance of programs to track biological environmental data
- Inspect and supervise agency consultants work/tasks in the field

Jan, 2012 – March, 2012: **Professional Internship: Maritime Environmental Analyst, Executive V.P. Advisor, Moran Maritime Industries, Providence RI**

- Prepared environmental impacts assessments on maritime ballast water systems (BWS)
- Analyzed project feasibility for joint venture strategies, operations and future investments
- Developed communication strategies for liaison with government agencies and partners

2004 – 2011: **International Program Coordinator, Environmental Consultant Walking Connection, Phoenix, AZ**

- Coordinated international environmental programs for non-profit organizations
- Developed environmental interpretation programs at the Grand Canyon National Park
- Partnered with the Grand Canyon Institute on habitat assessments
- Trained & supervised 20+seasonal staff on environmental interpretation
- Supervised, develop and implemented operational strategies
- Interacted with 8,000+ participants
- Helped raise over 10 million dollars

2002 – 2011: **Environmental & Conservation Education-Professional Consultant/ Tour Director, EF –Cambridge, MA**

- Led environmental interpretation and conservation field programs for educational groups
- Created college graded workshops and classroom content for natural resources management courses
- Performed environmental presentations for New England schools with graded content

OTHER WORK EXPERIENCE

2002-2010	Operations Coordinators for Destination Management Programs, TAM Corp – Costa Rica
1999-2008	Master Naturalist, C.R. Expeditions – Costa Rica
1997-1999	Habitat Management and Interpretation, Rain Forest Aerial Tram – Costa Rica

MEMBERSHIPS & COMMUNITY SERVICE

- Member of National Association of Environmental Professionals (NAEP)
- Member of Massachusetts Association of Conservation Commissions (MACC)
- Certified Wilderness First Aid and CPR, National Safety Council , USA

REFERENCES AVAILABLE UPON REQUEST

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

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