STATEWIDE HABITAT CONSERVATION PLAN

The Town of Orleans

Request for Certificate of Inclusion (COI)

NAUSET BEACH, 2019

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Introduction

The Town of Orleans (the Town) is requesting a renewal of the Certificate of Inclusion (COI) for Nauset Beach as part of the Town's application to participate in the statewide Piping Plover Habitat Conservation Plan (HCP). This document also serves as an application for a Conservation and Management Permit (CMP) pursuant to the Massachusetts Endangered Species Act (MESA; MGL c. 131A; 320 CMR 10.00) The Town is requesting the opportunity to implement described covered activities that expose Piping Plovers to potential take, and associated impact minimization measures to minimize risk when carrying out the covered activities described in the HCP Plan. The Town is requesting up to two (2) Piping Plover broods be covered. The intent of the implementation of covered activities is to address repeated closures of OSV access to the majority of Nauset Beach South, and the potential of an OSV closure on Nauset Spit.

The Town is proposing that mitigation will be in the form of funding to implement selective off-site predator management. The Town will continue improving habitat conservation efforts, including protection of listed shorebird species and Diamondback Terrapin Turtles, impact minimization, species monitoring, educational outreach, and beach rules and regulations enforcement with a continuing goal to increase Piping Plover and other state-listed species population recovery on Nauset Beach.

1.0 Site Description

The entire Plan Area covered under this application is the geographic area known as Nauset Beach (Orleans), which includes Nauset Spit and Nauset Beach South as described within two separate Orleans Conservation Commission's Order of Conditions (OOC SE-54-723) and (OCC SE-54-2246). The Plan Area for this COI includes all vegetation communities, wetlands and water resources, wildlife and their habitats, threatened and endangered species and their habitats, land uses, and any other relevant natural resources or existing conditions as described in the OOC's.

The portion of Nauset Beach that the Town of Orleans patrols and monitors is approximately 7.35 miles of ocean barrier beach shoreline along the Atlantic coast. It is located on the portion of the Cape Cod peninsula known as the Lower Cape, and the patrolling and monitoring of the Plan Area stretches from the Nauset Inlet in Eastham south to the Orleans / Chatham town line.

The Town has a history of managing pedestrian and OSV use in the Plan Area, as well as specific conservation actions designed to ensure that a "net benefit" is provided to the Massachusetts population of Piping Plovers (321 CMR 10.23) all the while maintaining and improving the public access and recreational opportunities associated with Nauset Beach. The covered activities permitted under this application include all suitable Piping Plover habitat along and around the described length and width of the beach.

The dynamic setting of Nauset Beach results in complex and constantly changing management requirements. Due to the natural erosion and accretion of shoreline features, the exact total site acreage of Nauset Beach may vary from year to year.

1.1 Physical Description of Property and Piping Plover Habitat

The Nauset Beach Barrier Beach system in Orleans includes the Nauset Spit, Nauset Public Bathing Beach, and Nauset Beach South. These areas are owned and operated by the Town of Orleans and managed by the Department of Natural Resources. The area is classified as a Barrier Beach (310 CMR

10.29), a resource area which itself contains the following resource areas: Land Subject to Coastal Storm Flowage (310

CMR 10.02 (1)(d)), Land Under the Ocean (310 CMR 10.25), Coastal Beaches (310 CMR 10.27), Coastal Dunes (310 CMR 10.28), Salt Marshes (310 CMR 10.32), and Rare Species Habitat (310 CMR 10.37).

Nauset Beach is located within NHESP Estimated Habitat of Rare Wildlife and NHESP Priority Habitat of Rare Species. While the whole beach is potential habitat, historically, the majority of Piping Plover nesting has been located towards the northern area of Nauset Spit and within the first mile of Nauset Beach South.

Between 1998 and 2018, the total population of breeding Piping Plover pairs on Nauset Spit and Nauset Beach South has averaged 24.25 pairs, ranging from a low of 15 breeding pairs in 2003 to a high of 32 breeding pairs in 2010, 2011, and 2013. During that same period of time, Piping Plovers have averaged 1.34 fledges per pair from 1998 – 2018 with an average of 31.4 fledged per year.

1.1.1 Nauset Spit

Nauset Spit is approximately 2.3 miles in length. The Spit contains Coastal Beaches, Coastal Dunes, Coastal Banks, and tidal creeks. It also lies adjacent to Town Cove, New Island, Stoney Island, Woods Cove, Tern Island, tidal mud flats and salt marsh. The Spit has been slowly accreting northward into the Town of Eastham. It has also been subject to full breaches and dune blowouts during severe storms and naturally migrates westward.

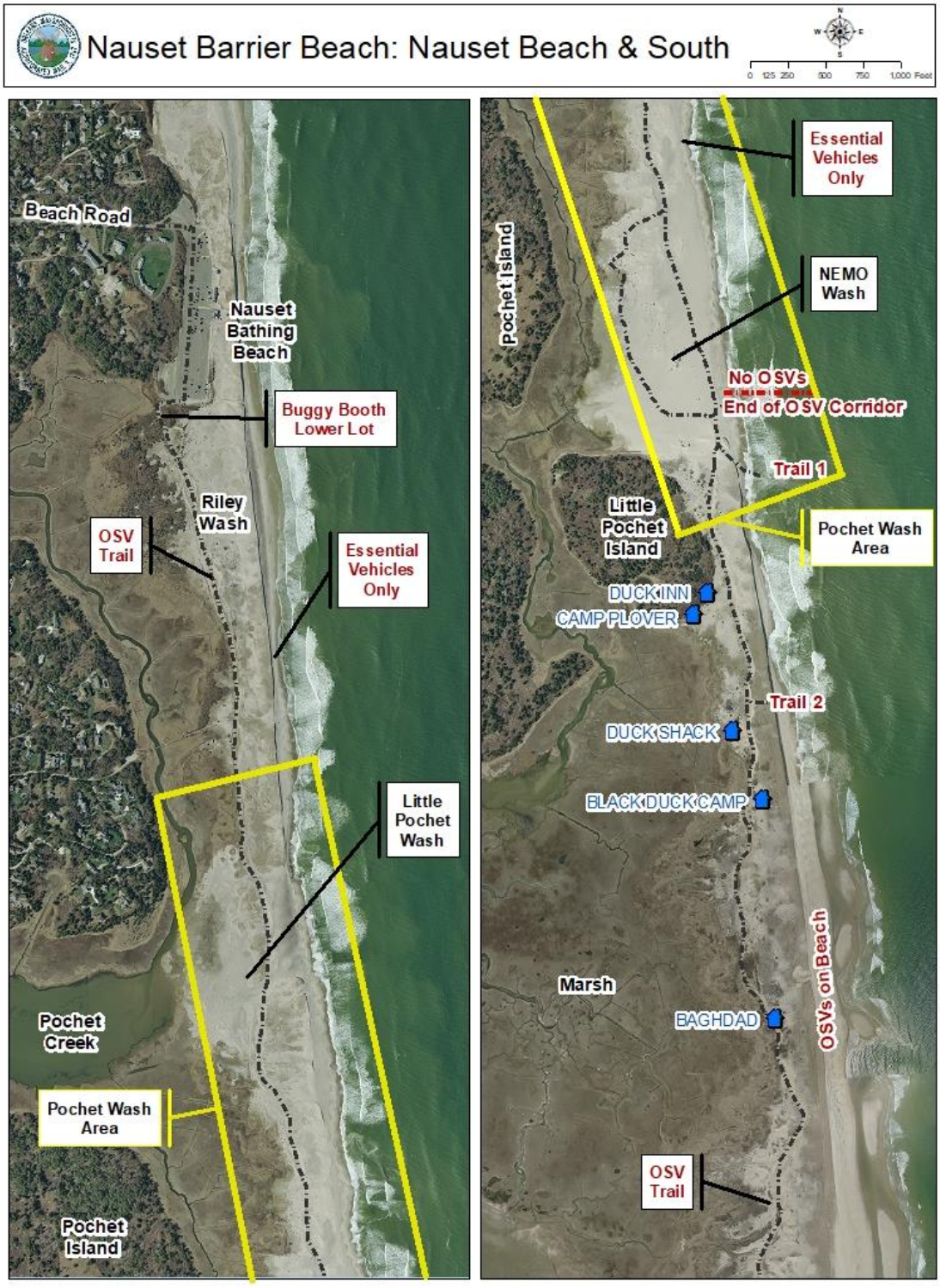
Nauset Spit contains many overwash areas where tidal storm surge and storm damage have breached through the primary dune system to the west area known as Town Cove. The overwash areas have created nesting habitat as well as foraging areas which allow the Piping Plovers to cross back and forth from the Atlantic Ocean to the Town Cove throughout the day and evening where they can forage on the east and west wrack lines as well as the tidal mud flats on the west side of the Spit. The tidal flats on the Town Cove or west side of the Spit contain abundant food source microorganisms, crustaceans and invertebrates for the Piping Plovers to forage on.

Recreational amenities on Nauset Spit center on the use of over-sand vehicles (OSVs). The Spit is open to use by OSVs in accordance with the DEP Order of Conditions (OOC) SE 54-723. The OOC contains key provisions requiring the protection of the key habitat. It is important to note that all of these habitat areas are required to be identified each year by Town staff by April 1 and delineated by a network of symbolic fencing and signs in order to ensure that the natural habitat is protected from pedestrian and OSVs each year.

New Island, located within Town Cove just inside Nauset Spit, is monitored by both National Park Service staff and Town of Orleans staff. Since Orleans shorebird monitors are on site daily, the Town conducts daily monitoring of New Island. Since the Town monitors New Island on regular patrols, if Piping Plover and Least Tern activity is observed, the Town incorporates the activity into the Town of Orleans Piping Plover census report and submit it electronically via the On-Line Data Entry System (PIPLODES).

Map 2: Nauset Barrier Beach – Nauset Spit

Map 3: Nauset Barrier Beach – Nauset Public Bathing Beach and Nauset Beach South



Map 4: Nauset Barrier Beach – Nauset Beach South

1.1.2 Nauset Public Bathing Beach

Nauset Beach is a 3/4 mile long public bathing beach and it is located on the Atlantic Ocean facing east of the public parking lot at the end of Beach Road. The beach is staffed by 6 lifeguard towers that cover roughly .25 mile where most of the pedestrian and beach bathing activity is focused. The habitat in this area is predominantly Coastal Beach backed by a steep Coastal Dune system that is adjacent to the parking lot that hosts administration and bathhouse facilities. There are no OSVs allowed on this area of Nauset Beach and the habitat type is not as diverse on this section of the barrier system as compared to north and south. This area does not have a historic nesting population of Piping Plovers.

1.1.3 Nauset Beach South

Nauset Beach South extends south from the Public Bathing Beach area and continues 4.6 miles in a southerly direction to the Orleans/Chatham town line, where the barrier beach extends into Chatham. It contains 700+ Coastal Beaches, Coastal Dunes, Coastal Banks, tidal creeks, and Salt Marsh. The beach and dunes run parallel to the coastline and are separated from the mainland by Pleasant Bay and the marsh system.
Nauset Beach South is accessible via OSVs and managed in accordance with an Order of Conditions (OCC) that governs the use of the OSVs on the beach. Nauset Beach South, like Nauset Spit, has many areas of storm overwash. Three of the more significant areas of overwash are located within the first 1.38 miles on Nauset Beach South between the OSV entrance and Trail 1 and include: (A) Riley Wash, from an overwash created by the Nor'easter Riley 2018; (B) Little Pochet Wash area; and (3) Nemo Wash (Nor'easter Nemo 2012). Together, these three areas are generally referred to as the Pochet Wash area.

The habitat in this area extends west to Pochet Creek and Pochet Island and contains large areas of flat Coastal Beach (overwash). Vegetation consists of Cape American Beach Grass, Smooth Cordgrass, Slender Glasswort, Seaside Lavender, Salt Marsh Hay, Spikegrass and a variety of typical woody coastal shrubs. The grasses provide excellent habitat for plovers.

The remaining 3.22 miles of beach south of Trail 1 to Trail 6 consists of large Coastal Dunes and Coastal Beach. There are 5 historical trails known as Trail 1 through Trail 5 located in Orleans. They provide access to the beachfront from the back trail that runs the length of the barrier beach on the west side (landward) of the primary coastal dune.

There are also twelve private camps along the back trail. The historic camps date back to the early 1900s. They are privately owned and all have executed leases with the Town for occupation.

1.2 Description of Piping Plover Population

From 1998 – 2008, Piping Plovers fledged an average of 1.21 chicks per pair between Nauset Spit and Nauset Beach South, higher than the average of .83 chicks per pair from 2009 – 2013, the lowest five year average recorded for productivity at Nauset Spit and Nauset Beach. Piping Plover productivity then increased dramatically over the last five years to an average of 2.12 fledges per breeding pair from 2014 – 2018.

When viewed over the 20-year period (1998-2018) the average productivity for Piping Plovers on Nauset Spit and Nauset Beach South is 1.34 fledges per pair, just shy of the USFWS recovery goal of 1.5 fledged chicks per pair per year. The abundance of nesting pairs has not varied as dramatically (between 15 – 32

pairs yearly), averaging 24.25 breeding pairs per year since 1998.

The major reason for this difference in fledging success between years is due to high levels of predation, particularly by American Crow, Eastern Coyotes, and red fox.

Table A: Piping Plover Abundance and Productivity 1998-2018

Year	Nauset Spit		South Beach		Totals		Chicks/Pair
	Pairs	*Fledges*	*Pairs*	*Fledges*	*Pairs*	*Fledges*	
1998	20	7	8	9	28	16	0.57
1999	15	27	7	10	22	37	1.68
2000	13	7	7	3	20	10	0.50
2001	14	23	6	9	20	32	1.60
2002	13	9	4	3	17	12	0.71
2003	11	9	4	15	15	24	1.60
2004	12	16	5	2	17	18	1.06
2005	15	27	2	0	17	27	1.59
2006	16	17	2	5	18	22	1.22
2007	23	20	5	6	28	26	0.93
2008	22	40	5	10	27	50	1.85
2009	22	21	7	11	29	32	1.10
2010	21	23	11	12	32	35	1.09
2011	24	2	8	6	32	8	0.25
2012	11	4	10	15	21	19	0.90
2013	16	14	16	12	32	26	0.81
2014	9	12	15	18	24	30	1.25
2015	5	7	14	35	19	42	2.21
2016	9	12	11	28	20	40	2.00
2017	10	20	9	27	19	47	2.47
2018	15	42	13	33	28	75	2.68
Totals	316	359	169	269	485	628	1.34
Chicks/Pair		1.13607595		1.59171598		1.29484536	

1.2.1 Other State-Listed Species

Piping Plovers are not the only listed species present on the Nauset Barrier Beach. State-listed Least Terns (Sternaula antillarum) and the occasional Common Tern (Sterna hirundo) nest on these beaches. American Oystercatchers (not listed), Roseate (Federal and State Endangered) and Arctic terns (State Special Concern), Black Skimmers (not listed), and Red Knots (Federal and State Threatened) are typically seen among staging migratory birds. The habitats described above are the same available for all of these species, with the exception of the red knot which is only occasionally found on the beach front and tends to forage on the flats of Pleasant Bay and roost in large aggregations on nearshore bayside flats south of the Chatham town line during high tide.

Least Terns are present in fair numbers on Nauset Spit. They have also been present in the Pochet Wash. The Nauset Spit colony has ranged from 35 to 70 pairs from 2012-2018. The Pochet Wash colony ranged from 17 to 63 pairs observed in 2017 and 2018, respectfully. Productivity has been poor over due to storm overwash and coyote predation during July full moons.

Nauset Beach, in total, has seen a comeback in the Least Tern population since 2016 when zero Least Terns were recorded on both Nauset Spit and Nauset Beach South. Historically, the colony at Nauset Spit is more abundant and productive, and in 2017 and 2018 that remained true.

Oystercatchers are observed yearly on Nauset Beach, but have not nested in Orleans.

Roseate Terns have been observed in small numbers, showing up towards the end of August. They have been observed from afar on the sand flats off Nauset Inlet, but bands have yet to be read with confidence due to the distance.

Diamondback Terrapins turtles (DTT) nest within the dune at Nauset Beach South, particularly in the vicinity of where the Pochet Wash connects with Pleasant Bay. The primary "Search Area" for DTT extends for 2.3 miles from Riley Wash to the marsh north of Trail 3.

2.0 Responsible Staff

2.1 Names and Credentials

Natural Resources Manager, Nathan Sears

Mr. Sears is the Town of Orleans Natural Resources Manager. He has a BS in Natural Resources and Wildlife Conservation, University of Massachusetts at Amherst, 1998. Mr. Sears has worked for the Town of Orleans for 12 Years and reports to the Town Administrator and the Board of Park Commissioners. Mr. Sears is also responsible for reporting to the Orleans Conservation Commission as it relates to beach operations under Order SE 54-723 or Order SE 54-2246. He is in charge of all beach operations including the Over-Sand Vehicle program, the Shorebird program, and the Habitat Conservation Plan for the Town of Orleans.

Natural Resources Officer / Endangered Species Specialist, Richard Hilmer

Mr. Hilmer is the Town of Orleans full-time Natural Resources Officer and his responsibilities include endangered species monitoring, the Habitat Conservation Plan, and oversees the OSV program. He has a BS in Education, University of Vermont, 1978; an A.S. in Environmental Technology and Coastal Zone Management (2006); and is a MA licensed Earth Science teacher. Prior to joining the Town of Orleans he was Natural Resources Officer in Eastham, MA. The NRO reports directly to the Natural Resources Manager.

Nauset Beach Public Bathing Beach Director, Robert Bates

Mr. Bates is the Town of Orleans Beach Director. His experience is in Personnel Management and he has held this position for 5 years and has worked for the Town of Orleans since 2012. Mr. Bates is responsible for the daily operations of the Public Bathing Beach at Nauset Beach. He over-sees seasonal employees, comprised of lifeguards, EMTs, Beach Rangers, sticker booth staffing, parking attendants, and the maintenance of facilities at the Nauset Beach Administration Building. Mr. Bates reports directly to the Natural Resources Manager.

Assistant Endangered Species Specialist / Beach Ranger, Jamien Meservey

Ms. Meservey has been a shorebird monitor on Nauset Beach for four years. A graduate of Massachusetts College of Liberal Arts (2017) with a BS in Environmental Studies. Ms. Meservey specializes in the management of the Endangered Species Program and the Habitat Conservation Plan, focusing on Piping Plover, Least Tern and Diamondback Terrapin monitoring. She reports directly to and works alongside the Natural Resources Officer.

Beach Rangers

A core of veteran Beach Rangers are primarily responsible for code enforcement of all of the required Special Conditions in the Orders of Conditions as well as all of the Nauset Beach Rules and Regulations for ORVs. They report to the Natural Resources Manager, NRO and Beach Director. They assist the NRO and the HCP Shorebird Monitors when enforcement of any violations concerning rare and endangered species is required.

Beach Ranger Tim Gould has worked for the Town of Orleans for 31 years as a Lieutenant in the Orleans Police Department.

Beach Ranger Matt Watts has worked for the Town of Orleans for 27 years as a Sergeant in the Orleans Police Department.

Beach Ranger David Young has worked for the Town of Orleans for 5 years.

Seasonal HCP Shorebird Monitors

In addition, the Town of Orleans employs 8-11 seasonal full-time HCP Shorebird Monitors.

The Town of Orleans Seasonal HCP Shorebird Monitors are responsible for the following:

Locating and identifying endangered shorebird nesting and feeding areas, setting up exclosures, as directed by the Natural Resources Manager, signage, and symbolic fencing, conducting surveys and counts of birds.

Working in assigned habitat areas, must be able to: identify piping plover, least and common terns, American oystercatcher, and other shorebird species as required; identify and locate shorebird nesting and feeding areas; and map the identified areas.

Data collection and note taking to document nest establishment, egg laying, hatching, predation of nests, chick rearing, and fledgling activities.

Set up and maintain signage, symbolic fencing, and protective exclosures such that critical habitat areas are protected from human disturbance.

Interact with and educate the public to increase awareness of the birds and nesting/feeding areas.

Re-route vehicles around protected areas and escort essential vehicles through protected area as necessary.

3.0 Beach Management Plan

Both the Nauset Spit and Nauset Beach South are managed by the Board of Selectmen who serve as Orleans Park Commissioners. Nauset Spit operates under an Order of Conditions SE 54-723 issued in 1991. Nauset Beach South operates under an Order of Conditions SE 54-2246 issued in 2015. Each Order contains a comprehensive Off Road Vehicle (ORV) and Beach Management Plan that includes adherence to the Massachusetts Division of Fisheries & Wildlife, Natural Heritage and Endangered Species Program, *Guidelines for Managing Recreational Use of Beaches to Protect Piping Plovers and Terns and Their Habitat* (1993) ; U.S. Fish Wildlife Service (1994) and compliance with Coastal Resource area performance standards defined in the Massachusetts Wetland Protection Act, M.G.L. c 131 § 40 and 310 CMR 10.00 including 310 CMR 10.37 Protection of Rare and Endangered Species Habitat.

3.1 Beach Operations

Beach operations are managed on a daily basis beginning from April through the Columbus Day Weekend. Up to 65+ seasonal employees are hired annually working under the daily supervision and direction of the Natural Resources Manager, the NRO, the Beach Director and the Assistant Beach Director. Seasonal employees, comprised of lifeguards, EMTs, Beach Rangers, parking attendants, and shorebird monitors, operate out of the Nauset Beach Administration Building. All staff are equipped with radio communications. Video surveillance occurs 24 hours a day over the entire facility. The Nauset Spit OSV program and the Nauset South OSV program incorporate detailed traffic management protocols in order to alleviate OSV congestion. Beach Rangers are responsible for patrolling the entire Nauset Beach and ensuring compliance with the Nauset Beach Rules and Regulations for ORVs. Nauset Beach Rangers are staffed from 7:30 a.m. to 11:00 p.m. daily.

3.1.1 Recreational Activities

The Nauset Barrier Beach system is host to many recreational opportunities. Activities such as the OSV program, surfing, bathing, hiking, bird watching, fishing, hunting, metal detecting and photography are just a few that take place.

3.1.2 Parking & Roads

The Nauset Public Beach parking lot is the primary main parking lot for all beach activities and is accessible from Beach Road in Orleans. The main parking lot can accommodates 900 vehicles per day.

3.1.3 Over-Sand Vehicle Program

Sticker permits are required for OSV use on Nauset Spit and on the Nauset Beach South OSV trails. The OSV program has two entrances: (1) Nauset Spit is accessed via Callanan's Pass, a private road with deeded rights for residents to access the beach in OSVs. The OSV access via Callanan's Pass is managed and staffed from 7:30 a.m. to 7:00 p.m. daily from June 15 to Labor Day. Traffic attendants communicate via hand held radioss; (2) Nauset Beach South OSV trail is accessed through the main entrance in the Lower Lot at the southern end of the Nauset Public Beach parking lot where there is a Buggy Booth check point and air station. The OSV Buggy Booth is staffed from 7:30 a.m. to 11 p.m. June through mid-October.

The OSV trails are open year-round 6:00 a.m. to 11:00 p.m. Overnight camping is only permitted for "self-contained mobile homes and campers" with permanently mounted toilet and separate holding

tanks for black and grey water storage. No chase vehicles are permitted.

3.1.4 Beach Cleaning and Refuse Management

There are several dumpsters provided at the beach and access areas for beachgoers. They are emptied when full and maintained yearly. Visitors are also encouraged through signage and literature to take all trash off the beach. This decreases predator activity. Beach Rangers clean the beaches daily, collect debris, and dispose of it in appropriate containers. No beach raking is allowed or conducted.

3.1.5 Rules and Regulations

The OSV programs on both Nauset Spit and Nauset Beach South are subject to detailed Rules and Regulations for ORVs. They are updated annually by the Natural Resources Manager in consultation with the Board of Park Commissioners and the Conservation Commission.

The OSV programs on both Nauset Spit and Nauset Beach South are subject to detailed Rules and Regulations for ORVs. They are updated annually by the Natural Resources Manager in consultation with the Board of Park Commissioners and the Conservation Commission.

3.1.6 Law Enforcement

The Town of Orleans employs 4-5 full time seasonal Beach Rangers. They patrol day and evening shifts and are trained each season on any new regulations or policies which have been adopted by the Park Commissioners. Several of the Beach Rangers are former retired police officers, who have lived and worked in Orleans for decades. They are provided with all necessary equipment, communication radios, and enforce all of the rules and regulations. In addition, the Town has a working relationship with the Massachusetts Environmental Police who are occasionally called in for assistance in more serious violations. The Orleans Police Department also works in close concert with the Beach Rangers.

Patrols are conducted on the Nauset Spit and Nauset Beach South throughout the entire day during May to September. Patrols are conducted from 7:30 a.m. to 4:00 p.m. and from 4:00 p.m. to 11: 00 p.m. The beach is cleared north and south by midnight and the patrol ends at 11:00 p.m. In the off season, a Natural Resource Officer patrols on days and weekends. All Beach Rangers follow the written protocols established by the Natural Resources Manager and Beach Director.

3.1.7 Fireworks

Fireworks are strictly prohibited at Nauset Beach. There is no fireworks program at Nauset Beach. Should an occasional report of fireworks be reported to the police department, officers are dispatched and work cooperatively with Beach Rangers to enforce citations. Education is also provided to anyone using fireworks and their effect on breeding shorebirds. There is a Town sponsored end of season bonfire on Nauset Public Beach which is held after the breeding season in September.

3.1.8 Dogs

No dogs are allowed on Nauset Public Beach and Nauset Spit from April 1 through Labor Day. Prior to April 1 signs are posted prohibiting dogs anywhere on the beach as well as prohibiting kite flying.

Dogs are allowed on Nauset Beach South from Trail 1 to the Chatham Inlet when on a leash no longer than 30 feet at all times from April 1 through Labor Day. Dogs (as well as humans) are prohibited in

areas closed by symbolic fencing and signs.

Nauset Beach has a zero tolerance enforcement initiative regarding dogs.

Between Labor Day and April 1, dogs are allowed on all Town of Orleans beaches.

4.0 Shorebird Monitoring and Impact Minimization Measures

The NRO begins patrolling and installing symbolic fencing the first week of March covering a 40+ hourly week over the course of 7 days. Installing symbolic fencing during the month of March affords the NRO the opportunity to walk the entire length of the barrier beach avoiding installing fencing and signage when shorebirds are present. Suitable Piping Plover and Least Tern nesting habitat is identified and delineated with symbolic fencing by April 1 in accordance with the Guidelines.

The Assistant Endangered Species Specialist (AESS) starts full time during the first week of April. Together, the NRO and the AESS monitor Nauset Spit and Nauset Beach South on daily patrols for returning Piping Plover who display territorial behavior, and courtship dancing or flights. Daily logs are mapped and all activity is recorded including identifying possible breeding pairs, territorial behavior, scrapes, foraging range, tolerance to human disturbance, and predator activity.

The NRO and AESS are equipped with smart phones containing GPS programs and Excel Spreadsheet programs to record daily activities, identify trends, and provide abundance and productivity date for the Annual NHESP Census. NRO, AESS and HCP Monitors are provided with work trucks and utility vehicles.

4.1 Symbolic Fencing & Signage

Each year the Natural Resources Manager, Conservation Agent and Shorebird Specialist meet with representatives from MADFW/NHESP staff to review the symbolic fencing installed prior to April 1 and identify additional potential areas of plover and tern habitat. Fencing locations are examined and adjusted based on input from all parties. As indicated in the Beach Management Plans, Orleans has been following the criteria from the *Massachusetts Barrier Beach Guidelines* and the *State and Federal Guidelines for Managing Recreational Activates in Piping Plover and Least Tern Habitat.* Fencing is adjusted periodically to increase buffer zones to nesting plovers and terns.

By April 1, symbolic fencing is installed around the perimeter of all areas of suitable habitat for Piping Plover and Tern colonies. This includes both sides (east and west) of the barrier beach on the north side of Nauset Beach from the public beach north to the Nauset Spit for a total of 5 miles of symbolic fencing. On Nauset Beach South, there is symbolic fencing from the public beach south to the Chatham town line where suitable along the ocean side. The OSV corridor has symbolic fencing year round from entrance to the Trail 1 Rotary for a total of 6 miles. Symbolical fencing continues south along the dune toe on the beach from Trail 1 rotary to Trail 6, a total of 4 miles.

Durable, bright yellow signs indicating nesting habitat as a "Restricted Area" are placed at frequent intervals along the symbolic fencing. The yellow "Area Closed: Threatened Birds Nesting" signs are attached to symbolic fencing by April 1 and removed at the conclusion of the shorebird season. "No dogs, No kites" signs are posted from April 1st through Labor Day.

Large educational posters, detailing nesting and breeding behaviors are secured year-round at the Nauset Beach South Trail OSV entrance and at the administration building for viewing. This outreach program educates user groups and beachgoers in the identification and protection of shorebirds. The

signs contain images of the shorebirds and penalties for entering the restricted nesting habitat.

Fencing and signs are maintained by the NRO year-round and replaced following weather events where necessary.

4.2 Predator Controls and Exclosures

The Natural Resources Manager and NRO use predator exclosures on a discretionary basis, subject to a permit issued by MADFW. The Standard type "A" exclosure is used. Installation of Exclosures is carried out in accordance with the USFWS guidelines.

Once a clutch reaches 3 eggs, the Natural Resources Manager, NRO, and AESS, and in some cases the MADFW staff consult on whether the nest should or should not be exclosed before the fourth egg is laid. The criteria for exclosing are based on accepted practices and experience with exclosures and are listed below:

- Tolerance to human activity
- Relationship of location to ongoing OSV corridors
- Consistent shared incubation
- Location of nest, i.e. on a dune slope or face which present issues and risk of abandonment
- Is nest in area where the pair has to fly in order to enter exclosure creating risk of abandonment
- Historic or active predator activity
- Proximity to other ongoing recreational activity

In 2019, Orleans will continue the non-lethal predator control program that was initiated in March 2015. A series of baited decoy electrified exclosures will be deployed on the beach with the purpose of modifying the behavior of targeted smart predators who have learned to associate the plover exclosures with a food source. Decoy exclosures will be deployed in March. The decoy electrified exclosures will be regularly baited and monitored through the Fall. The locations of the decoys will be changed periodically and track analysis and predator behavior will be recorded daily.

No vegetation management occurs on the Barrier Beach.

4.3 Seasonal OSV Use Closures

In order to comply with the MA Wetlands Protection Act, MESA and avoid a take of Piping Plovers, the Town currently restricts, when necessary, OSV use on Nauset Spit and Nauset Beach South during the breeding season to avoid potential adverse effects on nesting populations of Piping Plovers and Least Terns. These seasonal use restriction have been implemented annually since 1991. In 2006, Nauset Beach experienced its first complete OSV access closure due to protection of nesting Piping Plovers and their chicks. A temporary OSV access closure has been required each season beginning 2006.

Nesting and related Piping Plover activity in a 1.2 mile long area known as Pochet Wash is the primary reason for closures for what has evolved as a predictable temporary annual complete OSV access closure on Nauset Beach South.

Table A: Nauset Spit OSV Closures 2007 -2018

Year	Date of Closure	Date Re-Opened	Number of days closed
2007	June 6	August 11	66
2008	May 31	August 15	77
2009	May 30	August 16	77
2010	June 6	August 18	83
2011	May 31	August 15	77
2012	July 2	August 14	43
2013	May 26	August 15	91
2014	No Closure	-	0
2015	No Closure	-	0
2016	No Closure	-	0
2017	No Closure	-	0
2018	No Closure	-	0

Table B: Nauset Beach South Trail OSV Closures at Pochet Wash, 2006 -2018

Year	Date of Closure	Date Re-Opened	Number of days closed
2006	June 22	July 25	33
2007	June 22	August 1	40
2008	June 16	July 24	38
2009	May 30	August 4	66
2010	May 27	August 9	74
2011	June 3	August 5	69
2012	June 6	August 14	69
2013	June 3	August 23	81
2014	June 11	August 15	65
2015	June 4	July 26	53
2016	June 10	July 14	34
2017	June 6	July 15	39
2018	June 1	July 19	48

4.4 Monitoring and Data Collection

All monitoring associated with the shorebird monitoring program, the endangered species program, and the HCP Covered activity, including the daily shorebird monitoring log and data collection, is the responsibility of the NRO and the AESS, and reported weekly to the Natural Resources Manager. Beginning the end of March when annually the first Piping Plovers arrive to Nauset Beach, the location coordinates of Piping Plover activity is mapped using a GPS Locator App collected on a hand-held unit in the field. This technology of logging shorebird activity contains a narrative of observed Piping Plover and Least Tern activity, including movement, behavior, and trends. This information also contains specific dates on breeding pairs, egg counts, predator activity, and exclosure installation and removal dates.

Monitoring the population of Piping Plovers and Least Terns on Nauset Beach is the primary goal of the Shorebird Monitoring Program. Since 1998, shorebird monitoring on Nauset Beach has provided data to help manage and map the distribution of Piping Plovers and Least Terns. Based upon intensive monitoring of breeding pairs, the Town has been able to maintain a sustainable and successful

reproductive rate for Piping Plovers on Nauset Spit and Nauset Beach South.

In early June (usually June 1-June 9) the Town participates in the Massachusetts annual Index Count period that estimates the Piping Plover population on Nauset Beach. This provides the Town with a solid "reporting" number for Nauset Spit and Nauset Beach South based on observed territoriality, pair longevity at a certain location, pair courtship habits, and nests counts. It also provides the MADFW with a number to estimate statewide populations of Piping Plovers.

The Least Tern survey extends to mid-June (usually June 20) at which time the number of adults within or flying near the immediate vicinity of a colony is counted by the NRO and AESS. The NRO and AESS use the Adult Count method of surveying the Least Tern census. Nests, either on the beach or in a colony, with at least one egg are GPS-ed and the nest is logged on a map. Each survey is taken with reasonable confidence that we are accurate and thorough.

4.5 Compliance Monitoring and Frequency of Monitoring

In 2017, the Town of Orleans committed to hire a full-time Natural Resources Officer (NRO) to enforce beach rules and regulations year-round, the endangered species program, and the HCP.

Compliance monitoring is shouldered by the NRO and documented in the daily log. Nesting Piping Plovers are identified and monitored throughout the nesting season by the NRO and AESS beginning the first week of April. All Piping Plovers observed during the Annual Index Count (June 1-9) are submitted to MADFW on the Massachusetts Piping Plover Census Form via internet and assists in documenting trends in abundance and distribution.

Predator management is also conducted by the NRO and AESS working in unison, to minimize impacts to Piping Plovers. All temporary predator exclosures on Piping Plover nests are installed by the NRO and AESS, and a third trained personnel. Exclosures are generally installed within eight minutes, with generally 10-12 minutes that Piping Plovers may be disturbed. Exclosures are not installed during inclement weather. Prior to installation, the NRO or AESS confirms that the nest is active and being incubated. After the exclosure is installed, we remain on scene at a distance to confirm the pair resumes incubation immediately after being installed.

The Piping Plover data collected throughout the shorebird monitoring season is submitted to MADFW in the HCP Annual Report and the Annual Statewide Piping Plover Census sent to MADFW by October 15 through the web-based portal "PIPLODES". During the HCP implementation, a weekly report is submitted to MADFW.

Public outreach is conducted through a multi-media campaign, which includes regularly published articles in the local newspapers, and an active social media presence on Facebook through the Natural Resources Department. OSV users receive an HCP user guide and are required to watch an instructional video on nesting and breeding habits of Piping Plovers and Least Terns.

Monitoring of Piping Plovers and Least Terns not associated with the covered activities begins when shorebirds start to arrive towards the end of March and wraps up at the end of September. Monitoring patrols occur daily from dawn to dusk, seven days per week, by the NRO and AESS on Nauset Spit and Nauset Beach South, logging, mapping and collecting GPS coordinates of Piping Plover and Least Tern activity.

During the HCP, HCP Staff Monitoring occurs daily during the HCP implementation 7 days per week from

6:30 a.m. to 6:00 p.m. Monitors meet at the end and beginning of their shifts to discuss the daily observations and to share the most recent observations and activity. This allows monitors to share observations that are unique to a specific time of day (i.e. lower light vs mid-day sun). Daily observations are relayed to the NRO or AESS, whose shifts are schedules to ensure 7 days a week compliance

HCP traffic monitors are assigned to track daily vehicle passes through the Self-Escort Zone from 8:00 a.m. to 6:00 p.m. during the three access / egress windows.

4.6 Data reporting

The HCP Annual Report is submitted to MADFW by October 15 of each year.

Prior to the Annual Report, the Index Count is recorded June 1 – June 9 annually for Piping Plovers and the Index Count for Least Terns is recorded June 6 – June 20 annually. The Town submits the Index Count through an online census form in a timely manner.

Logs are maintained to document timing and frequency of activities such as installation of symbolic fencing, monitoring of plover activity, beach patrols, and enforcement of regulations. A nest data map is posted which shows all relevant dates including dates eggs appear, predation issues, nest failure, predicted hatch dates, and chick fledging rates. All nest data is recorded on the GPS APP. As required in the Compliance Monitoring section of the HCP, all logs will be made available to MADFW upon request.

Table C: Vehicle Passes through the HCP Self-Escort Zone July 19-August 4, 2018

Date - 2018	Over-Sand Vehicles	Self-Contained Vehicles	Total Passes
July 19	14	0	28
July 20	31	3	65
July 21	65	3	133
July 22	15	0	36
July 23	13	0	26
July 24	23	1	47
July 25	22	3	48
July 26	10	3	23
July 27	38	16	95
July 28	98	22	218
July 29	156	5	358
July 30	55	7	122
July 31	50	1	108
August 1	42	0	85
August 2	57	4	118
August 3	80	16	180
August 4	73	12	174
		2018 TOTAL PASSES	1,864

5.0 Covered Activities

The combination of the popularity of recreational opportunities offered at Nauset Beach to vacationers, visitors, beach and OSV permit holders, and residents tied into the importance of protecting nesting habitat create a challenge as well as an opportunity for habitat conservation planning.

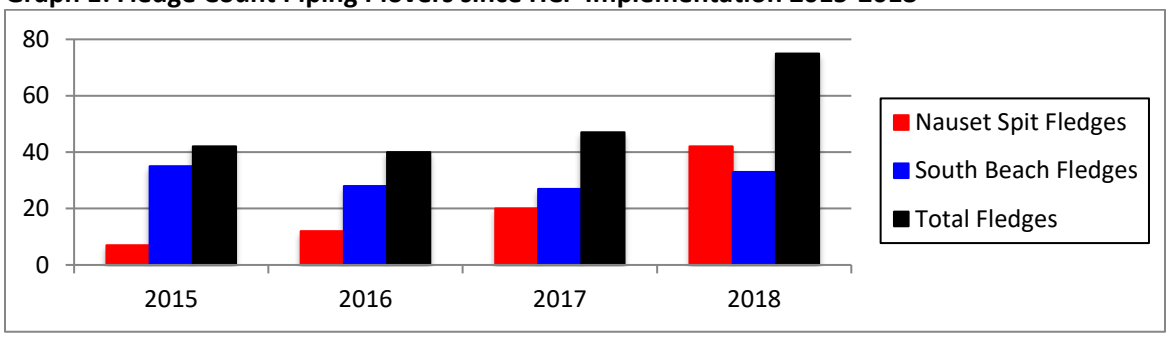
It is so important that we continue to provide access and recreational opportunities to areas as natural and pristine as Nauset Beach. By managing the resource effectively, we can orchestrate how it is possible to protect these rare and endangered species while keeping the OSV trails open at the same time. We believe, the HCP allows future generations of beachgoers and OSV users to learn to embrace the fact that we share Nauset Beach with these amazing creatures and do not resent their presence because it signifies extended closures like in the past.

Monitoring of Piping Plovers, Least Terns, Diamondback Terrapin Turtles and other State-listed species of special concern on Nauset Beach is a multifaceted stewardship effort that includes providing a balanced management strategy for a wide variety of recreational opportunities to the public, ensuring endangered species protection, and providing public outreach and environmental conservation education.

The Town is requesting the opportunity to implement described covered activities that expose Piping Plovers to potential take, and associated impact minimization measures to minimize risk when carrying out the covered activities described in the HCP Plan. The Town is requesting up to two (2) Piping Plover broods be covered. In 2018, there were 28 breeding pairs on Nauset Beach, so this request for take exposure would impact 2 of 28 broods (7%), less than the 15% maximum prescribed in the HCP. The intent of the implementation of covered activities is to address repeated closures of OSV access to the majority of Nauset Beach South, and the potential of an OSV closure on Nauset Spit.

Should the take exposure rise above the 15% maximum ratio prescribed in the HCP, or should the population decline to <14 pairs, the Town is aware that MADFW may require the number of take exposures in the subsequent beach season to be reduced to one, during the three-year COI term, as set forth in the HCP. All other management will be implemented in accordance with state and federal guidelines, as has been the case for the past 20 years or more.

Graph 1: Fledge Count Piping Plovers since HCP Implementation 2015-2018



5.1 HCP Covered Activities

The Town of Orleans is requesting a renewal of the 2016 Certificate of Inclusion for Nauset Beach as part of the Town's application to participate in the Statewide Piping Plover Habitat Conservation Plan. These covered activities requested are as follows:

1. OSV Use in the Vicinity of Unfledged Piping Plover Chicks
2. Recreation and Beach Operations
    a. Recreation and Beach Operations Associated with Reduced Symbolic Fencing Around Nests.
    b. Recreation and Beach Operations at Piping Plover Nest Sites with Nest Moving.

5.2 Impact Minimization Measures for Covered Activities

The HCP Monitoring Protocols as described in this document will be utilized to cover the use of OSVs in the presence of unfledged chicks up to two authorized incidental take exposures.

Impact minimization measures will limit risk of a take by reducing exposure of adults and chicks to vehicles traveling on Nauset Spit or Nauset Beach South.

5.2.1 OSV Use in the Vicinity of Unfledged Piping Plover Chicks

The Orleans IAMP includes the following elements, as described in the statewide HCP:

1. Delineate and fence narrow travel corridor with no parking near chicks.
2. Travel restricted to 6 hours/day; at preset times of day; daylight hours.
3. Intensive monitoring of chicks during vehicle passage.
4. Self- escort of vehicle or trained staff escorts caravan of up to 50 vehicles.
5. Staff training, enforcement, and communication protocols.
6. Mandatory OSV operator education.
7. Vehicle ruts will be smoothed out at least once/day when young chicks are present.

Under the HCP, the number of vehicles that will be able to access Nauset Beach South (drive past unfledged chicks) has been reduced from 375 vehicles allowed under the OOC to 180 vehicles. This reduces the maximum number of vehicle passes in the vicinity of no more than two broods of piping plover chicks from 750 passes per day to 360 passes per day.

The number of vehicles allowed to pass Piping Plover chicks is set at not more than 180 in order to reduce the likelihood of a take by ensuring a manageable number of vehicles that may be self-escorted during the time allotted for beach access. To further reduce the likelihood of a take through harm, harassment or mortality of recently hatched chicks, escorting will be initiated past a brood no sooner than 24 hours after all chicks have hatched.

5.2.1.1 HCP Monitors

The Town of Orleans employs up to 11 HCP Seasonal Shorebird Monitors that are responsible for all of the same tasks of an Endangered Species Shorebird Specialist (see Section 4.2.2). The NRO is responsible for training the HCP shorebird monitors in locating the Piping Plovers and identifying their nests and chicks.

Up to 11 HCP monitors are hired and trained beginning on or before July 1st. Training occurs for a period of approximately 1-2 weeks until all the HCP monitors are capable of monitoring the HCP broods and adults. The training and monitoring will focus on minimizing the disturbance to the broods during the access windows. Monitors will have to demonstrate that they can find tiny chicks and track their movement from a distance without interfering with their natural behavior. Monitors will also be trained in all the HCP Procedures and Conditions so that they will be able to effectively provide outreach education and enforcement to beachgoers and OSV permit holders. HCP monitors report to the NRO and AESS.

Monitors are equipped with hand-held radios for communications with the NRO and AESS. Orleans provides all necessary equipment including binoculars, daily traffic and monitoring log sheets, rain gear, and transportation. If it is decided that an incidental take will be applied to one or more broods, then HCP staff will begin HCP self-escort monitoring 24 hours after the last egg has hatched from the specified brood.

HCP monitors are assigned schedules and the daily HCP monitoring shifts are divided into a morning shift from 6:30 a.m. – 1:00 p.m. and an afternoon shift from 12:30 p.m. – 6:30 p.m. A minimum of four HCP monitors are staffed for each shift depending on the number of broods involved. (1) One monitor is responsible for keeping visual contact with each brood; (2) one monitor is responsible for logging OSV use within the self-escort corridor during HCP implementation and is positioned at one end of the self-escort zone; and (3) one monitor is staffed at the other end of the self-escort zone. The remaining HCP monitor, as well as the NRO and AESS are positioned where necessary. All monitors will be responsible for assisting in locating the chicks prior to opening the Self-Escort Corridor during the specified access and egress windows.

Nauset Beach Rangers will be on duty from 7:30 a.m. – 11:00 p.m. daily during the HCP self-escort program. The gate attendant staffed in the Buggy Booth at the entrance gate is responsible for ensuring that all OSVs participating in the HCP are in possession of a signed copy (by the operator) of the HCP Procedures and Conditions and that they are fully aware of the protocols. To ensure accuracy, the gate attendant is also responsible for recording the OSV activity (# of passes) in the Buggy Booth daily log.

Signage reiterating the HCP Procedures and Conditions are displayed at the gate. Once the brood monitor has confirmed the corridor is clear prior to the scheduled self-escort windows, the NRO or AESS is responsible for recording the OSV activity (# of passes) in the Buggy Booth daily log.

The Nauset Beach Ranger is responsible for clearing the beach of vehicles by 6:00 p.m. and raking the ruts with a beach drag at the end of the afternoon egress window. Unfledged chicks are located and monitored during rut smoothing.

5.2.1.2 Vehicle Escort Program

The Town of Orleans vehicle escort protocol is administered by the Orleans Natural Resources Manager and the NRO. The protocol is as follows:

Start date: No Specific Start Date annually; Natural Resources Manager must notify MADFW at least 24 hours in advance of initiating the program.

Frequency: Three times daily (times may be flexible within one hour based on weather and chick locations)

Morning Session: 08:00 – 10:00
Mid-Day Session: 12:00 noon - 2:00 p.m.
Afternoon Session: 16:00 – 18:00 (upon written notice to MADFW, the Town may change the designated travel times provided that they total no more than six hours in up to three travel windows during daylight hours)

Number of vehicles: 180 self-escorted vehicles for a maximum of 360 vehicles passes.

5.2.1.3 Self-Escort OSV Corridor Dimensions and Locations

The specific location of the Self-Escort OSV Corridor is intended to be adaptive and variable to reflect the location of the brood(s). The Self-Escort OSV Corridor may shift north or south along the identified route depending on Piping Plover locations and/or movements. The Self-Escort OSV Corridor(s) will not exceed 4,000 feet in length and 15 feet in width (for vehicle traffic), with occasional turnouts for two-way traffic for a total impact area of approximately 60,000 square feet or 1.38 acres. Additionally, 100 feet laterally on either side of the OSV sand trail will be included in the corridor as the "safety zone" for Piping Plover chicks (vehicle traffic will be halted should Piping Plover chicks enter this zone).

The Self-Escort Corridor will not be moved laterally and is clearly marked at the beginning and termination points and has the 15-foot travel width delineated with wooden stakes. Updated corridor boundaries shall be reported daily to the Natural Resources Manager by the NRO, and that information is passed along to the Beach staff prior to commencement of vehicle access.

5.2.1.4 Self-Escorting Procedures

Basic Procedures for Escorting Past One Brood

1. A pre-determined area of the Nauset Public Beach parking lot, or other area free of protected species, will be identified for staging of OSVs.

2. At least 1 hour prior to commencement of vehicle escorts, the shorebird monitor(s) will proceed along the designated vehicle route and surrounding area to determine locations of Piping Plover chicks. Each shorebird monitor will be responsible for monitoring the location of one brood. Once the shorebird monitor(s) have established the locations of chicks, they will notify the NRO of the brood location. At this time, personnel at the entrance booth, as well as the traffic monitor will be notified that the Self-Escort Zone is open for travel. In the event that all chicks are not located, opening the OSV trail will be delayed until such time that all chicks are accounted for or it has been determined by the shorebird monitor(s) that there are no chicks in the OSV trail. The shorebird monitor(s) will communicate their determination(s) to the NRO for confirmation to open the trail. The self-escort duration of two hours will be implemented per the HCP protocols although the time of closing may be adjusted accordingly to respond to a later opening.

3. Prior to opening the OSV trail, the vehicle monitor will contact the shorebird monitor(s) to confirm that the locations of all chicks are still being monitored, that all chicks are accounted for, and/or it is safe for the trail to open. During the two-hour self-escort period, monitor(s) shall maintain constant visual on any plover chicks using binoculars from a distance of no less than 200 feet. Disturbance, if any, of the chicks shall be minimized. Once vehicles have passed through the Self-Escort Zone, OSVs may proceed to use the sections of beach previously determined to be free of piping plover and least tern chicks, in accordance with state and

federal Guidelines (including but not limited to restrictions on parking.

4. Each vehicle must have at least one passenger 16 years of age or older to walk approximately 10 feet in front of the vehicle in the self-escort corridor. The escort will look for chicks in the road and stop the vehicle if either a chick is observed or one of the monitors (shorebird or vehicle monitor) requires the vehicle to stop. All self- escorted vehicles must maintain a safe distance of at least 15 feet from the vehicle in front.

5. In order to avoid adverse effects to the habitat and allow unimpeded chick passage across the OSV corridor when vehicles are not present, the vehicle "ruts" will be raked at the end of the afternoon self-escort period. Mechanized raking will be utilized only with a trained observer walking in front of the vehicle to search for chicks.

6. If at any time during the escorting process, the shorebird monitor(s) lose visual contact with one or more chicks, the vehicles will be allowed to continue on their way and the period between the self-escort time frame (or after the afternoon session) will be used to determine the presence of the chick(s) in the area or absence of chicks in the corridor. Shorebird monitors will document in the daily report the approximate time that visual contact with the chick(s) was lost and efforts made to relocate it.

7. The Natural Resources Manager, NRO, AESS, and each individual shorebird monitor will have the independent authority to temporarily close the trail at any time for any reason. For example, if at any time a shorebird monitor determines that chicks have approached within 100 feet of the Self-Escort Corridor, the monitor will immediately notify the gate and corridor monitors by radio to temporarily halt traffic and allow the chicks to cross the corridor and/or move >100 feet from it. The OSV trail will not reopen until the NRO or AESS determines that it is safe to do so. Monitors will document in the daily report the approximate time that the OSV trail was closed and the duration of the closure.

Basic Procedures for Escorting Past Two Broods

The following procedures are in addition to applicable actions outlined under Basic Procedures for Escorting Past One Brood (see above):

1. Two broods in close proximity (<1,200 feet apart): Only one segment of the OSV trail will require self-escorting due to the close proximity of the two broods and a single vehicle monitor will ensure compliance. Two shorebird monitors will be deployed to monitor the chicks; one for each brood. The corridor in front of the broods will have beginning and end points clearly marked for self-escorting and the monitors will follow each brood. The shorebird monitors and vehicle monitor will be in close communication to ensure that chicks are not moving towards the OSV trail.

2. Two broods are more than 1,200 feet apart: Two segments of the OSV trail will require self-escorting. In this case, a second vehicle monitor will be assigned to monitor escorting compliance. Both sections will have beginning and end points clearly marked to delineate the separate self-escort corridors. Beginning and end points of the self-escort corridor may be moved in response to linear chick movements (information provided by the shorebird monitors). Two shorebird monitors will be deployed to monitor the chicks; one for each brood.

Caravans

The Town reserves the right to substitute escorted caravans for self-escorting as described in the HCP. Under this scenario, groups of up to 50 OSVs would stage in the parking lot or other areas free of unfledged chicks and protected species. Once the caravan reaches the area where unfledged chicks are present and escorting is required, a trained and qualified shorebird monitor (see requirements above) would lead the caravan through the escort area either on foot or in an open top OSV. All other requirements including but not limited to brood monitors, compliance monitors, and speed limits would remain in place as described in the self-escorting protocols.

Contingency Plan - *Personnel availability*

Two shorebird monitors (i.e., one monitor per brood) will locate and observe chicks prior to and during the self-escort periods. A minimum of one vehicle monitor will oversee the self-escort corridor to ensure compliance by the self-escorted vehicles. Should two self-escort corridors be required (see above) then a second vehicle monitor will be required. In the event that one of these employees is unavailable, the Natural Resources Manager, Beach Director or their designee shall assume this duty.

Inclement weather

The Natural Resources Manager and NRO will monitor weather forecasts on a daily basis. In the event that a storm warning is predicted by the National Weather Service, or any other weather warning that could jeopardize public safety within a 24-hour period, the OSV trail shall be closed for the duration of the hazard or the start time may be moved one hour later or earlier. The OSV trail may not reopen until the NRO has given the all clear. It shall be presented in writing prior to purchasing an OSV sticker that all users shall use the beach at their own risk. Exiting escorts will not take place due to unpredicted weather. OSV sticker holders shall be informed in writing that a “shelter in place” policy will go into effect until the inclement weather has passed, or scheduled exiting escorts have begun.

Medical or family emergencies

OSV sticker holders shall be advised verbally and in writing at the time of OSV sticker application, via affidavit, that egress from the beach outside of the self-escort windows shall be strictly prohibited (see permit Rules and Regulations for information to report an emergency). In the event of a life-threatening medical emergency, the staff of the Nauset Beach Administration Building and/or emergency responders should be notified. The NRO, AESS or Beach Patrol will assist in escorting the vehicle off of the beach.

Violations

Any violations of the aforementioned protocol will not be tolerated. A zero based tolerance policy will be fully enforced. Monitors and Beach Rangers will be in constant contact to ensure enforcement. Beach Rangers will be authorized to revoke OSV stickers and eject the violators from the beach immediately. Violators of the escort protocols shall be subject to OSV sticker revocation and shall have their rights to operate an OSV on Nauset Beach suspended immediately for a period of one year from the date of the violation.

Escorting Program Reporting

Chick numbers, chick locations, and travel corridor locations/dimensions shall be provided to the Natural Resources Manager by the NRO daily, prior to commencing OSV escorts. As required by the HCP,

a daily implementation log will be kept to document staffing, frequency of brood monitoring, and compliance with OSV escorting procedures, and will be made available to MADFW upon request. Any violations, incidents or accidents associated with the vehicle escort program, including take of a chick(s) shall be immediately reported to MADFW and USFWS staff. In the event of an alleged incident related to the escort program, the Natural Resources Manager, NRO or AESS, in coordination with a shorebird monitor shall cooperate with and assist Town, State and Federal officials with the investigation of the incident. Depending on the nature of the incident, the Town of Orleans, MADFW and USFWS reserve the right to suspend all vehicle escorts for such time as they deem appropriate.

Every week, a summary report will be submitted to MADFW. The report will include; (1) daily vehicle trip count (distinguishing counts for self-escorts versus caravans); (2) for each affected brood, daily observations of chick numbers and behavior including a daily sketch map of the observed range of the brood on the beach; (3) weekly tally and description of any rules violations and enforcement actions taken; (4) weekly tally and description of all observations of broods crossing or approaching <100 feet from the vehicle corridor; both during the OSV travel windows and any other such observations during routine monitoring; (5) any other notes, observations, or recommendations relevant to operating the escorting program.

By October 15th of each calendar year, the Town of Orleans will submit an escort monitoring report to MADFW describing at minimum, estimated age of chicks in each brood when self-escorting was initiated. Fledging success, escorting dates, number of broods, number of chicks present during self-escorting on each date, estimated daily chick survival based on daily brood counts, number of vehicle passages, and any documented "take" of chicks resulting from the vehicle escorting program shall be included in this report. The report will also contain recommendations for improving the efficiency and or effectiveness of the escorting program in the future.

5.2.2 Recreation and Beach Operations Associated with Reduced Symbolic Fencing Around Nests.

It is necessary to determine if the incubating pair is tolerant of the reduction of fencing and increased recreational activities near the nest. Many pairs have demonstrated a tolerance to human activity nearby incubating nests. In order to determine the tolerance of an individual nest, increased monitoring is required.

5.2.2.1 Monitoring of Reduced Fencing

Monitoring will occur frequently at least 3 times a day. To reduce any added stress on a pair which has had the fencing reduced around the nest and territory, monitoring will occur by scopes to determine if steady incubation is occurring and/or the pairs are agitated not incubating and overexcited. In that case, the fencing will be increased in increments and/or to the original location to create a stable environment for the incubating pair. If the reduction of fencing is deemed successful and OSV use can continue without moving a nests nest will not be moved.

Should the reduced fencing prove to be impractical due to topography, location of recreational activities and no alternative access route available nest moving may be considered as the next viable step in consultation with MADFW staff and in accordance with Nest Moving Protocols as set forth in the HCP.

5.2.2.2 Reduced Fencing Protocol

1. Fencing should only be reduced to the extent necessary to achieve specific recreational or beach operations objectives (e.g., opening a specific beach access trail) such as Callanan's Pass or Pochet Wash area to gain access to Nauset Beach South Trails 1-5 and the Town of Chatham area and to Nauset Spit.

2. Symbolically fenced buffers should not be reduced to less than 10 yards; in first movement, however, limited exceptions may be permitted provided that the fencing is reduced gradually and that the plan participant demonstrates a compelling need to maintain reasonable recreational and beach operational use.

3. The fence will be reduced another 10 yards or until a point where the OSV corridor and OSV use can continue with the pair undergoing steady incubation.

4. A fenced buffer larger than the target buffer will be established initially and maintained during egg laying and through at least the first 24 hours after clutch completion, but every effort should be made to maximize fencing distance from the nest during this sensitive period.

5. Fencing distance from the nest should be gradually reduced, in increments of approximately 10 yards, no more than once daily.

5.2.3 Recreation and Beach Operations at Piping Plover Nest Sites with Nest Moving

If nest movement is deemed necessary and approved, the Town will utilize their experienced monitoring staff in consultation with MADFW to move a nest.

5.2.3.1 Protocols for Nest Moving

1. Nests will not be moved until at least 48 hours after the clutch is completed.

2. Nests will not be moved during inclement weather, in extreme heat, or during evening hours.16

3. An appropriate relocation site will be chosen in suitable habitat that minimizes the movement distance to the extent practicable. However, the MADFW may approve a greater movement distance in order to minimize disturbance to the nest after relocation, or disruption of breeding by adjacent pairs. For example, it may be preferable to move the nest a greater distance to a site that is visually isolated or further away from an OSV corridor. MADFW will be consulted onsite to determine the final nest moving location and strategy for gradual moving.

4. Nests will be moved using the "cylinder/plate/platform method" (Gordon and Kruse 1999). This method allows the intact nest cup, with eggs, to be moved intact in a large cylinder pressed into the substrate around the nest. The excavated nest is then placed on a platform with adequate drainage to allow for rapid repeated movement of the nest over small distances, if necessary. Visual landmarks (i.e., rocks, sticks) are moved with the nest to serve as visual cues.

5. Nests will be moved gradually to reduce the risk of abandonment. The first move will likely be less than 15 feet; however, distances may vary site by site, as determined by MADFW (see 3 above). MADFW staff will be present on-site to oversee, at minimum, the first nest moving attempt. Orleans staff involved in nest moving must have at least one year prior shorebird monitoring experience and have past experience this season monitoring the nesting pair with a nest being moved.

a. 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.

b. If incubation is observed at the relocated nest, the nest should be monitored for 90 minutes to ensure consistent incubation behavior before attempting to move the nest a second time.

c. The nest may then be moved repeatedly, up to two times per day, in 10-20 foot increments following this monitoring procedure. The MADFW may allow up to three movements per day once procedures for repeated nest-moving have been tested and proven. The Town will obtain verbal approval from MADFW prior to each nest moving attempt.

d. If inconsistent incubation or significant distress behavior is observed, nest movement should be halted and resumed the next day.

e. If the first attempt to move the nest is unsuccessful, nest moving may be attempted again the following day.

f. In cases where parent birds fail to accept the moved nest, the MADFW will be consulted to determine the best course of action.

6. The vehicle corridor will not be reopened until MADFW provides written approval to do so.

5.2.4 OSV Use in the Vicinity of Least Tern Chicks

The Town of Orleans will include the same protective elements for Least Tern chicks as it does for Piping Plovers. Based on past years' shorebird monitoring it is anticipated that OSV use in the vicinity of unfledged Least Tern chicks will be limited to a subsection of the Pochet Overwash, the same section of beach where escorting past unfledged Piping Plover chicks is likely to occur. Because Pochet Overwash is very wide and the bulk of the Least Tern nesting activity is located along the east (seaward) section of the overwash, it may be possible to reroute the OSV corridor to the west, subject to MADFW and Conservation Commission approval, thereby minimizing risk to Least Tern chicks. Historically, Least Tern colonies are separated from the OSV corridor by an expansive dune system, and will not be exposed to potential take, as per the State Guidelines. Regardless of location, in no event will >20 unfledged Least Tern Chicks be exposed to OSV traffic. Again, based on historic Least Tern nest locations and nesting data, the actual number of tern chicks to be exposed is likely to be considerably <20.

Impact Avoidance and Minimization Measures for Least Terns are as follows:

1. Monitoring of colony sizes and chick exposure – Because Least Tern chicks spend much time hiding in vegetation or other cover, and are fed by parents, they are much more difficult to count than Piping Plover chicks. In order to estimate the number of chicks exposed to OSVs, the following procedures will be followed. In addition to obtaining an estimate, the amount of mitigation to be provided will be sufficient to mitigate the exposure of 20 unfledged Least Tern chicks, a conservative assumption to address potential undercounting (see mitigation section, below). First, shorebird monitors will obtain at least two independent nest/chick counts by HCP monitors in the five days prior to the anticipated start of the escorting program including one count with 24 hours of the start date. Estimates of number of active nests and chicks will be obtained for all sections of beach located within 200 yards of the anticipated escorted OSV corridor. The bulk of the counting and sketch mapping of nest and chick locations will be conducted from a distance with binoculars to minimize disturbance, using standard procedures

to observe incubation, eggs, chicks, and (inferred) chick provisioning. In some cases it may be necessary to enter the colony to confirm the presence of nests. Sketch maps will include key landmarks (i.e. fence post numbers or distinctive beach debris) to aid in recounting. Detailed notes will be kept on all counts including, date, time begun, time ended, personnel, whether each nest/chick was confirmed or inferred to be present and the basis of the inference. The approximate age of all chicks that are directly observed will be estimated based on the attached Least Tern Aging Guide. The maximum 15 foot wide travel corridor will be delineated with fencing and "no parking" areas will be delineated on the beachfront to prohibit parking within 200 yards of unfledged chicks.

2. Travel restricted to 6 hours/day; at preset times of day; daylight hours.
3. Monitoring of chicks during vehicle passage – One hour prior to the start of each daily OSV travel window, HCP Shorebird Monitors will locate unfledged Least Tern chicks. The search will be monitored by the NRO, or if carried out by the AESS, information about chick locations will be conveyed to the NRO prior to the start of the escorting period.
4. Staff training, enforcement, and communication protocols as described above.
5. Mandatory OSV operator education as described above.
6. Vehicle ruts will be smoothed out at least once/day when young chicks (estimated <10 days old) are present as described above.

The Town of Orleans will notify DFW at least 24 hours prior to carrying out the covered activity affecting Least Terns, and will include a map and estimate of the length of the escort travel corridor as it affects unfledged Least Terns. Should the distribution of Least Tern chicks lead to changes in corridor length and location, DFW will be provided with updated maps and length calculations as quickly as possible, and no more than 24 hours after adjustments are made. In no event shall more than 20 unfledged chicks be exposed to escorted OSVs, cumulatively across the site.

Detailed reporting on the Least Tern escorting program, and distribution, exposure, and impacts to unfledged Least Tern chicks will be included in the annual report to be provided to DFW by October 15.

5.2.5 OSV Use in the Vicinity of Nesting Diamondback Terrapins

Diamondback terrapins nest within the dunes of Nauset Beach, particularly in the vicinity of where the Little Pochet Overwash connects with Pochet Bay. The primary "Search Area" for Diamondback terrapins extends from Little Pochet Overwash to the vicinity of "Bagdad" Camp 5 by Trail 3, a total of 2.3 miles.

Surveillance of the area by Mass Audubon staff begins in late June. Patrols are conducted by Bob Prescott, Mass Audubon's Wellfleet Bay Wildlife Sanctuary Director, throughout July and August. The results of those track surveys are recorded.

In conjunction, Orleans Natural Resources Officer is assigned the lead role of monitoring for Diamondback terrapins for the Town of Orleans during daily OSV Trail patrols during the nesting season starting at 6:30am and continuing throughout the day, into the early evening, beginning the last week of May and continuing through mid-October.

NROs attend the Diamondback terrapin training sponsored by Mass. Audubon at the Wellfleet Bay Sanctuary. The training includes the biological behavior of terrapins, including nesting behavior, identifying and locating nests and tracks of adult females and hatchlings. NROs also attended the Hatchling Training.

As a matter of "Standard Operating Procedures", the Town of Orleans Department of Natural Resources executes the following "Action Plan Protocols" in agreement with Mass Audubon Wellfleet Bay Wildlife Sanctuary (WBWS) when a nest is located:

Action Plan: When DBT tracks are observed tracks are followed until it leads to a disturbed spot of sand, a turn around, or back into the water.

When a nest is found: (1) location in decimal degrees are collected on the "Collectors App"; (2) data is imported and the nest is flagged. This data includes, dates and times of all track surveys, personnel, GPS coordinates for any tracks observed crossing the OSV corridor, GPS coordinates for all nests, nest dispositions and fates, hatch dates, number of hatchlings, and protective measures taken.

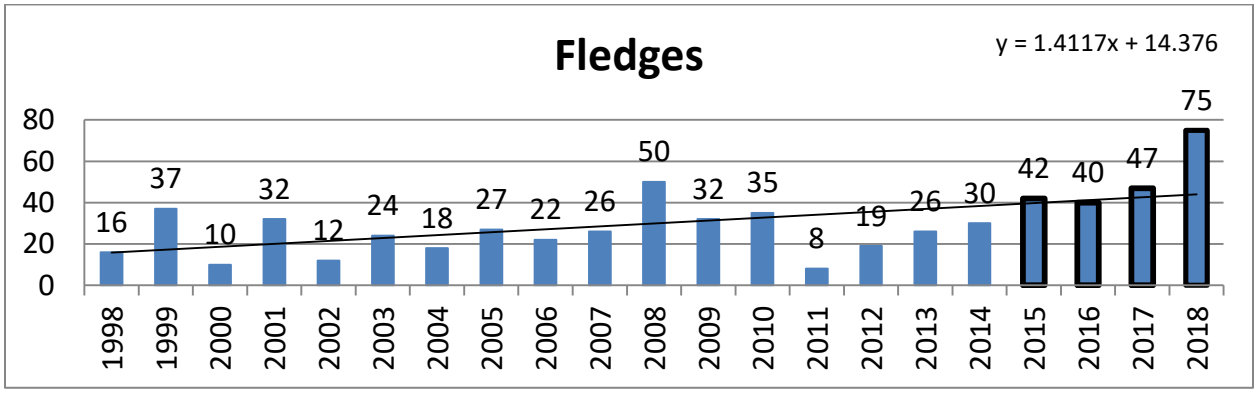
Verification of Nest: Once a nest is located, Town staff contacts Audubon to report the nest.

Relocating a Nest: If a nest is found within the OSV corridor or on the east side of the South Trail, it needs to be moved within 24 hours, sooner if possible. Before the nest is relocated, a call is made to MADFW for permission to have Mass Audubon relocate the nest to the Pochet Terrapin Garden.

6.0 Effectiveness Monitoring

The cumulative efforts of all involved in the development of the HCP program has helped the Town of Orleans manage a shorebird monitoring program based upon Federal and Statewide recovery goals for Piping Plovers. The Town participates in the recovery of the Piping Plover population by gathering quantitative census data and implementing a variety of protection measures that fosters an increase in yearly reproduction trends.

Graph 2: Yearly Fledge Count 1998 – 2018



The Towns collect data on nest initiation dates, nest locations (in particular location relative to elevation, to the wrack line and wildlife corridor), hatching and fledge dates, survival rates of chicks, and causes of mortality.

Over the last twenty years of the program, Piping Plovers on Nauset Spit and Nauset Beach South fledged a mean of 1.34 chicks per pair.

7.0 Mitigation

The Town of Orleans is proposing to provide funding for two takes to NHESP to implement predator management, educational outreach, and increased law enforcement off site, as described in the HCP. To fund the mitigation, in advance of carrying out covered activities, the Town will establish an escrow agreement in substantially the same form as the Mitigation Escrow Agreement letter as in the Appendices. Prior to the implementation of covered activities in any given year, the Town will deposit $11,600 ($5,800 per HCP brood) into said escrow account in accordance with the schedule set forth in the Escrow Agreement.

8.0 Budget

The HCP program is self-funded by a surcharge from the sale of OSV stickers.
The approved annual budget covering all management and staff associated with implementation of the IAMP is detailed below:

Table D: Estimated Average Costs of Implementing HCP 2016-2018

Estimated Costs for Implementing HCP	
ITEM	**COST**
Vehicle Monitors	$12,096
HCP Monitors	$15,552
Public Education Program	$1,000
Uniforms	$975
Off-site Mitigation (2 takes)	$11,600
MESA & Conservation Mgmt Plan Fee (1 time fee)	$900
TOTAL	**$43,023**

Certificate of Inclusion in the Massachusetts Habitat Conservation Plan for Piping Plover Nauset Beach, Town of Orleans July 8, 2016

The United States Fish and Wildlife Service ("USFWS") issued to the Massachusetts Division of Fisheries and Wildlife ("DFW") an Incidental Take Permit ("Permit") No. TE0128C-0, on July 8, 2016 for a period of 25 years, pursuant to Section 10(a)(1)(B) of the Endangered Species Act of 1973 (ESA), as amended, 16 U.S.C. 1539(a)(1)(B). The Permit authorizes the "Take" of piping plover (*Charadrius melodus*) in accordance with the terms and conditions of the Permit, and the Massachusetts Statewide Habitat Conservation Plan ("HCP"). Under the Permit, the Town of Orleans ("Participant") is authorized to perform covered activities that may result in the "Take" of piping plover, provided such covered activities are conducted in compliance with all applicable terms and conditions of the Permit and the HCP.

As the owner of the property depicted in Appendix J of Exhibit "A", or an entity with written permission to use property including piping plovers or their habitat, attached hereto and incorporated by reference into this Certificate of Inclusion ("COI"), you are entitled to the protection of the Permit for the activities that may result in a Take of piping plover as authorized by the HCP and by DFW in Conservation & Management Permit No. 016-283.DFW, including but not limited to the Impact Avoidance and Minimization Plan and the Mitigation Plan and other exhibits attached thereto (collectively, "CMP"), which DFW has issued to you pursuant to the Massachusetts Endangered Species Act, MGL c. 131A, ("MESA")) and the MESA regulations at 321 CMR 10.00. The CMP and all attachments thereto are depicted at Exhibit "A," attached hereto and incorporated by reference into this COI.

This COI shall be valid for a period of three (3) years from the date signed by the Director of DFW unless otherwise suspended or revoked by DFW for noncompliance. However, plan participants are required to obtain reauthorization from the DFW on an annual basis, prior to carrying out covered activities in a given year. DFW may grant extensions or renewals of this COI or require the submittal of a new application for a COI, including in cases where your request for continued coverage under a COI would exceed the available number of statewide take allowances under the Permit because DFW cannot grant more take exposure allowances than allowable pursuant to the Plan. As set forth in Exhibit A, DFW reserves the right to unilaterally adjust on an annual basis the amount of take exposure authorized pursuant to this COI.

The undertaking of activities authorized by this COI and the associated CMP does not relieve the Participant of its obligation to comply with any other applicable federal or state law or regulation or municipal bylaw, ordinance or regulation.

In the event the Participant fails to comply with the terms and conditions of the Permit, the HCP or the CMP the Participant shall be subject to enforcement action, including but not limited to, the immediate suspension or revocation of the COI and/or the CMP. DFW shall notify the USFWS within 2 business days of DFW's discovery of the infraction, and within 1 business day of its decision to suspend or revoke

the COI. Administrative, judicial or other action on the part of DFW does not foreclose the possibility that FWS may seek its own remedy against Participant or DFW.

By signing this Certificate of Inclusion, you signify your election to receive Take Authorization to expose *up to two* Piping Plover broods/nests per year to covered activities under DFW's Permit, subject to the terms and conditions in the Permit and the associated CMP. You also assent to the requirement under both the ESA and MESA, and as explained in the HCP, that beach use and management, excepting the above-listed covered activities, must be comply with the State Guidelines and Federal Guidelines, effective at the time of COI issuance, or as amended during the term of the COI.

This Certificate of Inclusion does not impose additional regulatory control over the signatory nor require the signatory to provide additional information not called for in the HCP, Permit or COI, but instead ensures compliance with 50 Code of Federal Regulations, section 13.25(d).

Coverage under the Permit will become effective upon receipt of the executed COI by DFW and Participant, subject to all requirements of the Plan and COI Attachments. In the event the subject property is sold or leased, the Participant must inform the buyer or lessee of these provisions in writing with a copy to DFW. If the new owner or lessee desires to be covered under the ESA and MESA for piping plover take, it must: assent to the terms of the HCP, Permit, and CMP; demonstrate its financial ability and provide assurances to undertake the IAMP and mitigation plan requirements; demonstrate its eligibility under the provisions of the HCP. Otherwise the Participant should terminate the COI.

Massachusetts Division of Fisheries and Wildlife

Jack Buckley, Director July 8, 2016

Town of Orleans

_____

John F. Kelly, Town Administrator Date

EXHIBIT A: Conservation & Management Permit
(Includes Impact Avoidance & Minimization Plan (IAMP) and Mitigation Plan as attachments)

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
MassWildlife

Jack Buckley, *Director*

MA ENDANGERED SPECIES ACT (G.L. c.131A) CONSERVATION AND MANAGEMENT PERMIT

DATE		July 8, 2016
CONSERVATION PERMIT NO.:		016-283.DFW
NHESP FILE NO.		16-35397
PERMIT HOLDER		Town of Orleans
ACTIVITY		Use of oversand vehicles and other activities associated with recreational beach management, Nauset Beach, Orleans, MA

Pursuant to the authority granted in the Massachusetts Endangered Species Act ("MESA") (G.L. c. 131A) and its implementing regulations (321 CMR 10.23), the Director of the Massachusetts Division of Fisheries & Wildlife (the "Division") hereby issues a Conservation and Management Permit to the Town of Orleans (the "Permit Holder"). This permit and associated Town of Orleans Certificate of Inclusion in the Massachusetts Habitat Conservation Plan (HCP) issued in accordance with the Endangered Species Act (ESA) for Piping Plover, dated July 8, 2016 (the "COI"), authorize the "taking" of the State and Federally listed Piping Plover which is listed as "Threatened" pursuant to the MESA and "Threatened" pursuant to ESA arising out of the use of oversand vehicles and other recreational and beach operation activities described in documents attached hereto (the "Activities"), at Nauset Beach, Orleans, Massachusetts (the "Property"). This permit also authorizes the "taking" of the state-listed Least Tern (*Sternula antillarum*) and Diamondback Terrrapin (*Malaclemys terrapin*), listed as Special Concern and Threatened, respectively, pursuant to MESA, associated with the aforementioned Activities.

During a given beach season, a maximum of 2 broods or nests of piping plovers and up to 20 unfledged least tern chicks could be exposed to oversand vehicle (OSV) use, or reduced symbolic fencing/nest moving in the case of nests, resulting in heightened risk of chick mortality or nest abandonment. Similarly, Diamondback Terrapin adults and hatchlings are exposed to some mortality risk when crossing the OSV corridor. However, numerous impact avoidance and minimization procedures required by way of this Permit and the HCP will significantly decrease risk.

Division of Fisheries and Wildlife
Field Headquarters, One Rabbit Hill Road, Westborough, MA 01581 (508) 389-6300 Fax (508) 389-7890

Under the authority granted by and in accordance with MGL c131A§3 and 321 CMR 10.23, the Director may permit the taking of a State-listed Species for conservation and management purposes provided that there is a long-term Net Benefit to the conservation of the impacted species. If the Director determines that the applicant for a permit has avoided, minimized and mitigated impacts to the State-listed Species consistent with the following Performance Standards, then the Director may issue a conservation and management permit, provided:

(a) the applicant has adequately assessed alternatives to both temporary and permanent impacts to State-listed Species;
(b) an insignificant portion of the local population would be impacted by the Activity or Activity, and;
(c) the applicant agrees to carry out a conservation and management plan that provides a long-term Net Benefit to the conservation of the State-listed Species that has been approved by the Director, as provided in 321 CMR 10.23(5), and shall be carried out by the applicant.

The Director has determined that the applicant for this permit has met the above noted Performance Standards and that the conservation and management plan described herein provides a long-term Net Benefit to the affected state-listed species.

Pursuant to this permit, multiple impact avoidance and minimization measures including but not limited to pedestrian vehicle escorting, limited daily OSV travel windows, enhanced monitoring of unfledged chicks during OSV travel windows, speed limits, narrow width of the travel corridor, and relocation of Diamondback Terrapin nests will be implemented in order to minimize the risk of direct mortality; funding will be provided for offsite selective predator management, increased law enforcement and or educational outreach to benefit Piping Plovers and Least Terns; Diamondback Terrapin nests will be relocated so that hatchlings will not need to cross the OSV corridor to reach Pleasant Bay, terrapin nests will be protected from predators with wire cages, and hatchlings will be made available for headstarting to augment the Pleasant Bay population.

Therefore, the Activity can be permitted pursuant to the MESA. This Conservation and Management Permit (the "Permit") is issued to condition the Activities and to provide a long-term Net Benefit to the affected species.

In accordance with the document submitted to the Division entitled:

- "Massachusetts Habitat Conservation Plan for Piping Plover, Request for Certificate of Inclusion", dated May 5, 2016 (the "Plan"; Attachment A).
- Escrow Agreement (Attachment B)

Incorporated by reference into this permit, and any other plans and documents referenced herein, this Conservation and Management Permit is issued with the following conditions:

Conditions:

1. This Permit authorizes the exposure of up to two Piping Plover broods/nests and up to 20 unfledged Least Tern chicks to certain covered activities, as well use of the oversand vehicle ("OSV") corridor in the vicinity of Diamondback Terrapins, as described in Attachment A, subject to limitations described in Attachment A, and set forth in this

Permit and the COI.

2. Other than the exceptions authorized by this Permit, the Permit Holder shall carry out beach use and management in compliance with the relevant State Guidelines and Federal Guidelines for management of recreational beaches with breeding plovers and terns effective during the term of the Permit.

3. This Permit authorizes only otherwise lawful activities. All activities carried out pursuant to this Permit must be carried out in accordance with applicable local, state, and federal statutes and regulations.

4. As set forth in the COI, all activities authorized by this Permit must be carried out in accordance with the Final Massachusetts Division of Fisheries & Wildlife Habitat Conservation Plan for Piping Plover (HCP), dated June 2016, and Incidental Take Permit (ITP) No. TE01281C-0, dated July 8, 2016. The COI, HCP and ITP are incorporated by reference into this Permit. By acceptance of this Permit, the Permit Holder acknowledges receipt of copies of the COI, HCP and ITP, official copies of which are located at the Division's field headquarters, 1 Rabbit Hill Rd., Westborough, MA.

5. Division representatives shall have the right to enter and inspect the Property subject to this Permit at reasonable hours to evaluate permit compliance and require the submittal of any reasonable information not otherwise required by this Permit but deemed necessary by the Division to complete its evaluation.

6. Any change to the proposed Plan shall require the Permit Holder to inquire of the Division, in writing, whether the change is significant enough to require the filing of a new Conservation and Management Permit Application, and or require additional long-term Net Benefit for affected State-listed species. The Division retains the right to require the submittal of additional, reasonable information to evaluate the plan change.

7. Prior to implementing the Plan, the Permit Holder shall notify the Division in writing of the name, address, business and home telephone numbers of the manager responsible for compliance with this Conservation and Management Permit. The Permit Holder shall provide updated information in writing to the Division should a new or additional manager be hired after the Activity has commenced.

8. The Permit Holder shall notify the Division at least 24 hours prior to initiating any covered activity affecting a new brood or nest not previously exposed.

9. Prior to the implementation of the Plan or any covered activity in any given year, the Permit Holder shall provide the Division with proof that it has secured adequate funding to implement the annual requirements of the Plan consistent with the budget provided in the Plan.

10. Impact avoidance and minimization procedures to protect Least Terns, Piping Plovers, and Diamondback Terrapins shall be implemented in accordance with the Plan.

11. Finding, relocation, and caging of Diamond Terrapin nests shall be carried out by qualified personnel approved and permitted in writing in advance by the Division.

12. Interim and annual reporting shall be conducted in accordance with the Plan.

13. Prior to the implementation of the covered activities in 2016, the Permit Holder shall execute the escrow agreement shown in Attachment B and fund the escrow account with $11,600. Prior to carrying out covered activities in 2017 and 2018, the Permit holder shall provide additional funding of up two $11,600 per year in order to ensure that a minimum of $5,800 of mitigation funding is provided for every piping plover brood or nest exposed to covered activities over the life of the permit.

14. In accordance with the HCP, the Permit Holder must obtain written reauthorization from the Division to carry out covered activities prior to the 2017 and 2018 beach seasons. No covered activities may be carried out in 2017 or 2018 prior to receipt of written reauthorization. As set forth in the HCP, the Division may, in its sole discretion, reduce the allowable take exposure for those years or decline to reauthorize any exposure.

15. A violation of ny condition of this Permit, COI. HCP or the ITP will result in an unauthorized Take pursuant to M.G.L. c. 131A or under the HCP or ITP may be subject to civil and or criminal penalties pursuant to M.G.L. c. 131A. In the event of such non-compliance, the Division may suspend, or revoke this Permit and the COI. The Permit Holder shall have the right to request an appeal within 30 days of any suspension or revocation of this Permit or COI in accordance with the requirements of Condition No. 16 below.

16. Notice of Appeal Rights: This Determination is a final decision of the Division of Fisheries and Wildlife pursuant to 321 CMR 10.23. Any person aggrieved by this decision shall have the right to an adjudicatory hearing at the Division pursuant to M.G.L. c. 30A, s.11 in accordance with the procedures for informal hearings set forth in 801 CMR 1.02 and 1.03.

    Any notice of claim for an adjudicatory hearing shall be made in writing and be accompanied by a filing fee in the amount of $500.00. The notice of claim shall be sent to the Division by certified mail, hand delivered or postmarked within 21 days of the date of the Division's Determination to:

    Jack Buckley
    Director
    Division of Fisheries and Wildlife
    Field Headquarters
    One Rabbit Hill Road
    Westborough, MA 01581

    Any notice of claim for an adjudicatory hearing shall include the following information:

    1. The file number for the Activity;
    2. The complete name, address and telephone number of the person filing the request, and the name, address and telephone number of any authorized representative;
    3. The specific facts that demonstrate that a party filing a notice of claim satisfies the requirements of an "aggrieved person," including but not limited to (a) how they have a definite interest in the matters in contention within the scope of interests or area of concern of M.G.L. c. 131A or the regulations at 321 CMR 10.00 and (b)

have suffered an actual injury which is special and different from that of the public and which has resulted from violation of a duty owed to them by the Division;

4. A clear statement that an adjudicatory hearing is being requested;
5. A clear and concise statement of facts which are grounds for the proceeding, the specific objections to the actions of the Division and the basis for those objections; and the relief sought through the adjudicatory hearing; and a statement that a copy of the request has been sent by certified mail or hand delivered to the applicant and the Record Owner, if different from the applicant.

Jack Buckley, Director
Massachusetts Division of Fisheries & Wildlife

On this 8th day of July 2016, before me, the undersigned notary public, personally appeared Jack Buckley, Director, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

Emily Melissa Holt, Notary Public
My Commission expires: July 28, 2017

Conservation Permit 016-283.DFW
Issued this 8th day of July, 2016
Permit Expires: 1 December 2018

EMILY MELISSA HOLT
MY COMMISSION EXPIRES JULY 28, 2017
NOTARY PUBLIC COMMONWEALTH OF MASSACHUSETTS

ACKNOWLEDGEMENT AND ACCEPTANCE OF ALL TERMS OF THIS CONSERVATION PERMIT

The undersigned below agrees that commencement of any work authorized by and described in this Conservation and Management Permit constitutes acknowledgement and acceptance of all terms of this permit.

John F. Kelley, Town Manager Town of Orleans

COMMONWEALTH OF MASSACHUSETTS

On this _____day of _____, 20____, before me, the undersigned notary public, personally appeared _____, proved to me through satisfactory evidence of identification which was _____ to be the person whose name is signed on the preceding or attached document, and who swore or affirmed to me that the contents of the document are truthful and accurate to the best of his/her knowledge and belief.

Notary Public

_____

SEAL

My commission expires: _____

Distribution List

Nathan Sears, Town of Orleans
Orleans Board of Selectman
Orleans Conservation Commission
DEP Southeast Regional Office, Wetlands Program
David Simmons, USFWS

A. Nauset Spit Special Conditions for ORV Use (1991 SE 54-723)

1991

DEP SE 54-723

SPECIAL ORDER OF CONDITIONS RELATING TO ORV USE ON NAUSET SPIT

I. FINDINGS

A. THE ACTIVITY

The Orleans Conservation Commission finds, in accordance with the December 4, 1990 Superseding Determination of Applicability issued by the Massachusetts Department of Environmental Protection, that the activity for which the Town of Orleans seeks a permit under the provisions of State Wetland Protection Act MGL ch 131 Section 40 and the Town of Orleans Wetlands Protection Bylaw consists of the operation of ORV's on the Nauset Spit Barrier Beach system, 310 CMR 10.29. Although the permit request is narrowly defined to ORV use, where ORV use/management issues overlap pedestrian and boating uses, it is herein recognized by the Conservation Commission and the Park Commissioners that these uses will be controlled in a manner consistent with permitting requirements for the ORV use, i.e., signage, fencing, plantings, temporary closures, etc.

The Department of Environmental Protection further determined, and the Orleans Conservation Commission so finds, that the area in which the proposed activity will take place is a barrier beach, 310 CMR 10.29, a resource area which itself contains the following wetland resource areas: Land Subject to Coastal Storm Flowage (310 CMR 10.02(1)(d), Land Under the Ocean (310 CMR 10.25), Coastal Beaches(310 CMR 10.27), Coastal Dunes (310 CMR 10.28) Salt Marshes (310 CMR 10.32) and Rare Species Habitat (310 CMR 10.37).

The above cited regulations, provide that where the proposed activity involves alteration of a resource area, the issuing authority shall presume the resource area to be significant to the interests noted in the regulations governing that specific area unless that presumption is overcome by a clear showing otherwise. No such showing has been made. The Commission therefore adopts the presumptions of significance for the resource areas cited in the previous paragraph.

B. PROJECT COMPLIANCE WITH MGL 131 ch. S.40 PERFORMANCE STANDARDS

Project compliance with MGL ch, 131 s.40 performance standards as cited in the attached regulations: Coastal Beaches, 310 CMR 10.27; Coastal Dunes, 310 CMR 10.28; Barrier Beaches, 310 CMR 10.19; and Rare Species Habitat, 310 CMR 10.37

The proposed project calls for the following activities designed to prevent adverse impact of ORV usage upon the resource areas of the Nauset Spit Barrier Beach cited above:

1. Placement of signage and wooden barrier posts, to be located as necessary to confine ORV traffic to defined access ways, to be maintained by hand, and spaced an average of 100 feet apart; signage to be attached to posts and/or fencing where possible, such posts to be placed in such a manner as not to disturb vegetative cover;

2. Placement of symbolic fencing and/or predator exclosures, as necessary, around potential nesting habitat and actual nesting and foraging sites;

3. Placement of fencing barriers for access closures and/or openings, as deemed necessary for tern and plover habitat, nesting, and foraging protection.

   The Commission finds that the above activities as controlled by the conditions herein meet the performance standards set forth in 10.27 (3),(6), and (7);10.28 (3),(5), and (6); 10.29 (3) and (4). See "Rare Species" for compliance with 10:27.

4. With regard to the primary activity proposed, ORV usage itself, the Commission finds the following:

   a. <u>Coastal Dunes</u> (310 CMR 10.28)

      i. <u>Evaluation of ORV Access and Egress Trail Location</u>

      The suggestion was made that the more southerly access trail be closed and that the more northerly egress trail be expanded to accommodate two way traffic using pullover/bypass areas. Field inspection of

the southerly access trail showed it to be sensitive to environmental concerns with respect to sinuosity and topography. Its layout was not believed to promote wind tunnelling and erosion or wave overwash. According to historical data, this showed the greatest stability in terms of shoreline migration over a 100 year period. Therefore, although the more northerly egress trail had initially been proposed to be expanded in width to accommodate two way traffic based on the closure of the more southerly trail, the record suggested that the existing layout and orientation characteristics of the more northerly trail should not be changed and that maintenance of the existing two trail system was preferable. The Commission, therefore finds, based on the testimony and references of record, that maintenance of the existing two ORV trail routes is appropriate, and meets the performance standards set forth in 310 CMR 10.28 as follows:

10.28 (3)(b) Use of existing access and egress corridors through the dunes will be restricted to corridors already without vegetation due to previous ORV use, and no further devegetation and consequent destabilization should occur given appropriate posting as required in the Special Orders.

10.28 (3)(c) It is recognized that the ongoing use of an ORV corridor may cause limited modification to small dune areas. However, the Commission credits testimony that due to the orientation, location , restriction in size, and proposed maintenance activities, no significant increase from storm or flood damage is anticipated.

10.28 (3)(d) No interference with landward movement of coastal dunes will occur since the Special Orders provide that no ORV traffic, with the possible exception of temporary alternate routes provided in response to plover and tern protection needs, will be permitted on the Cove (west) side of

the spit, toward which the landward movement is directed.

10.28 (3)(f) See section on Rare Species

ii. North/South Corridor

Given the Special Orders requiring that this corridor be a minimum of 15 feet seaward of the toe of the Coastal Dune, no change in vegetation should occur and the performance standards set forth in 10.28 (3)(b) and (c) should be met. (10.28(3) see section on Rare Species)

iii. Dune Enhancement

Concern was expressed that inappropriately located dune enhancement projects could adversely impact potential plover and tern habitat areas. Based on the testimony received, the Conservation Commission finds that specific delineation of dune enhancement areas on the present project plans should not be shown at this time. Rather, delineation of specific areas will be made by the Park Commissioners and their agents in consultation with the Conservation Commission and/or its agent based on wildlife habitat observations and reports presented to both agencies as required by the Order of Conditions.

b. Coastal Beaches (310 CMR 10.27 (3)(7)

The continued use of the existing ORV corridors may cause temporary limited impact to the profile (form) of the beach area. The Commission credits testimony that given the climatic and geologic characteristics of the Nauset Spit, these changes will not result in significantly increasing the potential for wind and wave erosion.

The Commission credits testimony that sediment disturbed by the passage of ORVs is not lost from the beach resource area and that significant sediment movement is not attributable to ORV use. Therefore it finds ORV use as proposed will not result in a significant decrease to beach volume and that such significant changes in beach volume

are more likely to be influenced by climatic and/or meteorologic factors (also see Rare Species 10.27(7).

II. SPECIAL CONDITIONS

A. PREAMBLE

The Orleans Conservation Commission, in setting the following Conditions, intends that they be flexible enough to reflect the needs of the changing environment they are designed to protect. The Nauset Barrier Beach system has been shown to be extremely dynamic over time. Significant changes in geomorphic form and wildlife habitat have occurred both prior to, and now during, recreational uses of this resource area. The challenge for this Commission is to manage the competing uses of this barrier beach system under the provisions of both the Massachusetts Wetlands Protection Act, MGL 131 Section 40 and the Town of Orleans Wetland Protection Bylaw, Chapter 160 of the Code of the Town of Orleans.

The following Conditions are designed to:

- protect coastal resource areas and identified wetland interests for the Nauset Barrier Beach system as it currently exists;
- allow for the ongoing recreational use of the barrier beach system, but at a lesser impact level than previously existed;
- require management of ORV use to be sensitive to any adverse environmental impact to the Nauset Barrier Beach system;
- require greater restrictions on ORV users with respect to environmental education, scheduled and unscheduled temporary closures of access routes, etc;
- require future management of the barrier beach system resource area to include hiring of specially qualified personnel to conduct detailed monitoring of and reporting on wildlife and wildlife habitat areas which will serve as basis

for modifying permitted management procedures/policies;

- require interdisciplinary and agency cooperation which will result in sensitive, flexible and responsive management of the barrier beach system.

B. RULES AND REGULATIONS

The Board of Selectmen, acting, and hereafter referred to, as the Park Commission, is responsible for implementing and enforcing Rules and Regulations for ORV use on Nauset Spit. These regulations shall be reviewed annually by the Conservation Commission and at a minimum require the following:

a) That the figure set for a maximum number of ORV's allowed on the beach at any one time be reduced from the 300 maximum permitted in 1990 to an initial figure of 200 for 1991 which may be subject to a downward revision dependent upon general beach or nesting considerations.

b) Posting of temporary closures due to tide conditions or nesting considerations.

c) Driving on the Town Cove (west) side to be prohibited (see Page 8).

d) Driving on the low beach to be permitted only during the winter season between the first Friday in November and the Friday before Memorial Day and at such other specially designated times and places to avoid disturbance of nesting birds.

e) Parking to be permitted seaward of a 37' corridor consisting of 15' from the toe of the dune, plus 12' for the vehicle track, plus a 10' margin between the vehicle track and parking area.

f) Closure of the beach between the hours of 11:00 PM and 6 AM except for active fishing. Driving in all but designated ORV corridors prohibited.

g) In posted areas near bird nesting or roosting areas, a speed limit of 5 mph.

h) No jet ski launching or landing.

i) No kite flying: March 15 - September 15.

j) No pets: March 15 - September 15.

k) All permittees to view educational film/slide presentation prior to issuance of and renewal of ORV permit.

l) Minimum permittable equipment standards including tire size and pressure as listed in regulations issued by Park Commissioners

m) Any other condition responsive to significant environmental changes and/or any conditions necessary to protect the Nauset Spit barrier beach system, the public health , safety and welfare of the users and/or property owners.

n) Such fines and penalties as the Park Commission may invoke.

o) Walking between the cove side and the ocean side to be prohibited in all but designated areas.

C. CLOSURE OF THE TOWN COVE (WEST) SIDE TO ORV TRAFFIC

In 1990, the Orleans Park Commission, on the recommendation of Dr. David Aubrey, coastal geologist with the Coastal Research Center of Woods Hole Oceanographic Institution and with the full concurrence of the Conservation Commission, closed the Town Cove side of the Nauset Spit to ORV traffic. Tidal flats and shellfish beds which adjoin the Town Cove side of the beach are extremely sensitive to ORV use, and ORV use should not be allowed in these resource areas under any circumstances. Barrier beaches migrate landward due to overwash events and consequent sand deposition of the barrier beach, 310 CMR 10.29(1). The operation of ORVs on the landward side of the beach could serve to inhibit dune formation through the formation of ruts and the crushing of ammophila rhizomes, stopping the landward migration of the inside, while the ocean side is continually eroded

by wave action. The net effect of these processes could be an ever narrower barrier spit, increasingly susceptible to overwash and inlet formation. This result would violate the performance standards for coastal dunes, which prohibit any modification of dune form that would increase the potential for storm or flood damage, or any interference with the landward or lateral movement of the dune, 310 CMR 10.28(3) and 10:29(3). Therefore, with the possible exception of temporary alternate routes as described below, the westerly (Town Cove) side of the barrier beach shall remain closed to ORVs except for emergency use by town officials.

D. TEMPORARY ALTERNATIVE ROUTES:

The applicant (Town of Orleans) has proposed that should the ORV corridor along the oceanside be closed to protect plovers foraging for food on that side, an alternate route along the Town Cove (west) side be approved on a temporary basis.

In answer to the concern that such temporary alternate routes could inhibit the landward migration of the barrier beach in violation of the performance standards and in CMR 10:28 and 10:29, the applicant has suggested that there is evidence relating to the seasonal climatic/meteorologic energy levels and historical storm or wind patterns documented during the summer months and evidence relating to the textural components (coarse sand and gravel) of the back shore area which would indicate it was unlikely that the limited seasonal use of proposed alternative routes, i.e., June, July and perhaps August, would result in increasing potential for storm and flood damage in violation of 310 CMR 10.28 (3)c or interfere with the landward movement of the dunes of the barrier spit in violation of 10.28 (3) (d) and 10.29 (3). Contradicting evidence was also offered.

However, the applicant has also suggested, and the Commission agrees, that the site specific delineation of temporary alternate routes is presently inappropriate. Therefore, the Commission makes no finding nor will it issue any orders as to the temporary alternate routes at this time.

When the need to protect specific habitat, nesting, and/or foraging sites by closure of the access routes

approved herein and shown on the plan of record is determined, the Town may file amended plans after consultation with its agents and the Conservation Commission or its agent and shall provide the Commission with information on such proposed temporary access routes including, but not limited to, delineation of the such proposed route or routes on the plan of record,an estimate of the duration of use, an estimate of the reduction or proposed reduction of daily vehicle traffic, a description of signage and fencing for such alternate ORV corridor, a description of proposed mitigating measures, etc. If the Commission finds that such plan meets the performance standards cited in the relevant regulations, the Commission may approve such temporary alternate ORV access route or routes.

E. RARE SPECIES

1. Project Compliance with Performance Standards

Based on the testimony provided by Massachusetts Natural Heritage Endangered Species Program, the Massachusetts Audubon Society and others, the Conservation Commission finds that a potential to alter the resource area which is part of the mapped habitat of State-listed species does exist. However, the Commission finds that the project as proposed and conditioned herein, inclusive of the hiring of a qualified habitat specialist and incorporation of temporary beach closure measures should provide the protection necessary so that no adverse effect on specified habitat sites will result.

The presumption that the maintenance activities requested in order to continue ORV use of Nauset Spit will adversely impact specified habitat sites, in the opinion of this Commission, has been overcome/rebutted/by the proposed species management plan as required by this Order of Conditions. This management plan will require, among other measures, observation and tracking of the plover and tern species to determine exact habitat sites, including foraging routes; will require temporary closures of the identified sites and routes to ORV and pedestrian use; and will provide emplacement of physical fencing and

predator barriers to afford habitat protection. The Commission, as issuing authority, therefore finds that the project as proposed and herein conditioned should not result in an adverse impact to specified habitat sites identified for plover and tern populations on Nauset Spit. If, however, these conditions prove inadequate to protect the wetland interests defined in MGL 131, Section 40 or to ensure that there is no adverse impact on rare species habitat as required by CMR 10:37, the Commission reserves the right to impose the necessary additional conditions and restrictions upon the use of ORVs on the Nauset Spit.

The Conservation Commission wishes here to note that the applicant, the Town of Orleans by its Selectmen serving as Park Commissioners, has, in fact, conducted a tern preservation project in cooperation with the Massachusetts Audubon Society which has contributed to the establishment of the largest least tern colony in New England. The Town has supported this preservation effort through the efforts of the Town's Parks Department under the direction of Paul Fulcher, Parks Superintendent with the financial support of the town. It now proposes to continue and broaden these efforts through the hiring of a plover habitat specialist to monitor the breeding, hatching, and fledging of the plovers, and by recognizing that temporary closures of the spit during critical plover breeding and fledging periods may be necessary.

2. Plover Monitor

The Park Commission, in cooperation with the Conservation Commission, shall be responsible for the hiring of a suitably qualified person to serve as a Piping Plover (and Tern) Habitat Analysis Specialist, hereafter referred to as "Monitor", responsible to the Park Superintendent. This person shall be selected by the Park Commissioners based on review of applicant qualifications and recommendations from the Conservation Commission, and will be required to participate in the site specific field training program developed and conducted cooperatively with the Massachusetts Division of Fisheries and Wildlife Natural

Heritage Program and the Cape Cod National Seashore Park experts on coastal bird habitats. Further, the Monitor shall cooperate and coordinate his/her activities with the Massachusetts Audubon Society Staff.

The Monitor will be employed annually from April 1 through August 31 to provide technical information relative to the habitat and characteristics of the Piping Plover and tern populations on Nauset Beach, and will be responsible for alerting the Park Superintendent and the Conservation Commission, or their designated agents, as to the need to temporarily close access to ORV traffic during plover nesting and fledgling activity periods. The Monitor will also be responsible for providing the Parks Commission and the Conservation Commission daily data on plover broods and tern nesting, and a season-end report relative to the Piping Plover population.

3. Limitation of access to prime nesting habitat areas

a. Vehicular Access

Parking in or vehicular access through identified plover and Least Tern habitat areas as shown on the attached map entitled "Approximate Rare Species Habitat", and as determined annually by the plover Monitor, shall be prohibited. This restriction will not necessarily prohibit vehicular access past (i.e. northward/southward) such areas if consistent with specific management guidelines.

b. Boater and Pedestrian Access

It has been the custom for many visitors to Nauset Spit to arrive by boat on the west or Town Cove side. Some remain on this west beach while others walk across the spit to the ocean side. This traffic is expected to increase as a result of increased ORV restrictions. Most boats land near the tip, beyond the dunes, the vegetation, and the

Least Tern colony, and they present a minimum threat to either birds or other resources. The other boaters, however, tend to come ashore in three areas where they must cross the dunes, either over the crest or through a washover area to reach the Atlantic side. Disturbance of the birds by these pedestrians may be minimized by: 1) Posts, signs and fencing to indicate closed areas and 2) installation of well-marked wooden walkways over the dunes in areas far from plover habitat. Since it is much easier to walk on these boardwalks than in the soft sand, pedestrians will be encouraged to use the designated walkways and thus they will help to protect dune form and vegetation as well as birds.

Pedestrians shall be excluded from existing washover areas in a manner which does not interfere with, or cause any adverse effect to, the ability of such washover areas to serve as nesting habitat for Piping Plover.

4. Piping Plovers

The beach management strategy for the plovers includes devoting highest priority to encouragement of the earliest arriving birds to nest as quickly and successfully as possible. This means minimizing human disturbance. The result in addition to a high reproductive success rate, may be to minimize the period during which the beach is closed to ORV use.

Spring Arrival (March 16 - April 30)

Piping Plovers return from their southern winter quarters to establish nesting territories along Cape Cod beaches in early spring.

Management - Prior to the arrival of Piping Plovers, potential nesting areas shall be visited by a person familiar with their habitat requirements to evaluate the natural changes that have occurred through the winter and to identify areas of suitable nesting habitat. The nesting habitat shall be posted, with endangered species

nesting area signs, prior to the arrival of plovers - no later than April 1 - to reduce the potential disturbance by beachgoers upon plovers establishing their nesting territories. Vehicular access into or through posted areas shall be prohibited, though vehicles may pass by such areas at this time.

Laying and Incubation of Eggs (April 20 - August 10)

Normally the nest, a shallow scrape in the sand, is placed at the toe of the dune, in a washover, or along the spring tide wrack line. The first of the sand-colored eggs is laid in late April and may contain a full clutch of 4 eggs a week after the first egg is laid. Then both adults incubate the eggs, alternating every few hours, for the next 28 days.

Management - when a nest is located with one to four eggs, a welded wire fence shall be placed around the nest, using a design recommended by the Massachusetts Division of Fisheries and Wildlife. Endangered species signs shall be placed outside the fenced area and strung off with twine to add additional protection from curious passersby. Vehicular access within the area strung off with twine shall be prohibited.

Before eggs hatch, it is necessary to close the beach and to level the ORV ruts to prevent an adverse effect on the young hatchlings. This must be accomplished within a 28 day period after incubation commences. If ruts are to be leveled by natural process, one week should be allowed, and the beach should be closed 21 days after the last egg is laid or the start of incubation. If ruts are to be leveled by hand, the beach could remain open a few additional days. If the monitor does not know when the last egg was laid or when incubation commenced, the beach should be shut down and ruts leveled immediately.

Due to the narrowness of the Nauset barrier beach,in some portions of plover habitat, the closure shall extend from the ocean side through the dunes to the cove side in a line 100 yards south of the location of the first nest

encountered for outbound travel (i.e., the southerly most nest on the spit). The point of closure would be designated with posts, rope, and signs.

Hatching Eggs and Movement of Young (May 20-August 20)

Piping Plovers have precocial young, capable of walking and feeding themselves within 24 hours after hatching. The most vulnerable stage in their breeding cycle is the period when hatchlings are less than 10 days old when they accompany the adults in their feeding forages. Normally, all eggs in a clutch hatch within a 24-hour period between the hatching of the first and last eggs. The hatchlings then accompany the adults to feed on small invertebrates along the wrack line, toe of the dunes, and interdunal blowouts. During their first week the young usually do not wander more than 100 yards from their original nest site. They do not use the nest after the first couple of days from their hatch date, but depend on their cryptic coloration to blend in with their surroundings. If an adult plover sounds an alarm note, the young either run for cover beneath one of the adults or seek cover in vegetation, among stones, along the wrack line, or in a vehicle rut. Plover chicks over a week old may accompany the adults for greater distances, up to 1/4 mile, and spend increasingly more of their time foraging along the wrack line and out into the intertidal zone.

Management - Plover chicks on Nauset Spit may be seen foraging with adults in areas anywhere between the Cove and the ocean intertidal zones in areas where there is little vegetation to obstruct their movements. Because they may go from the ocean side to the cove side of the spit within minutes, using existing blowouts and overwash areas, they are vulnerable to vehicular travel at all times. Also, the ruts left by vehicles are known to trap young chicks that subsequently may be run over by another vehicle using the same ruts, or they remain trapped in the rut and die from exhaustion or found in the rut by a predator.

Therefore, temporary closures to vehicular traffic shall be required in habitat areas used by young foraging plovers. The size of this closure will vary depending on the data collected by the Monitor. The closure point of 100 yards south of hatched eggs shall be used until the Monitor can establish the perimeter of the total feeding range.

Fledging of the Young (June 28 - August 20)

Young plovers are capable of flying short distances within 30 days of their hatch date. Typically, these novice fliers remain with the adults foraging in the same general area for anywhere from a few days to the rest of the summer. Adults may lead fledged young to more remote portions of neighboring beaches if they are disturbed by recreation or predation.

Management - Once the Monitor has determined that the young have fledged or left the beach, the area may be reopened to vehicular traffic.

5. Least Terns

Nauset Spit has been home to the largest Least Tern nesting colony in New England for the past two years. This is largely due to the extensive nesting area available on the sand spit which has increased in its length annually since the storm in 1978. Another factor that has contributed significantly to the size of this colony is the placement of welded wire fence by the Massachusetts Audubon Society in cooperation with the Town of Orleans Parks Department, which has reduced disturbance to the birds by beachgoers and predators.

Spring Arrival (May 7 - July 10)

Least Terns return from their winter quarters in South America to establish nesting colonies ranging in size from a dozen pairs to over 1,000 pairs. Least Terns have historically used Nauset Spit, and data over the past 20 years shows that colony size has varied between 100 to 600 pairs nesting annually.

Management - Prior to the arrival of the terns, welded wire fence, three or four feet in height, with 4" x 2" mesh shall be used to encircle the Least Tern nesting area based upon the prior year's data. On Nauset Beach the Least Tern Colony increased in size annually, and it is likely that the fence will have to be adjusted to encompass additional portions of the colony.

The side of fence running parallel to the ocean-side wrack line shall be as close to the mean high tide line as possible. This will ensure that nests near the wrack line are included and that chicks that wander or fly outside the colony are less likely to become trapped in ruts and be run over by subsequent traffic. Endangered species signs should be placed five feet inside the fence, one every 50 feet along the entire perimeter.

Laying and Incubation of Eggs (May 20 - August 5)

Most clutches of 2-3 eggs are laid in early June. The nests are simple scrapes in the sand or on bare stone between the wrack line and the toe of the dune, or in an open blow-out. Typically, Least Terns nest in colonies of 10 to 1,000 pairs.

The adults incubate the eggs for 21 days after the last egg is laid. It is not uncommon for Least Terns to lose nests to storms or high tides. Least Terns will attempt to discourage mammalian, avian, or human intruders who come near their nests by attacking in unison, calling loudly, and dropping their "white wash".

Management - Incubation is the most vulnerable stage for breeding Least Terns. The presence of people, dogs, kites, and predators too close to a colony causes the entire flock of nesters to leave their nests during the disturbance. If the disturbance lasts more than 15 minutes, the eggs may be destroyed by exposure to the sun, rain, or wind-blown sand. Therefore, it is critical that the Monitor for the colony adjust the perimeter of the fence and signs to include a buffer zone wide enough to prevent disturbance to incubating adults. Research has shown a minimum distance of 80 to 150 feet is needed between the outermost

nests in the colony and the protective barrier.

Hatching of Eggs and Movement of Young (June 9-August 25)

The 2 to 3 semiprecocial young are active within 24 hours of hatching. Least Tern young are fed by the adults. Although the young are capable of running within a week of hatching, they typically do not wander more than 15 feet from their nest depression during the first 10 days. However, at ages between 10 and 28 days they will run longer distances to flee an intruder or to find better locations for hiding or awaiting the return of adults with food. These older juveniles, over 14 days old, are often difficult to see. Their plumage is camouflaged, and they hide in vegetation and cover on the wrack line.

Managment - Dogs and feral cats shall be excluded from colonies using welded wire fence. The young terns, however, pass through the fence outside the colony. Typically, the young try to migrate toward the tidal zone to be fed by the adults. The young often become trapped in vehicle ruts and are run over by subsequent traffic. To reduce this problem, vehicles shall be directed to drive below the high tide line when possible. Fewer chicks go far from the colony and flattened sand in the tidal zone makes the chicks more visible. Also, a finer mesh plastic or wire fence can be used to discourage the young terns from migrating into areas where there are vehicles. This, however, must not be used if a pair of Piping Plovers has a nest or young in the area of the Least Tern colony, because plover young could get separated from adults or be excluded from their foraging areas. Also, a finer mesh plastic or wire fencing will not keep the young terns from migrating outside the colony once they are capable of flight.

Fledging of Young (July 9 - September 10)

Least Terns young are capable of weak flight about 28 days after hatching. Most young in a colony fledge in mid-to late July in Massachusetts, unless the colony has been abandoned because of by tides, storms, or predators and the survivors

renest. Once the young are capable fliers, after a week of practice, they are led by the adults further from the busy colony to quieter portions of beaches and sandbars. The young will even fly out to the fishing grounds where they rest on the water and wait to be fed. Most Least Terns have left their breeding grounds by September 10 for the long journey to South America.

Management- If vehicles are permitted near the Least Tern nesting area they pose a threat to the fledging terns during the day and night. The Monitor shall use signs, and twine if possible, to post the boundaries of the roosting area to restrict and slow traffic.

The Monitor of the colony will determine when the terns have left the nesting area. As long as Least Terns are landing in the fenced area, it is likely that they are still nesting or rearing young. Most Least Terns will have left Massachusetts by early September.

F. MANAGEMENT AND ANNUAL REVIEW

Management of the resource areas in terms of ongoing use, use restrictions, etc. will be the primary responsibility of the Park Commission and Park Department with provisions for annual review of management guidelines and personnel hirings to be made cooperatively with Conservation Commission input prior to April 1st.

As part of the overall ORV management plan, the Park Commission will instruct the Park department personnel to maintain the approved ORV corridors and to install posts fencings, and signage as indicated on the plan of record dated January 7, 1991 or as revised and subsequently approved by the Conservation Commission and will instruct the Park Department personnel to continue ongoing revegetaiton and nourishment efforts as described and approved by the Conservation Commission. These actions and the overall ORV management plan will be reviewed and approved annually by the Conservation Commission based upon the reports and recommendations resulting from the implementation of this Order of Conditions.

G. ENFORCEMENT

The Park Commission shall require additional enforcement patrol of the Nauset Spit ORV corridor to include expanded patrol coverage during off-peak usage, specifically weekday and pre-season periods. Should expanded patrol prove inadequate to protect the natural and wildlife resources which are the subject of this Order, the Conservation Commission may require additional enforcement.

Overall enforcement responsibility for management of the Nauset Barrier Beach system as described by the attached Order of Conditions is designated by state and local statutory requirements to Town of Orleans officials. In this instance, primary enforcement responsibility will be shared by the Conservation Commission, Park Commission, and their respective agents.

B. Off Road Vehicle and Beach Management Plan for Nauset Beach South dated 6/18/14 (2015 SE 54-2246)

Off Road Vehicle (ORV) and Beach Management Plan for Nauset Beach South

FINDINGS

A. THE ACTIVITY

The Town of Orleans seeks a permit under the provisions of the State Wetland Protection Act MGL ch 131 Section 40 and the Town of Orleans Wetlands Protection Bylaw consisting of the operation of Off Road Vehicles (ORV's) on Nauset Beach South, 310 CMR 10.29. Although the permit requested is narrowly defined to ORV use, where ORV use/management issues overlap pedestrian and boating uses, it is herein recognized by the Conservation Commission and the Park Commissioners that these uses will be controlled in a manner consistent with permitting requirements for the ORV use, such as signage, fencing, plantings, temporary closures, etc.

The area of Nauset Beach South is shown on Assessors' Maps as the following: Map 38, Parcels 13 and 14; Map 45, Parcel 11 and 50; Map 52, Parcel 10; Map 59, Parcel 1; Maps 73, Parcel 1. The combined parcels contain 700+/- Acres. This area starts at the end of the existing public beach parking lot, and continues in a southerly direction to Chatham town line, where the barrier beach extends into Chatham to its terminus.

The Orleans Conservation Commission so finds that the area in which the proposed activity will take place is a Barrier Beach (310 CMR 10.29), a resource area which itself contains the following wetland resource areas: Land Subject to Coastal Storm Flowage (310 CMR 10.02 (1)(d)), Land Under the Ocean (310 CMR 10.25), Coastal Beaches (310 CMR 10.27), Coastal Dunes (310 CMR 10.28), Salt Marshes (310 CMR 10.32), and Rare Species Habitat (310 CMR 10.37).

For the above cited regulations, provided that where the proposed activity involves alteration of a resource area, the issuing authority shall presume the resource area to be significant to the interests noted in the regulations governing that specific area unless that presumption is overcome by a clear showing otherwise. The Commission therefore adopts the presumptions of significance for the resource areas cited in the previous paragraph.

B. PROJECT COMPLIANCE WITH MGL 131 ch. S.40 PERFORMANCE STANDARDS

Project compliance with MGL ch, 131 s.40 performance standards as cited in the attached regulations: Coastal Beaches, 310 CMR 10.27; Coastal Dunes, 310 CMR 10.28 ; Barrier Beaches, 310 CM R 10.19; and Rare Species Habitat, 310 CMR 10.37.

The proposed project calls for the following activities, designed to prevent any impact of ORV usage upon the resource areas of the Nauset Beach South cited above:

1. Placement of signage and wooden barrier posts, to be located as necessary to confine ORV traffic to defined access ways, maintained by hand, and spaced an average of 100 feet apart; signage to be attached to posts and/or fencing where possible; such posts to be placed in such a manner as not to disturb vegetative cover;
2. Placement of symbolic fencing and/or predator exclosures, as necessary, around potential nesting habitat, actual nesting, and foraging sites;
3. Placement of fencing barriers for access closures and/or openings, as deemed necessary for tern and plover habitat, nesting, and foraging protection. The Commission finds that the above activities, as controlled by the conditions herein, meet the performance standards set forth in 10.27 (3),(6), and (7);10.28 (3),(5), and (6); 10.29 (3) and (4). See "Rare Species" for compliance with 10:27.
4. With regard to the primary activity proposed, ORV usage itself, the Commission finds the following:
    a. Coastal Dunes: 310 CMR 10.28
        i. An evaluation of ORV access and egress trail location, field inspection of the ORV trails, show them to be sensitive to environmental concerns with respect to sinuosity and topography. The existing layout is not believed to promote wind tunneling, erosion, or wave overwash. Therefore, the Commission finds that based on the history and references of record, maintenance of the existing ORV trail routes is appropriate, and meets the performance standards set forth in 310 CMR 10.28 as follows:

            10.28 (3)(b) Use of existing access and egress corridors through the dunes will be restricted to corridors already without vegetation due to previous ORV use. No further de-vegetation and consequent destabilization should occur given appropriate posting as required in the Special Conditions.

            10.28 (3)(c) It is recognized that the ongoing use of an ORV corridor may cause limited modification to small dune areas. However, the Commission finds that due to the orientation, location, restriction in size, and proposed

maintenance activities, no significant increase from storm or flood damage is anticipated.

10.28 (3)(d) No interference with the landward movement of Coastal Dunes will occur as a result of the Special Conditions that provide for managing ORV traffic on the existing ORV trails of Coastal Dunes, with the possible exception of temporary alternate routes, provided in response to plover and tern protection needs, will be permitted.

10.28 (3)(f) See section on Rare Species

ii. Ocean Side North/South Corridor

Given the Special Conditions requiring that this corridor be a minimum of 15 feet seaward of the toe of the Coastal Dune, no change in vegetation should occur, and the performance standards set forth in 10.28 (3)(b) and (c) should be met. (10.28 (3) See section on Rare Species). Furthermore, the general location of the ocean side ORV corridor is typically westerly of the normally occurring wrack line.

b. Coastal Beaches: 310 CMR 10.27 (3)(7)

The continued use of the existing ORV corridors may cause temporary limited impact to the profile (form) of the beach area. The Commission recognizes that given the climatic and geologic characteristics of Nauset Beach South, these changes will not result in increasing the potential for wind and wave erosion.

The Commission recognizes that sediment disturbed by the passage of ORVs is not lost from the Beach resource area, and that significant sediment movement is not attributable to ORV use. Therefore, it finds ORV use as proposed will not result in a significant decrease to beach volume, and that such significant changes in beach volume are more likely to be influenced by climatic and/or meteorological factors (also see Rare Species 10.27 (7)).

SPECIAL CONDITIONS

A. PREAMBLE

The Orleans Conservation Commission, in setting forth the following Special Conditions, intends that these conditions be flexible enough to reflect the needs of the changing environment they are designed to protect. The Nauset Barrier Beach system has been

shown to be extremely dynamic over time. Significant changes in geomorphic form and wildlife habitat have occurred both prior to and during recreational uses of this resource area. The challenge for this Conservation Commission is to manage the competing uses of this Barrier Beach system under the provisions of both the Massachusetts Wetlands Protection Act, MGL 131 Section 40 and the Town of Orleans Wetland Protection Bylaw, Chapter 160 of the Code of the Town of Orleans.

These Conditions are designed to:

- Protect Coastal Resource areas and identify wetland interests for the Nauset Beach South Barrier Beach system as it currently exists;
- Allow for the ongoing recreational use of the Barrier Beach system;
- Allow for the continued historic uses and access of the twelve fowling & fishing camps located on the Town of Orleans Nauset Beach South;
- Allow for access to private property on Pochet Island;Require management of ORV use to be sensitive to any potential environmental impacts to the Nauset Beach South Barrier Beach system;
- Require greater restrictions on ORV users with respect to environmental education, scheduled and unscheduled temporary closures of access routes, etc;
- Require future management of the Barrier Beach system resource area to include hiring of specially qualified personnel to conduct detailed monitoring of and reporting on wildlife and wildlife habitat areas, which will serve as basis for modifying permitted management procedures/policies;
- Require interdisciplinary and agency cooperation which will result in sensitive, flexible, and responsive management of the Barrier Beach system.

B. RULES AND REGULATIONS

The Board of Selectmen, acting, and hereafter referred to, as the Park Commission, is responsible for implementing and enforcing the Rules and Regulations for ORV use on Nauset Beach South. These regulations shall be reviewed annually by the Conservation Commission and at a minimum require the following:

a) The maximum limit of ORV's permitted on the beach at any one time shall be determined by the Natural Resource Manager after taking into consideration the general beach and nesting conditions. Based on management since the 2007 breach, the limit of ORV's permitted on the beach at any one time shall be 375 ORV's. This number shall include those vehicles passing through Orleans to the Town of Chatham portion of the beach but shall not include the ORV's used to access the 12 camps and the private homes/cottages on Pochet Island, as they have their own dedicated parking areas.

b) Posting of temporary closures due to tide conditions or nesting considerations.

c) Driving on the Bay (west) side, along the shoreline, is prohibited, with the exception of driving upon the existing ORV trails and spurs off of the main trail or the private drives to camps.

d) Driving on the low beach may be permitted during the winter season between the first Friday in November to the Friday before Memorial Day, and at any additional specially designated times and places to avoid disturbance of nesting birds.

e) Parking is permitted seaward of a 37' corridor consisting of 15' from the toe of the dune, plus 12' for the vehicle track, plus a 10' margin between the vehicle track and parking area.

f) Closure of the beach between the hours of 11 PM and 6 AM except for active fishing and fowling and self contained vehicles. Driving anywhere outside of the designated ORV corridors is prohibited.

g) In posted areas near bird nesting, a speed limit of 5 mph shall be enforced.

h) No jet ski launching or landing.

i) No kite flying from March 15 to September 15.

j) Pets shall only be allowed as designated by the Nauset Beach Rules and Regulations for ORV's. Rules and Regulations on pets shall be developed to maximize protection of nesting shorebirds and shorebird habitat.

k) All ORV permittees must view an educational film /slide presentation prior to issuance and renewal of an ORV permit.

l) Minimum permittable equipment standards including but not limited to tire size and pressure as listed in regulations issued by Park Commissioners.

m) Any other conditions responsive to significant environmental changes and/or any conditions necessary to protect the Nauset Beach South Barrier Beach system, public health, safety, and welfare of the users and/or property owners.

n) Fines and penalties may be invoked, as necessary, by the Park Commissioners.

o) Walking between the bayside and the ocean side shall be prohibited in all but designated areas. No walking is to be allowed upon vegetated dunes, slopes or bare dune faces. No activity, i.e. sand sliding, dune jumping, or similar, is permitted at any time.

C. CLOSURE OF THE BAY (WEST) SIDE TO ORV TRAFFIC

Salt Marsh, tidal flats, and shellfish beds which adjoin the Pleasant Bay side of the beach are extremely sensitive to ORV use. Therefore, ORV use should not be permitted in these resource areas other than via existing ORV access corridors. Where the existing access corridors terminate, so shall the ORV use. Resources being accessed from the end of these ORV corridors for fishing, fowling, or passive recreation shall be via foot travel only. Furthermore, the Department of Natural Resources shall install signage, as necessary, at these locations indicating no ORV use.

Barrier Beaches migrate landward due to windblown sediment and overwash events of the Barrier Beach system, 310 CMR 10.29 (1). Therefore, the operation of ORVs on the landward side of the Barrier Beach, other than in existing ORV trails (corridors), could serve to inhibit dune formation through the creation of additional ruts and the crushing of ammophila rhizomes. This could potentially inhibit the landward migration of the inside beach, while the ocean side is continually dynamically eroded, and at times accreted, by wave action and long shore sediment transport. The net effect of these processes could be an ever narrower Barrier Beach, increasingly susceptible to overwash and inlet formation. This result would violate the performance standards for Coastal Dunes, which prohibit any modification of Dune form that would increase the potential for storm or flood damage, or any interference with the landward or lateral movement of the Dune, 310 CMR 10.28(3) and 10.29(3). Therefore, with the possible exception of temporary alternate routes discussed with the Commission, as described below, the westerly side of the Barrier Beach shall remain closed to ORVs, as previously described, except for emergency use by town officials and essential vehicles.

D. TEMPORARY ALTERNATIVE ROUTES:

The Town of Orleans has proposed that should the ORV corridor or ORV trail network be closed to protect shorebirds, alternate routes may be approved on a temporary basis. When considering a location of a temporary route, the route will be designed to provide greater protection for nesting shorebirds.

In answer to the concern that such temporary alternate routes could inhibit the landward migration of the Barrier Beach in violation of the performance standards and CMR 10.28 and 10.29, the Conservation Commission recognizes that there is evidence relating to the seasonal climatic/meteorologic energy levels and historical storm or wind patterns documented during the summer months and evidence relating to the textural

components (coarse sand and gravel) of the back shore area which would indicate it was unlikely that the limited seasonal use of proposed alternative routes, would result in increasing potential for storm and flood damage in violation of 310 CMR 10.28 (3)(c) or interfere with the landward movement of the Dunes of the Barrier Beach in violation of 10.28 (3)(d) and 10.29 (3).

When the need to protect specific habitat, nesting, and/or foraging sites by closure of the access routes is necessary, the Town may propose temporary access routes. When specific temporary routes are proposed, they will be done so after consultation with the Conservation Agent, Natural Resources Manager, and staff from the NHESP. If the Commission finds that such routes meet the performance standards cited in the relevant regulations, the Commission may approve temporary alternate ORV access route or routes.

E. RARE SPECIES

In addition to Piping Plovers and Least Terns that receive special protection measures under the Federal and or State Endangered Species Acts, and have specific management requirements detailed herein, the Commission recognizes that Nauset Beach South is habitat for other migratory waterbirds and shorebirds. Use of this habitat may be for nesting, resting, or feeding, either in the nesting season or during bird migration. The performance standards and management guidelines documented here for use in protecting Rare Species may be applied, as needed, to benefit other nesting shorebirds at the recommendation of the Natural Resource Manager.

1. Project Compliance with Performance Standards

The Conservation Commission finds that a potential to alter the resource area within part of the mapped habitat for State-listed rare species does exist. However, the Commission finds that the project as proposed and conditioned herein, inclusive of the hiring of a qualified habitat specialist and incorporation of temporary beach closure measures, should provide the protection necessary so that no effect will result within these specified habitat sites.

The presumption that the maintenance activities requested in order to continue ORV use of Nauset Beach South will impact specified habitat sites, in the opinion of this Conservation Commission, has been overcome and rebutted by the proposed species management plan. This management plan will require, among other measures, observation and tracking of the Plover and Tern species to determine exact habitat sites, including foraging routes; it will require temporary closures of the identified sites and routes to ORV and pedestrian use; and it will provide placement of fencing and predator barriers to afford habitat

protection. The Commission, as the issuing authority, therefore finds that the project as proposed, and herein conditioned, should not result in an impact to specified habitat sites identified for Plover and Tern populations on Nauset Beach South. If however, these conditions prove inadequate to protect the wetland interests defined in MGL 131, Section 40, or to ensure that there is no impact on rare species habitat as required by CMR 10.37, the Commission reserves the right to impose the necessary additional conditions and restrictions upon the use of ORVs on the Nauset Beach South.

2. Plover Monitor

The Park Commission, in cooperation with the Conservation Commission, shall be responsible for the hiring of a suitably qualified person to serve as a Piping Plover and Tern Habitat Analysis Specialist, hereafter referred to as "Monitor," responsible to the Director of Natural Resources. The Monitor will be employed annually from April 1 through August 31 to provide technical information relative to the habitat and characteristics of the Piping Plover and Tern populations on Nauset Beach, and will be responsible for alerting the Director of Natural Resources and the Conservation Commission, or their designated agents, as to the need to temporarily close access to ORV traffic during plover nesting and fledgling activity periods. The Monitor will also be responsible for providing the Parks Commission and the Conservation Commission regular updates on plover and tern activity, as well as a season-end report.

3. Limitation of access to prime nesting habitat areas

a. Vehicular Access

Parking in or vehicular access through identified Plover and Least Tern habitat as determined annually by the Plover Monitor and Natural Resources Manager, shall be prohibited. This restriction will not necessarily prohibit vehicular access past (i.e. northward/southward) such areas if consistent with specific management guidelines.

b. Boater and Pedestrian Access

It has been the custom for visitors to the Nauset Beach South to arrive by boat. Generally, this takes place in the area of the barrier beach terminus currently located outside the Town of Orleans. Disturbance of the birds by these pedestrians may be minimized by installing posts, signs, and fencing to indicate closed areas. Pedestrians will be

encouraged to use the designated walkways thereby helping to protect dune form, vegetation, and birds.

Pedestrians shall be excluded from existing wash over areas in a manner which does not interfere with, or cause any effect to, the ability of such wash over areas to serve as nesting habitat for Shorebirds.

4. Piping Plovers

The beach management strategy for the Plovers includes devoting the highest priority to encouragement of the earliest arriving birds to nest as quickly and successfully as possible: i.e. minimizing human disturbance. The result, in addition to a high reproductive success rates, may be to minimize the period during which the beach is closed to ORV use.

Spring Arrival (March 16 - April 30)

Piping Plovers return from their southern winter quarters to establish nesting territories along Cape Cod beaches in early spring.

Management

Prior to the arrival of Piping Plovers, potential nesting areas shall be visited by a person familiar with their habitat requirements to evaluate the natural changes that have occurred through the winter, and to identify areas of suitable nesting habitat. The suitable nesting habitat shall be posted, with endangered species nesting area signs, and delineated with symbolic fencing, prior to the arrival of plovers (no later than April 1) to reduce the potential disturbance of this potential habitat by beachgoers for Plovers establishing their nesting territories. Vehicular access into or through posted areas shall be prohibited, though vehicles may pass by such areas at this time.

Laving and Incubation of Eggs (April 20 – August10)

Normally the nest, a shallow scrape in the sand, is placed at the toe of the dune, in a wash-over, or along the spring tide wrack line. The first of the sand-colored eggs is laid in late April and may contain a full clutch of 4 eggs a week after the first egg is laid. Then both adults incubate the eggs, alternating every few hours, for the next 28 days.

Management

When a monitor determines a nest is to be enclosed, a welded wire fence shall be placed around the nest, using a design recommended by the Massachusetts

Division of Fisheries and Wildlife. Endangered species signs shall be placed outside the symbolically fenced area to add additional protection. Vehicular access within the symbolically fenced area shall be prohibited.

Before the eggs hatch, it is necessary to close the beach and to level the ORV ruts to prevent an adverse effect on the young hatchlings. This must be accomplished within a 28 day period after incubation commences. If ruts are to be leveled by natural process, one week should be allowed, and the beach should be closed 21 days after the last egg is laid or the start of incubation. If ruts are to be leveled by hand, the beach could remain open a few additional days. When plover nests are found after the last egg has been laid, making it impossible to predict hatch date, restrictions on vehicles should begin on a date determined by 1 of 3 scenarios:

1) If a plover nest found with a complete clutch is monitored twice per day, at dawn and dusk (before 0600 hrs and after 1900 hrs), vehicle use may continue until hatching begins. Nests should be monitored at dawn and dusk to minimize the time that hatching may go undetected if it occurs after dark. Whenever possible, nests should be monitored from a distance with spotting scope or binoculars to minimize disturbance to incubating plovers.

2) If a plover nest is found with a complete clutch before May 22 (the earliest recorded hatch date for piping plovers in Massachusetts), and is not monitored twice per day, at dawn and dusk, then restrictions on vehicles should begin May 22.

3) If a plover nest is found with a complete clutch on or after May 22, and is not monitored twice per day, at dawn and dusk, then restrictions on vehicles should begin immediately.

Hatching Eggs and Movement of Young (May 20 - August 20)

Piping Plovers have precocial young, capable of walking and feeding themselves within 24 hours after hatching. The most vulnerable stage in their breeding cycle is the period when hatchlings are less than 10 days old, when they accompany the adults in their feeding forages. Normally, all eggs in a clutch hatch within a 24 hour period between the hatching of the first and last eggs. The hatchlings then accompany the adults to feed on small invertebrates along the wrack line, toe of the dunes, and inter-dunal blowouts. During their first week, the young usually do not wander more than 100 yards from their original

nest site. They do not use the nest after the first couple of days from their hatch date, but depend on their cryptic coloration to blend in with their surroundings. If an adult Plover sounds an alarm note, the young either run for cover beneath one of the adults, or seek cover in vegetation, among stones, along the wrack line, or in a vehicle rut. Plover chicks over a week old may accompany the adults for greater distances, up to 1/4 mile, and spend increasingly more of their time foraging along the wrack line and out into the intertidal zone.

Management

Plover chicks on Nauset Beach South may be seen foraging with adults in areas anywhere between the Bay and the ocean intertidal zones in areas where there is little vegetation to obstruct their movements. Because they may go from the ocean side to the bay side within minutes, using existing blowouts and over wash areas, they are vulnerable to vehicular travel through these areas at all times. Additionally, the ruts left by vehicles are known to trap young chicks that subsequently may be run over by another vehicle using the same ruts, or they remain trapped in the rut, may die from exhaustion, or are found in the rut by a predator.

Therefore, when unfledged plover chicks are present, vehicles should be prohibited from all dune, beach, and intertidal habitat within 100 yards of either side of a line drawn through the nest site and perpendicular to the long axis of the beach. The resulting 200 yard-wide area of protected habitat for plover chicks should extend from the ocean-side low water line to the bay-side low water line or to the farthest extent of dune habitat if no bay-side intertidal habitat exists. However, vehicles may be allowed to pass through portions of the protected area that are considered inaccessible to plover chicks because of steep topography, dense vegetation, or other naturally-occurring obstacles. If unfledged plover chicks move outside the original 200 yard-wide area of protected habitat, then the boundaries of the protected area should be adjusted to provide at least a 100 yard buffer between chicks and vehicles.

Fledging of the Young (June 28 - August 20)

Young plovers are capable of flying short distances within 30 days of their hatch date. Typically, these novice fliers remain with the adults, foraging in the same general area anywhere from a few days, to the rest of the summer. Adults may lead fledged young to more remote portions of neighboring beaches if they are disturbed by recreation or predation.

Management

Once the Monitor has determined that the young have fledged or left the beach, the area may be re-opened to vehicular traffic.

5. Least Terns

Nauset Beach South has been home to Least Tern nesting colonies.

Spring Arrival (May 7 - July 10)

Least Terns return from their winter quarters in South America to establish nesting colonies ranging in size from a dozen pairs to over 1000 pairs. Least Terns have used Nauset Beach South, and data over past years shows that colony size has varied annually.

Management

Prior to the arrival of Least Terns, potential nesting areas shall be visited by a person familiar with their habitat requirements to evaluate the natural changes that have occurred through the winter, and to identify areas of suitable nesting habitat. The suitable nesting habitat shall be posted, with endangered species nesting area signs, and delineated with symbolic fencing, prior to the arrival of the Terns to reduce the potential disturbance of this potential habitat by beachgoers. Vehicular access into or through posted areas shall be prohibited, though vehicles may pass by such areas at this time. On Nauset Beach South, it is likely that the protected area will have to be adjusted to encompass additional portions of the colony.

Laying and Incubation of Eggs (May 20 - August 5)

Most clutches of 2-3 eggs are laid in early June. The nests are simple scrapes in the sand or on bare stone between the wrack line and the toe of the dune, or in an open blow-out.

The adults incubate the eggs for 21 days after the last egg is laid. It is not uncommon for Least Terns to lose nests to storms or high tides. Least Terns will attempt to discourage mammalian, avian, or human intruders who come near their nests by attacking in unison, calling loudly, and dropping their "white wash."

Management

Incubation is the most vulnerable stage for breeding Least Terns. The presence of people, dogs, kites, and predators too close to a colony causes the entire flock of nesters to leave their nests during the disturbance. If the disturbance lasts more than 15 minutes, the eggs may be destroyed by exposure to the sun, rain, or wind-blown sand. Therefore, it is critical that the Monitor for the colony adjust the perimeter of the fence and signs to include a buffer zone wide enough to prevent disturbance to incubating adults.

Hatching of Eggs and Movement of Young (June 9- August 25)

The 2 to 3 semi-precocial young are active within 24 hours of hatching. Least Tern young are fed by the adults. Although the young are capable of running within a week of hatching, they typically do not wander more than 15 feet from their nest depression during the first 10 days. However, at ages between 10 and 28 days, they will run long distances to flee an intruder, find better locations for hiding, or await the return of adults with food. These older juveniles, over 14 days old, are often difficult to see. Their plumage is camouflaged, and they hide in vegetation and cover on the wrack line.

Management

When unfledged least tern chicks are present, vehicles should be prohibited from all dune, beach and intertidal habitat within 100 yards of either side of lines drawn through the outermost nests in the colony and perpendicular to the long axis of the beach. The resulting area of protected habitat for least tern chicks should extend from the ocean-side low water line to the bay-side low water line or the farthest extent of dune habitat if no bay-side intertidal zone exists. If unfledged chicks move outside the original protected area, then the boundaries of the protected area should be adjusted to provide at least a 100-yard wide buffer between unfledged chicks and vehicles. However, vehicles may pass through any portions of the protected area considered inaccessible to least tern chicks because of distance, steep topography, dense vegetation, or other naturally-occurring obstacles. Because least tern chicks disperse from nests shorter distances and at older ages than plover chicks, under some circumstances it may be possible to allow passage of vehicles through portions of least tern chick habitat if, in the opinion of the Division of Fisheries and Wildlife, this can occur without substantially increasing threats to least tern chicks or their habitats.

Fledging of Young (July 9 - September 10)

Least Terns young are capable of weak flight about 28 days after hatching. Most young in a colony fledge in mid-to late July in Massachusetts, unless the colony has been abandoned because of by tides, storms, or predators, and the survivors re-nest. Once the young are capable fliers, they are led by the adults further from the busy colony to quieter portions of beaches and sandbars. The young will even fly out to the fishing grounds where they rest on the water and wait to be fed.

Management

The Monitor of the colony will determine when the Terns have left the nesting area. As long as Least Terns are landing in the fenced area, it is likely that they are still nesting or rearing young. Most Least Terns will have left Massachusetts by late August or early September.

6. Diamond Back Terrapins

Diamond Back Terrapins have been observed nesting during both day and night on certain portions of the Nauset Barrier Beach system. Diamond Back Terrapin nesting sites, or habitat, needs to be protected and managed. Females venture onto land to nest typically once from mid-June to mid-July.

Efforts shall be made by the Monitor to identify and take protective measures to ensure successful nesting and nest protection. Efforts shall include alerting the appropriate state agency when Terrapin tracks are located on the beach. When tracks lead to nests, nests should be reported to the appropriate state agency so that a licensed specialist can provide onsite monitoring, nest relocation and or management for nesting success.

F. MANAGEMENT AND ANNUAL REVIEW

Management of the resource areas in terms of ongoing use, use restrictions , etc. will be the primary responsibility of the Park Commission and Natural Resources Department, with provisions for annual review of management guidelines and personnel hirings to be made cooperatively with Conservation Commission input prior to April 1st.

Changes in management, in relation to Rare Species, such as waivers of ORV closure requirements, by the State and Federal Agencies, may be allowed, upon notice to the Conservation Commission (e.g. Conservation & Management Permit).

As part of the overall ORV management plan, the Park Commission will instruct the Natural Resources Department personnel to maintain the approved ORV corridors and to install posts, fencing, and signage as subsequently approved by the Conservation

Commission. Additionally, the Conservation Commission will instruct the Department of Natural Resources personnel to continue ongoing re-vegetation and nourishment efforts, if needed, as described and approved by the Conservation Commission. These actions and the overall ORV management plan will be reviewed and approved annually by the Conservation Commission, based upon the reports and recommendations resulting from the implementation of this ORV Management Plan.

G. ENFORCEMENT

The Park Commission shall require additional enforcement patrol of the Nauset Beach South ORV corridor to include expanded patrol coverage during off-peak usage, specifically weekday and pre-season periods. Should expanded patrol prove inadequate to protect the natural and wild life resources which are the subject of this ORV Management Plan, the Conservation Commission may require additional enforcement.

Overall, the enforcement and management responsibility of Nauset Beach South as described by this ORV Management Plan, is designated by state and local statutory requirements to Town of Orleans officials. In this instance, primary enforcement responsibility will be shared by the Conservation Commission, Park Commission, and their respective agents.

C. Nauset Beach Rules and Regulations for ORVs

General Rules and Regulations for ORVs

1. The maximum number of ORVs allowed on the beach at any one time shall be set each year and may be changed depending on prevailing conditions and the amount of usable beach.

2. Nesting Areas: No kite flying will be permitted on the beach during the Tern and Piping Plover nesting season (March 15 through September 15). Dates subject to change. Nesting areas will be fenced and signed, pedestrians and ORVs are requested to stay as far away from sites as possible. Speed limit when near nesting area is 5 mph. **Vehicles and pedestrians are prohibited in symbolically fenced areas.**

3. If because of high tides or storms the designated ORV routes become obstructed, the limit of ORVs may be reduced or the beach may be temporarily closed to ORV traffic.

4. Driving on the foreshore of the beach is prohibited from the Friday before Memorial Day until the first Friday of November, unless otherwise directed. Refer to the Beach Terminology Diagram below. For complete list of rules, see *Orleans Nauset Beach Rules and Regulations for ORVs.*

NOTE: The "dog allowed areas" to the North and South of the Nauset Beach Parking Lot are only accessible by ORVs with valid permits.

BEACH DRIVING TIPS

- You are required to decrease tire pressure before entering the beach ORV driving corridor. Tire pressure is critical for successful oversand driving. 15 p.s.i. is recommended. Friction may cause pressure to increase while you drive, making it necessary to stop and reduce pressure again. Your beginning tire pressure should not exceed 18 p.s.i.
- Always check tides before entering the off-road corridor. Portions of the beach may be impassable at high tide.
- If you feel you are in danger of getting stuck, check your tire pressure and let air out if necessary; try backing up in your tracks before moving ahead. Do not spin tires - this will only cause the vehicle to dig in.
- Do not speed - excessive speed endangers you, your vehicle, other beach users, and wildlife. Experienced beach drivers know that a slow, steady speed and correct tire pressure are more effective than faster speeds.
- Always be alert for wildlife when driving on the beach - tern and plover chicks may attempt to hide in vehicle tracks when frightened.

Violations

Penalties for infractions of any of the above regulations shall be revocation of registration sticker, dismissal from the beach, and/or a fine of not less than Fifty Dollars ($50.) nor more than Three Hundred Dollars ($300.) for each offense.

Persons whose permits have been suspended or revoked have within seven (7) days a right to appeal to the enforcing authority, who upon receipt of written request shall arrange a hearing on the appeal to the Park Commissioners.

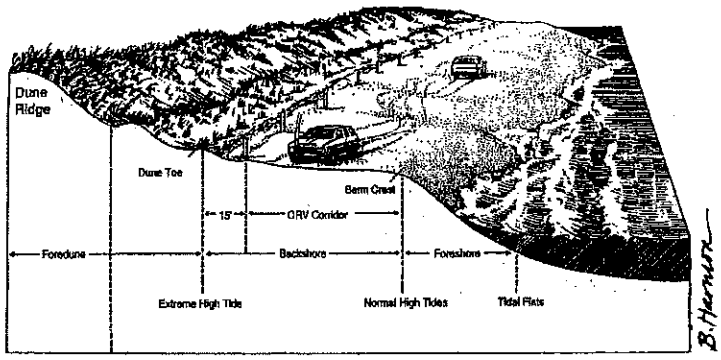
Authority for the enforcement of the above regulations shall rest with the Orleans Natural Resources Manager and Orleans Chief of Police.

Copies of the above regulations may be obtained at the Town Offices and Police Station in Orleans and the official on duty at Nauset Beach.

These Rules & Regulations were adopted at a public hearing of the Orleans Park Commission dated 1/14/15.

Copies of changes to be posted in Orleans Town Clerk's Office.

BEACH TERMINOLOGY DIAGRAM

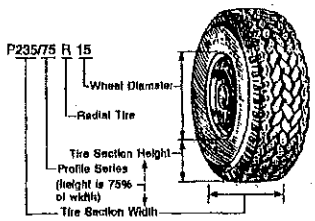


Cape Cod National Seashore Illustration adapted for Nauset Beach

TIRE TERMINOLOGY

Minimum acceptable tire and wheel dimensions for all vehicles being registered for a permit are as follows:

Metric tire designation as shown on sidewall:



Minimum tire size: 13" = 185
14", 15" and larger = 215

ORLEANS

Inspections for permits may be obtained:
9 am – 4 pm on all days open

April 30 – September 7
Thursday through Monday
139 Main Street
(former American Legion Building, lower level)

Note: No inspection/permit will be issued on July 4th.

September 8 – April 30, 2016
Weekdays **by appointment only** at Parks & Beaches Office.
Call 508-240-3700 ext. 465

For information, please visit our website at
www.town.orleans.ma.us

NAUSET BEACH INFORMATION

Please call the Nauset Beach Administration Bldg.
for information June 13 – September 7

(508) 240-3780

CHATHAM RESIDENTS ONLY

Please visit www.town.chatham.ma.us
for Sticker Sale Days and Times

For Chatham Resident Information
508-945-5176
Chatham Coastal Resources Department

A. MOTOR VEHICLE RULES & EQUIPMENT

1. Maximum **SPEED** of motor vehicles may not exceed **15 miles per hour**. In no case will the tire pressure on vehicles exceed **20 lbs. psi**. All persons shall operate vehicles in a reasonable and prudent manner. **The provisions of Chapter 90, Mass General Laws (Ter. Ed) shall apply to the operation of all motor vehicles. All persons should be aware that the State of Massachusetts Seat Belt Regulations and child car seat usage are still in effect while on the Beach and the vehicle is underway. (This simply means that if it is required on the road, it is required on the Beach.)** Driving at reasonable speeds on the low beach will be permitted during the winter season between the first Friday of November and the Friday before Memorial Day. Traveling above the mean high water mark in a closed area is prohibited. Headlights must be on half hour after sunset until half hour before sunrise.

2. The operation of off road vehicles shall be prohibited year round from the outer beach from a point 1 mile South to a point ¼ mile North of the Nauset Beach parking lot unless otherwise posted (except emergency and maintenance vehicles). Access to outer beach only at posted areas. No vehicles shall be operated in designated swimming areas.

3. All persons shall ride within and be seated within the confines of any motor vehicle operated on the Beach, and the number of riders at any one time shall be limited to the normal seating capacity of the vehicles. Vehicles shall not park within 10 feet of established tracks or routes and shall not interfere with traveling traffic. Portions of the Beach shall be considered off limits to vehicular traffic when high tides force passage within 15 feet of vegetation and frontal dunes. **Vehicles driving off the Beach shall have the right of way.**

4. Driving of motor vehicles between the surf and the rise or crest of the Beach and driving or walking on or over any partially or fully covered vegetation area and on or across the dunes or any other closed areas except as designated by specified routes is strictly prohibited. The driving of vehicles on the West of or bay side of the dunes is strictly prohibited.

5. Each visitor to the Beach shall remove from the Beach all rubbish, trash or refuse for which he or she has been responsible. Receptacles for the disposal of such are provided at the Beach parking lot. Emptying of holding tanks and disposal of human waste on Nauset Beach and its adjoining waters is positively prohibited. Human waste may be disposed of at the Septage Treatment Plant for a fee.

6. **EQUIPMENT**: Before a permit will be issued, each vehicle will be inspected to ensure that it is equipped with the following.

   a. **SHOVEL** of a heavy type equal to or better than the military folding entrenching tool.

   b. **TOW ROPE**, chain cable or other towing device, not less than 14 feet in length with a minimum load strength of 1400 lbs. (Chain size 5/16", cable ¼", nylon ¾", or polypropylene ¾", hemp 1".) The towing device will be equipped with grab hooks or other suitable attaching device on both ends.

   c. **JACK SUPPORT**, board or similar, to have a surface of not less than 144 square inches nor be more than 18 inches in length. Thickness to be not less than 1½" if of solid wood. Other materials must equal strength and durability of the standard wood supports.

   d. **JACK** of the standard size and type as that which comes with the vehicle.

   e. **TIRE GAUGE**, low pressure, able to register to a minimum of 10 lbs. psi.

   f. **TIRE SIZES**: Minimum size tires for 13" is 185, for 14", 15", and 16" it is 215. Note – no snow tires will be allowed on the Beach except from November 1 through April 13. (See Tire Terminology in addendum.)

   g. **SPARE TIRE**, meeting same standard as other tires required for type of vehicle in which it is carried.

   SELF-CONTAINED VEHICLES, must be equipped with:

   h. **Rod and Reel** for each occupant over 12 years of age.

   i. **Permanently Mounted Beds**

   j. **Permanently Mounted Self-Contained Water or Chemical Toilet**

COMMUNICATIONS

TO REPORT AN EMERGENCY

Orleans 508-255-1213

Chatham 508-945-1213

If dialing from a cell phone and you dial 911, the call goes to the Framingham State Police.

When requesting an emergency, please give specific location: North End or South End of Nauset Beach, Trail # and Vehicle Registration, Color and Make.

COMMUNICATIONS

TO REPORT A VIOLATION

Orleans Nauset Beach Administration Building in season between 9am-5pm 508-240-3760

Nauset Beach Toll Booth in season between 5pm-9pm 508-240-3705

Orleans Police off season 508-255-0117

Orleans Parks off season 508-240-3700 ext. 465

Chatham Police 508-945-1213

If you observe a Violation, the following information is needed for the Beach Patrol to take action against violators:

1. Date & time of day
2. Location/landmark/trail #
3. Vehicle description (license plate # / color)
4. Operator/occupant description
5. Violation/incident description

Report violations in Orleans to Orleans
Report violations in Chatham to Chatham

Reg. # / State	
RO	❑
OS	❑
OSS	❑
SC	❑
OC	❑
Inspected by	
Tire Size	❑
Spare Tire	❑
Board	❑
Tow Strap	❑
Tire Pressure Gauge	❑
Shovel	❑
Jack	❑
Remove Old Sticker	❑
S/C ONLY	
Permanently Mounted Beds	❑
Permanently Self-Contained Water or Chemical Toilet	❑
Fishing Rods	❑

Nauset Beach Rules and Regulations for ORVs

This unique conservation and recreation area is under the joint supervision of the Towns of Orleans and Chatham. We hope you as visitors to Nauset Beach will enjoy the natural and recreational values of the area, as well as observe the rules that have been adopted for its protection.

All applicable Federal and State laws and regulations, town by-laws, rules and regulations, and fire regulations shall apply and are enforceable.

B. VEHICLE REGISTRATION – EFFECTIVE MAY 1, 2015 TO APRIL 30, 2016

1. **STICKERS**: Registration shall be obtained from the Orleans Parks & Beaches and the Chatham Coastal Resources departments. Applicants of Nauset Beach registration cards will be issued stickers that must be affixed to the stationary window on the driver's side of the vehicle. **No vehicle shall operate on the Beach without a valid registration sticker. All registration stickers are non-transferable and expire April 30 of following year. All previous years' stickers must be removed.** Registration stickers issued to camp lessees; Chatham residents, nonresident self-contained, and oversand vehicles are valid only South of Nauset Beach parking lot and not valid to park in beach parking lots. All S/C vehicles must clock on and off the Beach during the season when the gate house is operational when driving South of the Nauset Beach parking lot. All other ORVs must stop at the booth and check on the Beach. The only time they will be required to check off is when the vehicle limit is at its maximum.
2. **HOURS**: All non-self-contained vehicles using the beach South of the parking lot and all legal residents and real estate taxpayers of Orleans using the beach North of the parking lot are allowed on the Beach only between the hours of 6:00 a.m. and 11:00 p.m. (unless actively fishing). Fishing gear must be shown upon request. Oversand vehicles must stay off the Beach six (6) hours before returning. Self-contained vehicles will be allowed to stay on the Beach for a maximum of 96 consecutive hours and a 72-hour period must elapse before they may return to the Beach. The Natural Resources Manager may reduce the maximum stay for self-contained vehicles at any time. All vehicles remaining overnight, except those vehicles used by camp lessees or their guests, shall have permanently mounted self-contained water or chemical toilet and permanently mounted sleeping accommodations sufficient for all persons in the vehicle.
3. **LIMITS**: The number and types of vehicles allowed on the Beach at any one time shall be set each year and may be changed depending on prevailing conditions and the amount of usable beach. All registered vehicles using the beach South of the Nauset Beach parking lot must check on and off the Beach.

DRIVE ONLY IN DESIGNATED TRACKS AND ESTABLISHED WAYS. KEEP OFF THE GRASS, DRIVING OR WALKING ! ! !

C. GENERAL RULES AND REGULATIONS

1. **ALL VEHICLES** must carry a current copy of rules and regulations and tide chart in vehicles at all times.
2. **ACCESS** to the beach **NORTH** of parking lot is in a residential area. Please be courteous and obey all rules and regulations when entering, leaving, and during your visit to the Beach. **NO PARKING ALLOWED AT THE ACCESS ROAD AREA ON NAUSET SPIT.**
3. **LESSEES, NAUSET BEACH PROPERTY (ORLEANS)**: All regulations listed herein shall apply while using other areas of the Beach.
   a. **REPAIR AND/OR MAINTENANCE OF PROPERTY**: Any and all motorized equipment or machines taken on the Beach must secure permission from the Orleans Natural Resources Manager before proceeding on Beach.
4. **CHILDREN** under twelve (12) years of age must be accompanied by a responsible person sixteen (16) years of age or older.
5. **No DOGS allowed North of the Nauset Beach parking lot.** From a point of the South Beach Boundary all dogs must be on a leash of not more than 30 feet at all times, unless below the high tide mark, from April 1 through Labor Day. (This will be a zero tolerance enforcement issue.) Dogs are prohibited from areas closed to vehicle or human traffic for Piping Plover protection. Owners are responsible for cleaning up after their animals. Beach camp lessees would retain traditional use rights for their leased property.
6. **SLEEPING** in the open between 8:00 p.m. and 8:00 a.m. and the use of camping tents, sleeping bags, bed rolls, and camping trailers for overnight camping on all Beach areas is prohibited.
7. **No open FIRES on the Beach** are allowed unless permits are obtained from the Orleans Fire Chief or Natural Resources Manager. Charcoal fires in grills are permitted. Douse coals before leaving.
8. **BEACH PARTIES** of more than twenty (20) persons shall be required to carry a special permit (no additional fee), and shall name, in applying for such a permit, one individual in the group who shall agree to assume the responsibility for the activities of all members of the group while on the Beach. Such a permit shall be applied for 48 hours in advance of its proposed use. The permit for the Orleans portion of the Beach shall be issued only by the Orleans Natural Resources Manager, who shall designate the Beach area on which such a party may be held.

C. GENERAL RULES AND REGULATIONS continued

9. **WINDSURFING, SURFBOARDING** permitted only in certain specified areas and separate regulations shall apply to the conduct of same.
10. **SCUBA DIVING, SKIN DIVING**: All other methods of underwater swimming requiring mechanical aids shall be permitted only in specified areas, and shall be subject to separate regulations.
11. The use of rafts, tubes, inflatables, and other similar types of **SWIMMING OR BATHING DEVICES** are prohibited.
12. **FISHING GEAR** must be kept at waters edge at all times year round while in the act of fishing. There shall be no more than five (5) fishing rods per person or more than twelve (12) fishing rods per vehicle to be in use at any one time.
13. **SHELLFISH** regulations of Orleans apply to the Orleans portion of the Beach. Shellfish regulations of Chatham apply to the Chatham portion of the Beach.
14. **PRIVATE PROPERTY: PERSONS WHO VISIT THE BEACH BY BOAT, MOTOR VEHICLE, OR ON FOOT ARE REQUIRED TO RESPECT PRIVATE PROPERTY AND TO CONFORM TO ALL REGULATIONS LISTED HEREIN.**
15. **PROHIBITED VEHICLES**: Two-wheel vehicles, motorcycles, minibikes, mopeds, snowmobiles, ATVs, and ATCs. No towing of paraglides permitted. Except in an emergency, no airplanes or helicopters shall land and no trailers are allowed on Nauset Beach.
16. **TEMPORARY RESTRICTIONS**: In addition to the foregoing regulations, the Orleans Park Commission may from time to time and at the recommendation of the Orleans Natural Resources Manager issue temporary restrictions applying to specific areas of Nauset Beach in Orleans.
17. **No vehicles may park on the Back Trail between the Lower Booth to Trail #1.**

D. VIOLATIONS

Fines listed below may be imposed for violations of the Parks and Beaches Rules and Regulations and the Nauset Beach Rules and Regulations for ORVs:

- **Operation of a motor vehicle on Nauset Beach in closed areas and off marked trails.**
  Fine: $200 and Revocation of ORV Permit
- **Emptying of holding tanks and disposals of human waste.**
  Fine: $200 and Revocation of ORV permit
- **Violations of Habitat Conservation Plan (HCP)**
  Fine: $200 and Revocation of ORV Permit

Unless otherwise specifically provided herein, any person who violates any of the Parks and Beaches Rules and Regulations or the Nauset Beach Rules and Regulations for ORVs shall be subject to the following penalties:

First Offense: Warning
Second Offense: $50
Third and Subsequent Offense: $100

- **Operation of a motor vehicle on Nauset Beach without a valid ORV permit**
- **Operation of motor vehicle on low beach when prohibited**
- **Failure to air down tires to proper p.s.i.**
- **Violation of Rules and Regulations related to dogs. In addition to any other penalties set forth in these regulations, any violation of the dog regulations in closed areas due to shorebirds will result in no less than automatic revocation of the offender's Beach permit rights from the date of violation until May 1st of the following year. Subsequent violations will result in the offender's Beach permit rights being revoked for a period of three (3) full years from the date of the violation.**
- **Operation of motor vehicle and not having passengers properly seated within the confines of the vehicle**
- **Speeding**
- **Littering**
- **Open container(s) of alcohol**
- **Open fire without a permit**

An ORV Permit Holder who receives three violations of any of the Rules and Regulations in any one season (other than operation of a motor vehicle on Nauset Beach in closed areas and off marked trails, the emptying of holding tanks and disposal of human waste and violations of habitat conservation plan rules, which are subject to immediate revocation of the ORV permit) shall have his or her ORV Permit revoked and shall not be permitted on the beach for ONE YEAR from the date of the revocation of the ORV Permit.

Persons whose permits have been suspended or revoked have within seven days a right to appeal to the enforcing authority, who upon receipt of written request shall arrange a hearing on the appeal to the appropriate authority. Authority for the enforcement of the Parks and Beaches Rules and Regulations and the Nauset Beach Rules and Regulations for ORVs shall rest with the Orleans Natural Resources Director, his or her designees, including the Beach Patrol, and any Orleans Police Officer.

These Rules and Regulations were adopted at a public hearing of the Orleans Park Commission dated 1/14/15.
Copies of changes to be posted in Orleans Town Clerk's Office.

D. Town of Orleans OSV HCP User Guide/Procedures and Conditions

TOWN OF ORLEANS

STATEWIDE HCP

OSV USER GUIDE

PROCEDURES & CONDITIONS

HABITAT CONSERVATION PLAN

Basic Introduction: Over the past decade, Over-sand vehicle (OSV) access has been precluded to Nauset Beach South due to unfledged piping plover chicks located in an area north of Trail 1 known as the "Pochet Wash". Piping plovers are listed as threatened species under both the U. S. Endangered Species Act and the Massachusetts Endangered Species Act.

To regain access to the area, the Town of Orleans successfully applied for Incidental Take Permits under the Acts. Required by the permits, the Town of Orleans developed a Habitat Conservation Plan (HCP). The HCP allows up to 180 OSV per day to pass through the Pochet Wash where up to 8 unfledged piping plover chicks and 4 adult parents are living.

Piping plover chicks leave the nest about two hours after hatching and are able to feed themselves within a few hours of being out of the nest. Piping plovers eat a variety of aquatic and terrestrial invertebrates such as worms and amphipods. They move from one tidal area to another, multiple times per day, crossing the OSV corridor to feed on the east and west side of the Trail. Chicks blend into their surroundings very effectively because of their camouflaged plumage. They are highly mobile, very fast, and can be observed feeding over large areas of the habitat. When disturbed they may run in spurts, stop, and hide in dune grass or a small depression in the sand.

To lessen the impact from OSV running over chicks and help us implement a successful program, the town adopted a **"self-escorting"** procedure. It is critical that you adhere to the self-escorting procedure to insure that the HCP is successful. This means you must have a person with you at least 16 years of age or older that can walk 15 feet in soft sand in front of the OSV looking for chicks and or adults in the OSV corridor. OSV that are unable to provide a competent self-escorter over the age of 16 will be denied access. The areas where you will be self-escorting are called "**self-escort zones**." **The self-escort zones will be clearly marked with signs giving you notice when to BEGIN and END the self-escorting.**

It will be a requirement for all OSV to contain a copy of the Nauset Beach Rules and Regulations for ORV as well as a signed copy of this document by the vehicle driver. Both copies will be required to be produced by the OSV operator at the time of check in. In the event that the OSV operator cannot produce either, then he/she shall be provided with a copy at the entrance booth. By signing the copy of the HCP Procedures and Conditions, the operator acknowledges that he/she has read and understands the HCP requirements.

IMPORTANT READ ! Medical or Family Emergencies: When the permit is in effect, access to and from Nauset Beach South outside of the self-escort access windows shall be strictly prohibited. In the event of a life-threatening medical emergency, the staff of the Nauset Beach Administration Building and/or emergency responders should be notified. Contact telephone numbers are provided in the Nauset Beach Rules and Regulations for OSV. Essential vehicles will assist in escorting the vehicle off the beach. Your stay on the beach could be as long as 10 hours with a MINIMUM REQUIRED STAY OF 2 HOURS. Please plan for less than ideal conditions, e.g. flying insects, rainy, cold conditions.

Self-Contained Vehicles - All self-contained vehicles will be required to commit to and reserve their day of departure when they check in. All other self-contained check in procedures and maximum stay restrictions remain unchanged while the permits are in effect.

OSV Access Date and Times:

Start Date: Start date dependent on # of un-fledged chicks present

Morning Session: 8:00 a.m. - 10:00 a.m.*

Mid-Day Session: 12 noon - 2:00 p.m.*

Afternoon Session: 4:00 p.m. - 6:00 p.m.*

**Times may be flexible within one (1) hour of each side of the access windows due to inclement weather or chick location.*

Natural Resources Manager / Beach Director will have the independent authority to close the trail at any time for any reason.

The HCP OSV PROTOCOLS

STEP 1: Accessing Nauset Beach South & Staging:

All OSV must stage in the pre-determined area of the Nauset Beach parking lot shown in (**Figure 1)**. Line up in a single row. Air down; check all your gear and safety equipment and supplies. Access will be granted on first come first serve basis**.**

Figure 1: Entrance to HCP Staging area & Gate

STEP 2: From Nauset Beach South Gate (lower lot) to the self-escort zones:

When shorebird monitors have established the locations of the chicks, they will notify staff stationed at the entrance gate and the gate will be opened. The OSV will then proceed through the entrance gate at **10 M.P.H.** until they arrive at the self-escort zone. Each self-escort zone will be marked with signs as shown below indicating where the self-escort zone begins and ends. **BE ON THE LOOK OUT AT ALL TIMES for these signs. Remember the locations of the signs may change daily due to the chick's locations. When you arrive at a self-escort zone, stop your OSV, have your escort person exit the OSV and walk 15 feet in front of the OSV. The OSV will follow behind the escort person at WALKING SPEED. It is your responsibility to identify the SELF-ESCORT BEGINS & ENDS SIGNS.**

THE ESCORT ZONE SIGNS YOU WILL ENCOUNTER ARE SHOWN BELOW

SELF-ESCORT ZONE

BEGINS HERE

OSV SELF-ESCORT ZONE BEGINS HERE

Self-Escort OSV Designee MUST Exit OSV & Walk in front of OSV through HCP Area

Watch for Piping Plover Chicks

SELF-ESCORT ZONE

ENDS HERE

Figure 2 represents examples of the location of two (2) separate self-escort zones. While you proceed through the self-escort zone be aware that piping plovers are

very territorial. Consequently the broods may be separated, so each escort-zone may contain 1 brood with up to 4 chicks and 2 adult plovers. If they are close together there will only be 1 self-escort zone. **Plovers may be moving throughout the habitat area as you are walking and driving through the self-escort zones. They can appear at ANY TIME and ANYWHERE**.

Figure 2: Example showing two (2) self- escort zones

STEP 3: Moving through the Self-Escort Zones:

While walking and driving through the self-escort zones you should be focused on looking for chicks and/or adults in the OSV corridor. Walk slowly; keep your attention and eyes on the OSV corridor in front of you. Also use your peripheral vision to look for chicks near the edge of the corridor that may dart out. Chicks may also hide in small depressions in the sand including the tire ruts or in dune grass. They rely on blending in with their surrounding habitat. When unfledged chicks are close, the adult parent plover will often get excited and move directly into your path. They may also pretend their wing is broken and cannot fly; they may flap their wing on the ground while moving away from you. This biological defense behavior is commonly referred to as the "broken wing display." **If you see this, the adults are attempting to draw attention to themselves and away from the chicks. You may hear the parent adult sounding an alarm call before you see the chicks. The call sounds like "peep-peep" repeated rapidly.**

If the escort person or OSV driver sees a chick and/or adult in the OSV corridor or within 100 feet of the self-escort zone, **they MUST signal the vehicle behind them to IMMEDIATELY STOP. The signal for this is: the self-escort designee raises his/her right arm and then shouts "STOP." The OSV operator must safely stop the vehicle. The driver will then honk his horn in three (3) short bursts.** Monitors will make their way to you. No herding of chicks or adults will be permitted. The Monitor will sweep the area and then determine when the corridor is clear to travel. They will speak through a megaphone, **"IT IS SAFE TO PROCEED."** OSV may then proceed. **You should proceed with the understanding that chicks may reappear, at any time in the corridor. Chicks tend to travel close together, especially in** the first 10 days after they hatch.

Below are photos of chicks and adult plovers' acting out the feigned or broken wing display.

STEP 4: Nauset Beach South Exiting Protocols:

OSV will be expected to begin preparing at least 1 hour before planning to exit the beach during the 4:00 p.m. to 6:00 p.m. access window. All OSV are to be clear of the self-escort zones by 6:00 p.m. In order to alleviate traffic congestion, management recommends that OSV begin preparation at 3:00 p.m. for their 4:00 p.m. departure. **OSV are required to be at the Trail 1 gate by no later than 5:30 p.m.**
At approximately 1.5 hours before the 6:00 p.m. closure, Beach Ranger staff will sweep the beach in a patrol vehicle with flashing strobe lights on. Starting in the south and working north, this **final drive-through is a directive for all non-self-contained OSV to begin**

preparations to be at the Trail 1 gate by 5:30 p.m. and clear of the self-escorting corridor and the beach by 6:00 p.m.

Figure 3: Exiting gate Staging Area near Trail 1

Due to varying high tides, changing beach conditions and additional plover related closures outside of the self-escorting zones, portions of Nauset Beach South may be closed to OSV traffic. Therefore OSV traffic should anticipate having to use a combination of frontal beach and back trails (as we have in the past) to exit the beach. As mentioned, there will be a gate located near Trail 1 staffed with an attendant. All OSV exiting the beach shall line up in a row when approaching the gate. No OSV or their self-escort designee are to pass by the gate prior to 4:00 p.m. At 4:00 p.m., the gate attendant will open it once the shorebird monitors have determined that the corridor is open and it is safe to proceed. **The 4:00 p.m. opening may be delayed up to 1 hour due to location of the chicks in the self-escort zone.** OSV will proceed at no more than 10 mph driving speed until they reach the boundary of the self-escort zones. Here, you will be required to repeat the same procedure from when you accessed the beach. **Once again, all self-escorting protocols discussed earlier will remain in-effect during the exiting window**. **Your cooperation with the required protocols will help to promote an enjoyable experience for you and your fellow permit holders.** Use good judgment in planning your day, especially if it is one in which there are many vehicles remaining on beach between 4 and 5 p.m. A congested OSV corridor when leaving will not contribute to an enjoyable experience.

On occasion there could be as many as 180 vehicles attempting to exit during the 4:00 p.m. to 6:00 p.m. window. If everyone waits until the last minute to leave, the Town of Orleans will be unable to meet their legal requirements and conditions of the Permits. Plan your stay accordingly and enjoy.

Airing Stations: As always there may be a line waiting to use the two air supply lines at the Nauset Beach South air station. If you choose to wait and use the air station, be patient. During times of intense traffic congestion, management may close down the air station in order to move along traffic and keep the corridor open. Please have a backup plan for airing up.

VIOLATIONS: Any violations of the aforementioned protocol **will not be tolerated. Violators of the HCP Procedures and Conditions shall be subject to OSV sticker revocation, and shall have their rights to operate an OSV on Nauset Beach suspended immediately for a period of one year from the date of the violation. A ZERO TOLERANCE POLICY WILL BE IN EFFECT AT ALL TIMES on all rules regarding the HCP.** The cooperation of the general public in complying with the conditions and regulatory requirements of the Permits will be critical in determining the success of the HCP Program. You should all consider yourselves as active stakeholders in the entire HCP process and its successful implementation.

Enjoy your day at Nauset Beach.

Remember, staff are here to help you. They are also responsible for making sure the OSV permit conditions are met.

Question: Will the HCP be in effect this year and for how long?

Answer: *The HCP will be implemented when there are no more than 2 broods and 8 unfledged chicks remaining in the Pochet Wash area. There is **NO GUARANTEE** or definitive start and end date for when this scenario will occur.*

The Natural Resource Manager, Beach Director or their designee, will monitor weather forecasts on a daily basis. In the event that a storm warning is predicted by the National Weather Service, or any other weather warning that could jeopardize public safety within a 24-hour period, the OSV trail shall be closed for the duration of the hazard or the start time may be moved one hour later or earlier. The OSV trail may not reopen until the Natural Resource Manager, Beach Director or their designee has given the all clear**. The OSV sticker purchaser and any operator of the OSV agree to use Nauset Beach South during the time the HCP is in effect at their own risk and have been advised in writing of the HCP Shelter in Place Condition. Exiting escorts will not take place due to unpredicted weather**. The OSV Permit purchaser and any operator of the OSV Permit holder's vehicle hereby agree to adhere to a "**shelter in place**" policy which will go into effect until the inclement weather has passed, or scheduled exiting escorts have begun.

Each person operating the OSV must read the HCP Procedures & Conditions and sign this Acknowledgment before access to Nauset Beach South will be allowed when the HCP is in effect regardless of whose name the OSV Permit is in.

STEP 5: ACKNOWLEDGEMENT OF HCP PROCEDURES AND CONDITIONS

I, (Print Name & OSV Permit #) ***(fill in below)*** , have read the HCP Procedures and Conditions contained herein. By signing this HCP Acknowledgment, I acknowledge that I understand and agree to fully comply with the HCP Procedures & Conditions. I understand that if I or any of my occupants fail to comply with or violate any of the HCP Procedures & Conditions, it shall result in a $200.00 fine and immediate revocation of the OSV Permit.

I also understand that the Town has adopted a ZERO TOLERANCE POLICY for violations of the HCP Procedures and Conditions. I further agree that when requested to do so by Town of Orleans staff, I will produce this signed copy.

Please keep a copy of the HCP Conditions and Procedures in the OSV at all times.

Print Name & Permit #	**Sign & Date:**
Print Name & Permit #	**Sign & Date:**
Print Name & Permit #	**Sign & Date:**
Print Name & Permit #	**Sign & Date:**
Print Name & Permit #	**Sign & Date:**

E. Town of Orleans Non-Lethal Predator Control Program for the Protection of Federally Endangered Piping Plovers at Nauset Beach

The Town of Orleans Habitat Conservation Plan

Non-Lethal Predator Control Program for the Protection of Federally Endangered Piping Plovers at Nauset Beach

Submitted by:
Nathan Sears, Natural Resources Manager, Town of Orleans, Ma
Paul C. Wightman, Town of Orleans Endangered Species Shorebird Specialist

U.S. Fish & Wildlife Service
Massachusetts Division of Marine Fisheries & Wildlife

INTRODUCTION

In 2015, the Department of Natural Resources, Town of Orleans, initiated a Non-Lethal Predator Control Program for the protection of federally endangered species Piping Plovers (*Charadrius melodus*) at Nauset Beach. The non-lethal mitigation program is being implemented in a two (2) stage *phased strategy.*

1. PROJECT GOALS & OBJECTIVES

- To identify the primary predators of piping plovers at Nauset Beach
- To introduce behavior modification of canine omnivores via non-lethal methods
- To promote early and first time adult nesting attempts
- To decrease the high rate of historical abandonment of adult incubation
- To decrease re-nesting due to nest failure
- To increase piping plover productivity

The Habitat & Primary Predators

Nauset Beach is a large unique and diverse barrier beach system, comprised of Nauset Beach South and Nauset Spit. It is ideal shorebird breeding and foraging habitat. It is also ideal habitat for predators such as red fox, eastern coyotes, American black crows, and fishers. It comprises a diverse range of coastal resources along its 7 mile area. The beach is owned and managed by the Town of Orleans. The barrier beach is bisected by a large public beach and parking area (Nauset Public Beach). Plover habitat has increased on Nauset Beach South due to episodic winter storm events which have leveled dunes and created huge areas of washover areas.

Nauset Spit lies just north of the main parking lot at the Nauset Public Beach. It is adjacent to Nauset Heights, an area of upland containing residential homes and providing denning habitat for foxes on southerly facing slopes. The Nauset Spit is approximately 2.1 miles in length. The Spit contains coastal beaches, coastal dunes, coastal banks, tidal creeks, and a navigational channel connecting to the Atlantic Ocean just south of Coast Guard Beach. The Spit has been slowly accreting northward into the Town of Eastham. It has also been subject to regular washovers and periodic breaches during severe storms. Nauset Beach South is comprised of marshes, tidal creeks, barrier beach and large relatively unpopulated islands and tracks of land with fresh water supplies. Both

Nauset Spit and Nauset Beach South contain ideal habitat for eastern coyotes who first appeared in the area more than two decades ago and whose numbers have steadily increased from year to year. Recently fishers have been observed on the beach as well.

It is consistently observed and documented in annual plover and tern reports provided to MADFW that red foxes, eastern coyotes and American black crows are the primary predators of adult piping plovers, their eggs, and chicks at Nauset Beach.

For years, piping plover monitors working for the Town have been recording and observing these predators foraging on the north and south barrier beaches in daylight hours. During daily nest checks and throughout the entire breeding season for piping plovers, red fox and Eastern coyote tracks literally cover the ground over the entire beach. Their tracks have been observed with close encounter circling and digging at the base of the predator exclosures. The circling and digging usually results in the abandonment of a plover nests by the adults as soon as one day after a circling and digging event. American black crows are seen in the dawn hours and throughout the day. Flocks of up to 25-50 have been observed over the course of the plover breeding season. Their numbers increase starting in the first week of June when chicks begin to hatch.

Red fox, eastern coyote and black crow tracks have frequently been documented at unexclosed nest bowls which have been predated. Although these predators are rarely successful at gaining entry into the exclosures, their presence is suspected in adult predation and/or abandonment.

Over the years, these predators have adapted to the use of exclosures which are used to protect incubating adults and their nests from predation. The MADFW authorizes the implementation of exclosures and provides guidance on when and where to use them. Nauset Beach managers have had to reduce the use of exclosures in certain areas and now use them selectively to protect incubating plovers. However, due to the intense predator pressure and presence of large numbers of these predators, under some circumstances, their use is an essential tool in protecting nests from predation. These predators have become "*smart predators*" who key in on the exclosures which are associated with a "food *reward*." This can be described as a learned response, reinforced over many plover breeding seasons. We have identified the primary target predators for which non-lethal controls are necessary as the following:

- Red Fox *(Vulpes vulpes)*

- Coyote (*Canis latrans* var.)
- American black Crow *(Corvus disambiguation)*.
- Fisher (*Martes pennanti*)

Red fox reacting to electric shock at Electrified Exclosure Nauset Spit

Eastern Coyote visiting Electrified Exclosure North Spit

Fisher digging and Tracks at Electrified Exclosure, Pochet Washover.

The photo of the fisher digging at base of the decoy exclosure was captured on April 30, 2015. The fisher tracks and digging terminate at the base of the exclosure at the point of the electrified wire. Note the fisher did not gain entry into the exclosure, the bait was intact. The yellow line shows where the electric wire is connected to plastic insulators. These digging tracks were positively identified as that of a fisher.

When the fisher came into contact with the electrified wire it backed away. There were no further visits or fisher tracks observed at any of the exclosures after this event. No entry was gained into the exclosure and the bait remained intact (a fresh salmon fish head). No further evidence was observed that the predator returned to the exclosure, or any other exclosures, electrified or non-electrified. Suggesting that the shock it received had resulted in a learned negative association with the exclosures. Fisher tracks can be seen to the right of the digging. This was the first time a fisher was positively identified as a predator on Nauset Spit.

American black crow at Electrified Exclosure Pochet Washover.

Crows perching on exclosures is common. Since the introduction of electrified exclosures there have been fewer crow chick predation events as evidenced by a 3.0 fledge rate in the Pochet Washover (the study area) which is where most of the crow flocks are observed from June- August annually. Over the

past 10 years, crows have been the leading cause of egg predation without the use of exclosures. Crows are often observed perching on the 4' stakes and 7' posts which are used to support the symbolic fencing. They perch very close to nest sites and chick and adult foraging habitat. By heavily nailing the tops of the stakes and posts and using fewer posts and more stakes to support the symbolic fencing, we can further reduce the perching ability of crows and raptors.

The electric exclosures have been designed to prevent electric shock to crows. The crows must be grounded to receive a shock.

<u>The Primary Goals and Objectives of the Orleans Non-Lethal Predator Control Program</u>

The primary goal of the Nauset Non-lethal Predator Control Program is to comply with the statutes and Guidelines which govern the management of piping plovers and their habitat as set forth in The Massachusetts Endangered Species Act, G.L. c, 131A; the U.S. Endangered Species Act of 1973 ESA; 16 U.S.C. § 1531; and the Massachusetts Wetlands Protection Act, G.L. c. 131 § 40; 310 CMR 10.37, 10.58(4) (b), and 10.59) 310 CMR 10.5 and the Atlantic Coast Piping Plover Recovery Program for the Northeast, and the Habitat Conservation Plan and Permit issued to Orleans.

In carrying out their statutory mandate and the conditions of the HCP, Nauset Managers decided to deploy the non-lethal predator control program ahead of schedule. The stated non-lethal predator control program goals are: (1) to

promote early and first time successful adult nesting attempts; (2) to decrease the high rate of historical abandonment of nests which are exclosed; (3) to decrease re-nesting events due to nest loss by predation events; (4) to increase piping plover productivity.

To accomplish these goals, a practical and novel approach to non-lethal predator control was devised which focused on *behavior modification* of the primary predators.

Red fox and Eastern coyotes are essentially canines. Canines can be trained to change *their behavior* based on the introduction of positive and negative associations with the exclosures. It is not likely that the predators at Nauset have ever encountered electric shocks. Therefore the shocks deeply imprint with the omnivores in a very dramatic, significant, and negative way. Specifically, we attempted to change the way they viewed the exclosures, by introducing a negative stimulus rather than a food reward.

Determining what type of Predator Behavior we Are Attempting to Modify

A true predator can commonly be known as one that kills and eats another living thing. Whereas other types of predator all harm their prey in some way which may lead to mortality.[1] Predators may hunt actively for prey, or sit and wait for prey to approach within striking distance, as with ambush predators. A close symbiosis between piping plovers and their main predators has been occurring for several decades. The main predators are well established at Nauset and they have adapted to nearly every effort by managers to modify their predation behavior in hopes of protecting nesting plovers and their chicks. By far the single greatest predator event effecting plover productivity at Nauset since 1991[2], is successive rates of abandonment of nest exclosures following harassment by red fox and coyotes.

Piping plover's productivity at Nauset is effected by three (4) types of predator behavior as follows[3]:

1. Chance predation: Small, recurring, accidental losses –as a predator just happens to come across a nest. The predator may not repeat the performance.

[1] Encyclopedia of Wikipedia "Predation" 2015

[2] In 1991 the Massachusetts Department of Environmental Protection issued an Order stating that the ORV activity on Nauset spit required a Beach Management Plan and Order of Conditions sufficient to protect the rare and endangered species habitat at Nauset Spit. Enclosures have been used to protect nests since the Order issued and the Plan was developed (24 years to date.)

[3] Leopold, Game Management, p22.

2. Habitual Predation: The predator discovers a nest by chance and may develop the ability to find more nests, and become habitual predators at plover nest sites.
3. Harassment: This may affect the welfare of the prey species and induce starvation, failed nest attempts, exposure, resulting in a killing of the species.
4. Social learning: This type predation involves the transferring information from a more experienced individual (adult) to a naive one such as a kit or coyote pup [4]. It can be carried over from one generation to the next and closely resembles habitual predation. Once learned by the young they will repeat the predatory behavior, visit the locations in which they learned where a meal can be obtained, such as nest location area or an exclosure.

We concluded that it was possible to target all 4 of the above –referenced predator behaviors and that these behaviors were being exhibited by the primary predators.

METHODS ADOPTED TO ACHIEVE GOALS & OBJECTIVES WITH THE NON-LETHAL PROGRAM

- Non-lethal management implemented
- Location, dates, and days implemented
- Prototype developed to accomplish non-lethal program
- Research

Non-Lethal Behavior Modification

One important factor with our program is that we did not introduce "controls" into the program. The main reason is that it was simply not practical, feasible, and affordable. We determined that so called controls would yield little results which could be relied upon. Our rationale is best stated in the following logic. "*When analyzing large scale and long-term observational studies, one cannot adequately control for all inherent but unmeasured site differences that may be influencing the dependent variable*[5]. The Nauset Beach habitat is large and

[4] Laland, Kevin N. (2008). "Animal cultures". *Current Biology* **18** (9): R366–70

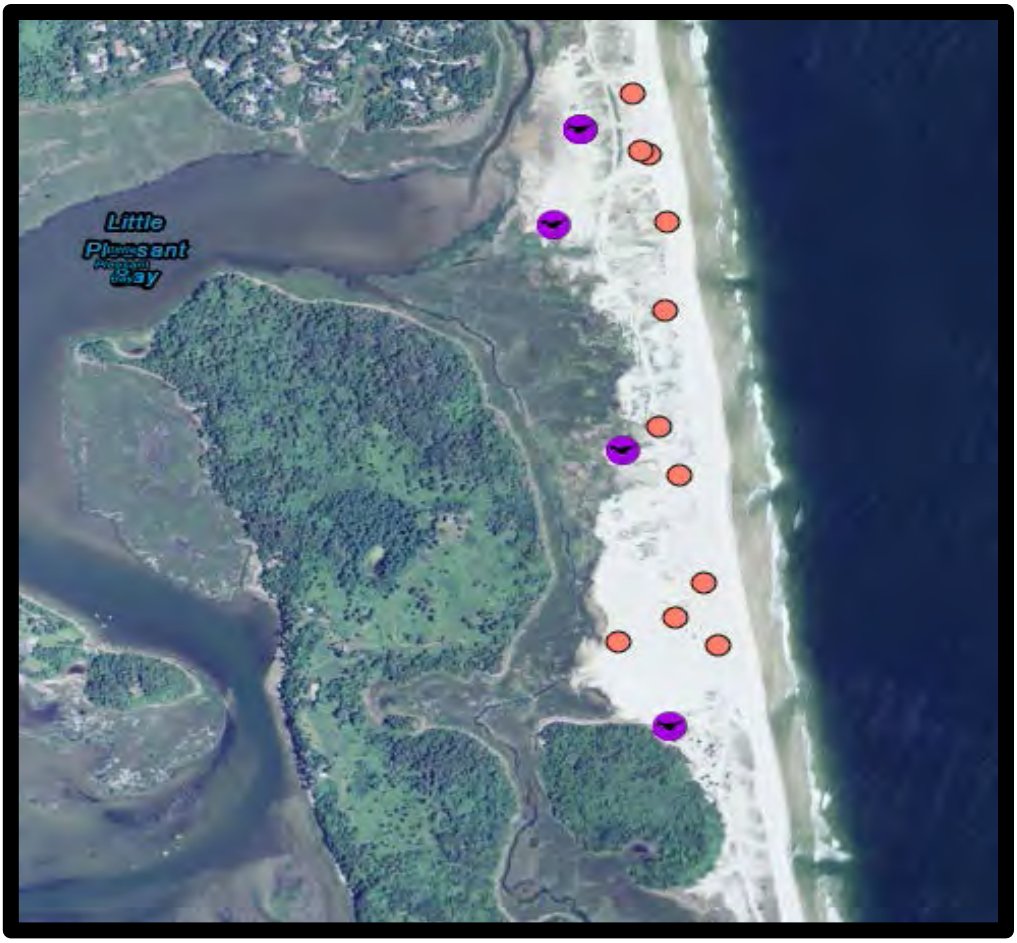
[5] Evidence-based decisions on the use of predator exclosures, Brooke Maslo *, Julie L. Lockwood, August 2009

diverse. The number of predators, and their individual behavior, from predation event to event, can be influenced by unforeseen or unknown factors which occur nightly and vary to such a degree that drawing any conclusions from the introduction of controls would be virtually impossible. Moreover, if we introduced a control into the program, (such as not electrifying wire at a baited exclosures), we ran the enormous and unacceptable risk that the predator would gain entry into the non-electrified exclosures and receive a reward.

We elected to test our behavior modification theory *by specific daily observations and meticulously documenting our observations.* We recorded track evidence daily. Photographs of tracks were taken through a set of established consistent criteria. This criterion was provided to us by the Massachusetts Division of Fisheries & Wildlife.

The data collection and photographs are attached to a folder with this report identifying the date and tracks that they were observed. It is attached as "Exclosure Data" with a "Folder of Photographs" that can be linked to specific exclosures, dates, and times.

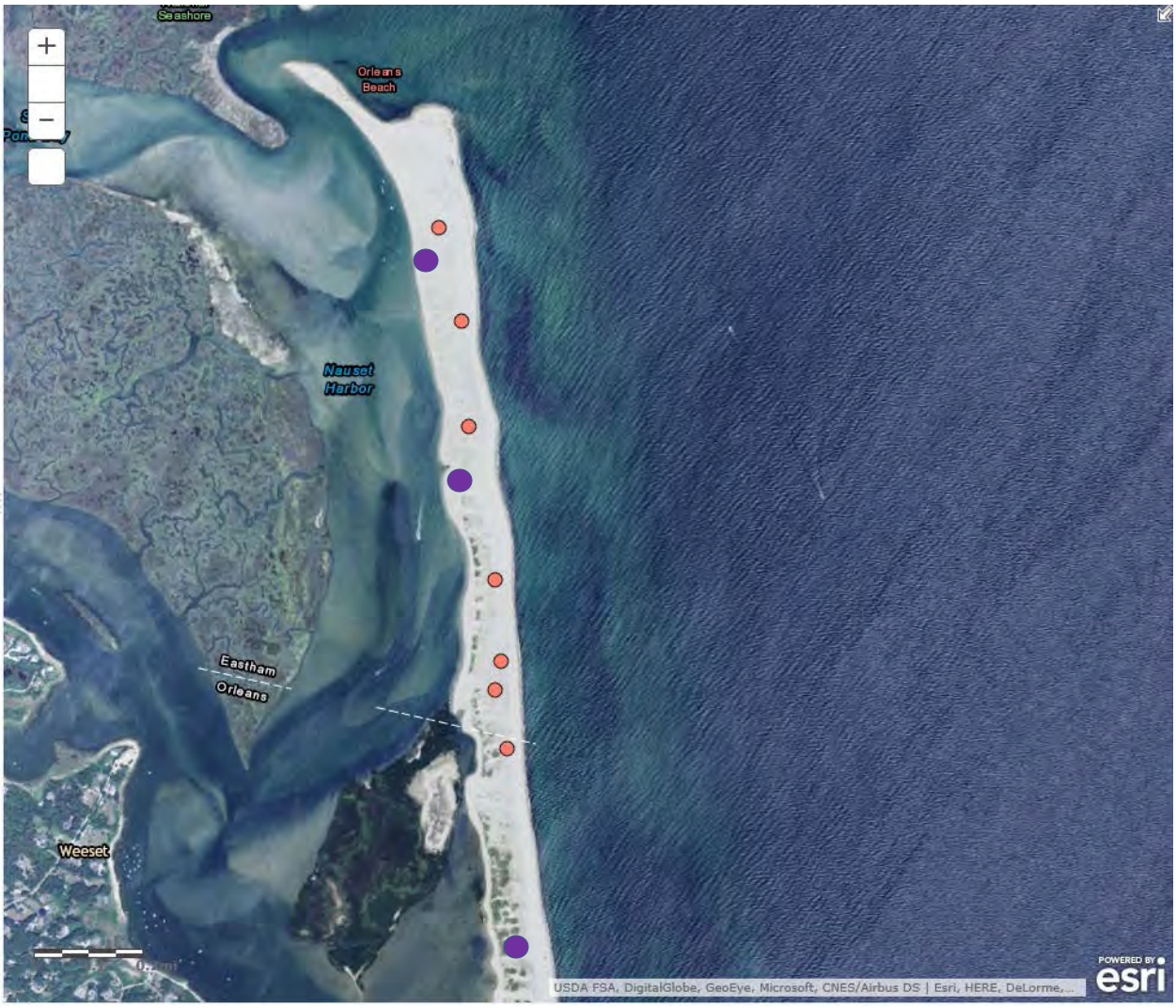
The Pochet Washover Area



North

The Pochet Washover Area

Map showing location of electrified exclosures (●) and non-electrified exclosures which were incubating active plover nests (●) located in the primary study area of the Pochet Washover.



The Nauset Spit

Map showing location of electrified exclosures (●) and non-electrified exclosures which were incubating active plover nests (●) located on the North Spit.

Research on Electric Fence Prior to Deployment

Through research we determined that the minimum voltage suggested to repel predators is over 4,000 volts. However, joule output is the best indicator to use when purchasing a fence controller. To exclude predators, a minimum joule output of 1 is suggested. The prototype emitted just less than 1 joule and was within the range of 4000 to 6000 volts. This range is recommended so not to injure the animal but enough to repel. Electric fencing used to repel predators must emit enough of a shock to imprint the predator strongly.

PROTOTYPE & SPECFICATIONS

The electrified decoy exclosures use the standard design specifications approved by the U.S. Fish & Wildlife Service in Appendix "F" for Exclosures. The prototype is designed to electrify the wire outside the exclosure cage at 3 levels. The decoy electrified exclosures were designed to replicate the non-electrified exclosures used on active nests. Changes in the design could lead to smart predators such as red fox and eastern coyotes differentiating between the decoy and live nest exclosures. The first experimental electrified exclosures was deployed on Nauset Spit on 3/29/15. It was placed on an active red fox and eastern coyote game trail at the head of Nauset Heights where the omnivores enter before reaching the habitat of the plovers. As the season progressed we deployed a total of six (6) decoy electrified exclosures with the same design and specifications. The specifications for the electrified design are as follows: (1) B10 Energizer Unit, (shown below) is attached to a stake, which is also nailed to prevent perching. Three (3) steel ground rods are placed in the sand to a depth of at least three (3) feet and connected to the main ground leading from the B10 Energizer. By using a 14 gage wire which connects all the rods to the lead grounding wire of the B10 Unit. A current of 6000-7000 volts can be achieved with three (3) ground rods. It is important to use at least three (3) rods made of gallized steel or an alloy sufficient to provide the grounding effect. The electrical current should be tested daily with a digital voltage reader. This will provide the most accurate reading. If properly installed the 6000+ volts can be achieved at all three (3) wire levels. This is not enough electric current to injure the predator, but leaves a lasting impression with the predator who may have encountered the electric current for the first time in its life

The B10 Energizer

B10 Energizer with 3 levels of electrified wire emitting 6000 volts on 3 second intervals. Unit operates on 6 D-cell batteries for 30+/- days.

Fully deployed electrified Exclosure setup at the entrance to a game trail off of little

All decoy exclosures were baited with fresh fish to attract the predators. The purpose in baiting the exclosures was to draw the predators in close enough to receive the electrical shock. It should be noted that we also made a determination that the placement of the baited exclosures would not attract predators into the habitat based on the fact that the predators were already witnessed foraging in the habitat nightly. When a predator came into contact with the electric wire, a shock of 6000 volts was received. We field tested the electric wires at all three levels daily with a digital voltage meter which provided a very accurate voltage reading as shown in the photograph below.

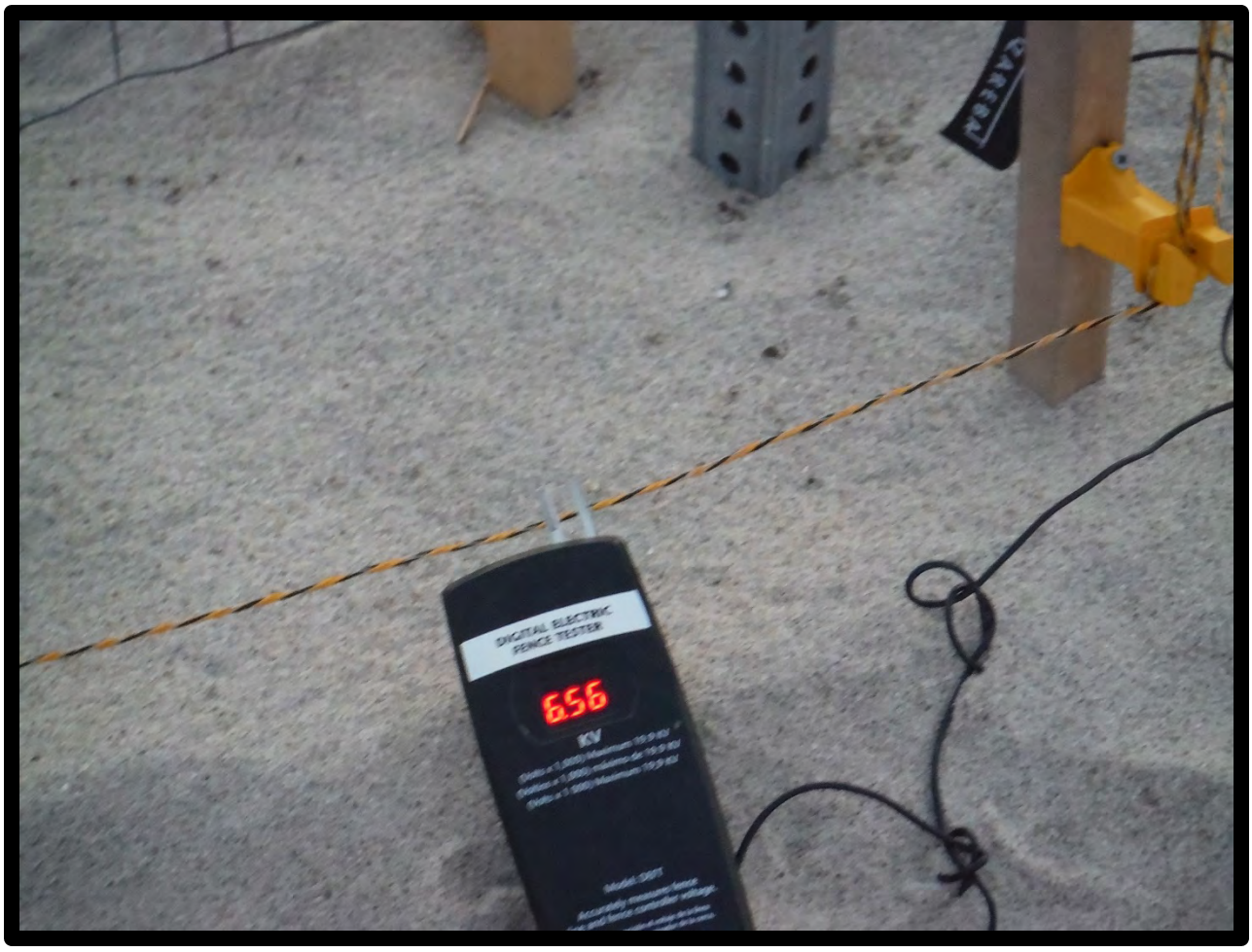


Photo showing 6.56 volts of electricity being emitted from lower electric wire at decoy exclosures

Each time a live plover nest was exclosed, we mimicked the design of the decoy exclosures including the 3 levels of wire and insulators. When a foraging predator encountered the exclosures it would see the wire. We assembled much of the exclosures outside the area of the actual nest and then carried a partially assembled exclosures to the nest site. Our average time for installing an exclosure over a nest was 10 minutes or less. The incubating nests looked exactly the same as the decoy except it did not contain a B10 Energizer Unit.

EVALUATION OF NON-LETHAL PREDATOR CONTROL PROGRAM YEAR 1

- Number of exclosures deployed & nests impacted
- Impact of electrified exclosures when introduced.
- Number nest(s) hatched, number chicks fledged in areas where non-lethal predator management was implemented

Number of Electrified Exclosures Deployed & Nests Impacted

Beginning in early April approximately six (6) decoy excloures were deployed. Three (3) were deployed on Nauset South in the area of the Pochet Washover, and three (3) were deployed on the North Spit. They were moved periodically to ensure that the predators did not associate the negative stimulus with a certain location. They were baited as needed with fresh fish (salmon, bluefish and tuna fish) to maintain predator interest in the exclosures.

Seventeen pairs of plovers nested as follows:

- Ten nests were established on Nauset South in the Pochet Washover
- Five pairs established nests on the North Spit.
- Two pairs established nests on the Nauset South between Trail 2 – 4.

The Pochet Washover nests had a fledge rate of 3.1. There was an additional nest which was the HCP nest. An individual report on the HCP nest was generated. The fledge rate on the North Spit was 1.4.

Impact of Electrified Decoy Exclosures

The first decoy electrified exclosure was deployed in the field in mid-April of 2015. The remaining decoys were deployed in April to mid- May. Within 72 hours a red fox attempted to dig at the base of the exclosure in an attempt to retrieve the bait reward. It was shocked and did not return to the exclosure. All electrified exclosures received digging attempts within the first 10 days of their deployment. However, none of the red fox, eastern coyote, or fishers made any further attempts at digging on the decoy exclosures once the initial contact with the electric wire was made. The Nauset Natural Resource Manager contacted

MADFW seeking input and guidance on setting criteria to record and document the program.

The MADFW suggested a set of criteria which was developed for daily field observations at each of the electrified exclosures. Tracks were measured, recorded and photographed daily during the plover breeding and nesting season. The criteria measured the amount of track coverage on the ground by %. These tracks were measured from the base of the exclosures out to a distance of 15'. It is shown in the Spreadsheet entitled "**Electrified Exclosures Data**" which appears in a separate attachment to this Report.

A predator pattern soon emerged

Daily recording indicated that close encounter circling ceased almost immediately after the initial digging attempts which led to predator contact with the electric wire surrounding the exclosures. In days following the initial visits which resulted in electric shocks, predator tracks were documented leading right up to the wire then backing away. Monitors began to observe that predator tracks also began to *pass by* the exclosures with no circling. *What became apparent from the daily recordings and photographs was that the predators were passing by the exclosures at a distance of 5-15' or more or not visiting the exclosures at all.*

Impact of Non-Electrified Incubating Exclosures

There was a measured result achieved with all the non-electrified exclosures strategically placed near the electrified decoy exclosures. All of the incubating nests in the Pochet Washover were closely monitored for predator activity. The only digging event that occurred on incubating nests near electrified decoy exclosures is shown in the photo below. The photo shows digging well outside of the perimeter of the decoy electric wire. This strongly suggests that the predator, a coyote, was wary of the wire and had experienced a negative response when it approached the electrified baited decoy and attempted to obtain the food reward. Note: the wire is very thin and cannot be seen in the size of the photo inserted below due to formatting issues. The yellow arrows show the approximate location of the wire. Each nest exclosed was carefully retrofitted with the same wire (but

not energized), in the same location, with the same design as the electrified exclosures.

Pochet Washover (P7Nest) Track Photos, Showing Predator Digging outside the Perimeter of Incubating Nest on a Non-Electrified Exclosure. This nest hatched out all 4 eggs, 4 chicks fledged. Electric wire is difficult to see as it is only 200m in width. It is located on the outside stakes at 3 levels. Date: 6/10/15 Time 6:45 A.M. TAKEN BY HAND HELD CAMERA by Monitor.

In the Pochet Washover area, not one nest was abandoned due to predator harassment by close encounter circling or digging at the base of the exclosures.

However, on the North Spit there were two (2) abandonments of two (2) nests in close proximity to one another on the outer Spit. Nests NSE1 and NSE 2 were abandoned in June after they were exclosed. Close encounter circling and digging at the base of the exclosures occurred after the exclosures were placed on

the nests. It is possible that the presence of exclosures in this scenario may have led to the abandonment.

The circling occurred during one night. The tracks were positively identified at the base of the exclosures as red fox. The pairs attempted re-nests after the abandonment. At this time, there were no electrified decoy exclosures in proximity to the nests because of delays in shipping the B10 Units. The mere fact that the nests were subject to close encounter circling, even for one evening, was enough to cause the abandonments. A decision was then made not to exclose any other nests on the Spit because of the nature of the intense red fox predator behavior and the fact that the red fox may not have come into contact with the single electrified decoy exclosure which was placed more than 1 mile south of the abandoned nests. It is our belief, that if the incubating plover nest exclosures were surrounded by energized wire, then the fox would have received a shock and forfeited the attempt.

PHASE TWO- 2016

ON-SITE MITIGATION

In 2016, we plan to implement Phase Two of the Non-Lethal Predator Control Program. In March 2016, all the decoy electrified baited exclosures will be installed and regularly baited. It is imperative that the decoy exclosures are deployed in the early spring to ensure that the modified behavior (avoidance of exclosures) is transferred from the adults to the offspring in the social learning behavior.

In its first year the non-lethal predator control program at Nauset generated strong public support and success. The results of using electrified decoy exclosures suggest that they may modify the behavior of the on-site predators. One of the highest fledge rates recorded at Nauset Beach and in the region occurred during the year that the decoy electrified exclosures were introduced. The behavior modification theory has merit and needs to be implemented for multiple seasons.

OFF-SITE MITIGATION

In accordance with the HCP requirements, the Town of Orleans provided $10,000.00 to MADFW to be used for off-site mitigation. The funds will be used for the 2016 selective predator management at Duxbury Beach (pending final written approval from USFWS). The USDA APHIS work plan has a total budget of $12,500 so mitigation funds will account for 80% of the cost. In 2015 there were 25 breeding pairs of piping plovers at Duxbury Beach. After the 2016 season MADFW will provide USFWS with a 2016 breeding pair count for inclusion in next year's report.

MASSWILDLIFE

DIVISION OF
FISHERIES & WILDLIFE

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

Jack Buckley, *Director*

April 10, 2018

Nathan Sears
Town of Orleans
139 Main Street
Orleans, MA 02653

Dear Nate:

You and employees or assistants under your direct supervision are hereby designated as agents of the Massachusetts Division of Fisheries and Wildlife for the purpose of installing and monitoring predator exclosures to prevent predation of Piping Plover nests. This letter or a copy thereof must be carried at all times by persons engaged in activities authorized herein.

Construction and monitoring of exclosures placed around plover nests shall comply with the **1996 guidelines prepared by the Atlantic Coast Piping Plover Recovery Team and the U.S. Fish and Wildlife Service** (copy enclosed). Unless otherwise authorized by the Division, all exclosures shall be constructed so that there is at least a 5 foot-wide buffer between the nest and the outside edge of the exclosure in all directions (*i.e.,* a 10 foot diameter on circular exclosures), and shall have tops made of netting to prevent entry by avian predators.

This authorization, unless revoked for cause, shall expire on August 31, 2018. A brief summary report on exclosure use shall be submitted electronically via the **Piping Plover On-line Data Entry System (PIPLODES)**, no later than September 30, 2018. This report shall be included in the "Exclosures" box within the "Management Research Action and Needs" section of the census forms for the corresponding sites. The report shall describe the design, dimensions, and locations of all exclosures used, and shall summarize hatching success for successful nests and causes of nest failure, if known, for unsuccessful nests.

Sincerely,

Thomas W. French, Ph.D.
Assistant Director
Division of Fisheries and Wildlife
One Rabbit Hill Road
Westborough, MA 01581

cc: Jonathan Regosin, Chief of Conservation Science
encl.

F. Town of Orleans and Chatham Annual Beach Agreement

NAUSET BEACH AGREEMENT

This agreement made this 11th day of April, 2018 by and between the Town of Orleans ("Orleans") and the Town of Chatham ("Chatham") pursuant to the provisions of M.G.L. c. 40 §§4 and 4A, and every other power which they may have, acting by their respective Boards of Selectmen.

WHEREAS, Nauset Beach is a unique conservation and recreation area located in the Town of Orleans and the Town of Chatham;

WHEREAS, the parties desire to provide for the joint patrol and management of Nauset Beach, including, but not limited to, beach patrol, fire protection, rescue services and endangered shore bird monitoring, within the Town of Orleans and the Town of Chatham from a point south of the Nauset Beach Parking lot to the Chatham Inlet;

NOW THEREFORE, in consideration of the foregoing and the mutual promises and agreements contained herein, the parties agree as follows:

I. Responsibilities.

Chatham agrees to:	Orleans agrees to:
1. Supply qualified personnel to adequately patrol the Chatham portion of Nauset Beach, considering varying seasonal demands and any reasonable contingency which may arise.	1. Supply and maintain a vehicle(s) and qualified personnel to adequately patrol the Orleans portion of Nauset Beach, considering varying seasonal demands and any reasonably contingency which may arise.
2. Enforce the Rules and Regulations of Nauset Beach in the Chatham portion of Nauset Beach.	2. Enforce the Rules and Regulations of Nauset Beach in the Orleans portion of Nauset Beach.
3. Registration-related procedures: a. Inspect all registered Chatham residents' Off Road Vehicles ("0.R.V.") for compliance with the most recently adopted *Nauset Beach Rules and Regulations for O.R.Vs*; b. Collect registration fees for O.R.V.s and account for such fees collected; c. Maintain accurate records of vehicles registered in Chatham, including the names of respective owners and provide information to other town; d. Provide an educational movie on the use and management of Nauset Beach for showing to all O.R.V.s registered to Chatham residents,	3. Registration related procedures: a. Inspect all registered O.R.V.s, except those as registered in Chatham, for compliance with the most recently adopted *Nauset Beach Rules and Regulations for O.R.V.s*; b. Collect registration fees for O.R.V.s, except for those vehicles registered in Chatham, and account for such fees collected; c. Maintain accurate records of vehicles registered in Orleans and to non-residents, including the names of respective owners and provide information to other town; d. Provide an educational movie on the use and management of Nauset Beach for showing to all O.R.V. operators and Orleans Camp Licensees.

4. Supply and install signs, string, posts, wire fencing, and other necessary equipment, materials, and personnel, as may be reasonably necessary, to mark trails, delineate O.R.V. corridors, protect vegetation, and protect shorebird species that are listed as Threatened, Endangered, or of Special Concern in the Chatham portion of Nauset Beach.	4. Supply and install signs, string, posts, wire fencing, and other necessary equipment, materials, and personnel, as may be reasonably necessary, to mark trails, delineate O.R.V. corridors, protect vegetation, and protect shorebird species that are listed as Threatened, Endangered, or of Special Concern in the Orleans portion of Nauset Beach.
5. Provide protection for shorebird species that are listed as Threatened, Endangered, or of Special Concern in the Chatham portion of Nauset Beach, and monitor the protection measures implemented, including, but not limited to, the following: a. Cause a qualified person(s) to monitor the Chatham section of Nauset Beach if shorebird species listed as Threatened, Endangered, or of Special Concern are determined to be present, as well as provide required protective measures for the birds and information to the Town of Chatham in case vehicle closures are needed; b. Supply the Massachusetts Division of Fisheries and Wildlife with available data and year-end reports on shorebird protection on the Chatham portion of Nauset Beach; c. Supply and maintain All Terrain Vehicle(s) ("A.T.V.") and/or O.R.V. (s) for the monitoring of shorebirds in the Chatham portion of Nauset Beach as needed.	5. Provide protection for shorebirds species that are listed as Threatened, Endangered or of Special Concern in the Orleans portion of Nauset Beach, and monitor the protection measures implemented, including, but not limited to, the following: a. Cause a qualified person(s) to monitor the Orleans section of Nauset Beach if shorebird species listed as Threatened, Endangered, or of Special Concern are determined to be present, as well as provide required protective measures for the birds and information to the Town of Orleans in case vehicle closures are needed; b. Supply the Massachusetts Division of Fisheries and Wildlife with available data and year-end reports on shorebird protection in the Orleans portion of Nauset Beach.
	6. Provide, maintain, operate, and staff a check booth in the Orleans portion of Nauset Beach, as needed.
	7. Provide printed regulations, applications, permits, stickers, and educational material for both Towns to issue, on a uniform basis, to their residents and other users of the beach.

	8. Provide a trash dumpster(s) at the gate of Nauset Beach in Orleans for the use of all O.R.V. operators, except for use by Orleans Camp Licensees, and provide for disposal of the trash collected. Without limiting the generality of the foregoing sentence, the camp Licensees are expressly prohibited from using the dumpster(s) to dispose of any bulky waste, including but not limited to, household trash, propane tanks, building debris, furniture, or the like.
	9. Maintain informational signs at the parking lot of Nauset Beach in Orleans regarding the appropriate use of Nauset Beach south of the parking lot.

General.

1. All O.R.V.s, including those of Orleans Camp Licensees, must check "on" or "off" upon entering or leaving Nauset Beach at the check booth provided for in section I.6. above during the season when the check booth is open South of the Nauset Beach parking lot.

2. All persons, including residents, non-residents and Orleans Camp Licensees, who seek to register vehicles to use Nauset Beach shall yearly submit complete registration forms and all applicable registration fees, as well as view the educational movie, referred to herein on the use and management of Nauset Beach.

3. In the event that Nauset Beach is full, visitors to camps may only access the beach provided the Orleans Camp Licensees has delivered a "visitor pass" form, signed by the Orleans camp Licensees (on a form approved by the Orleans Park Department), to the Orleans gate at least 8 hours in advance. A camp visitor pass will allow vehicle access to the specific camp only. Vehicle access to other areas of the beach is not permitted.

II. Cross Jurisdiction Patrols. It is agreed that each Town shall be responsible for patrols on their own portion of Nauset Beach.

III. Annual Review. The Orleans and Chatham Boards of Selectmen shall meet annually to review this Agreement, related fees, and rules and regulations governing Nauset Beach. They may, if deemed appropriate, adopt new fees and/or rules and regulations, revise the provisions contained herein concerning the Responsibilities of each Town (Section I) and Beach Management (Section VIII), and take any other action consistent with this Agreement. Any amendments to this agreement must be expressed in writing and executed by the Boards of Selectmen from both towns.

IV. Termination. Notwithstanding anything contained herein to the contrary, each Town shall have the right to terminate this Agreement by thirty (30) days prior written notice, at any time during the period from November 1 to February 1 of any year the Agreement is in effect, for any of the following:

1. Material breach by the other Town of any of the provisions contained in this Agreement.

2. Lack of appropriation of funds necessary to fulfill the Town's responsibilities set forth in this

Agreement.

3. Physical changes in Nauset Beach resulting in the Town being unable to fulfill its responsibilities set forth in this Agreement.

4. The issuance of a Decision, Order, or Directive from a governmental agency of competent jurisdiction, the effect of which is to prevent the Town from carrying out its responsibilities under this Agreement.

V. Employee Status. Employees of the Town of Orleans and employees of the Town of Chatham shall, while acting pursuant to the provisions of this Agreement, be deemed to be employees of their respective Towns even though they may be working, under the terms of this Agreement, on a portion of Nauset Beach owned by the other Town.

VI. Term/ Duration of Agreement. Unless otherwise terminated under the provisions of Section IV of this Agreement, above, the Agreement shall run for a period of one (1) year from May 1, 2018 to April 30, 2019.

VII. Revenue Distribution. Revenue will be allocated as follows:

1. Chatham keeps all fees charged to Chatham residents and property owners, excluding the Orleans HCP surcharge collected from Chatham residents which shall be paid to Orleans by September 30, 2018.

2. Orleans keeps all fees charged to Orleans residents and Camp Licensees.

3. All non-resident sticker fees charged by Orleans, excluding the Orleans HCP surcharge, shall be allocated 75% to Orleans and 25% to Chatham. Orleans shall pay Chatham its allocated amount by September 30, 2018.

4. Orleans shall be under no obligation to provide special escort services for Chatham property owners.

VIII. Beach Management.

1. Management of that portion of Nauset Beach located in Chatham shall be as set out in Order of Conditions, DEP SE 10-3127, issued April 13, 2016. The provisions of the Chatham Order of Conditions are incorporated fully herein by reference.

2. Management of that portion of Nauset Beach located in Orleans shall be as set out in Order of Conditions, DEP SE 54-2246, issued June 25, 2014, and recorded in the Barnstable Registry of Deeds in Book 28280 Page 185 ("Orleans Order of Conditions"). The provisions of the Orleans Order of Conditions are incorporated fully herein by reference.

3. To the extent that the Chatham Order of Conditions is inconsistent with this Agreement, the provisions of the Chatham Order of Conditions shall control, except that Orleans shall not be required to manage and enforce the Special Conditions contained in Sections F and G.

4. To the extent that the Orleans Order of Conditions is inconsistent with this Agreement, the provisions of the Order of Conditions shall control.

5. To the extent permitted by *"Guidelines For Managing Recreational Use Of Beaches To Protect Piping Plovers, Terns, And Their Habitats In Massachusetts,"* (1993) issued by the Massachusetts Division of Fisheries and Wildlife, the entirety of Nauset Beach will be managed to remain open to all O.R.V. traffic, taking into consideration tide and erosion.

6. Recreational and General Public Vehicular Access.
   a. Recreational and general public access of vehicles shall be permitted only in authorized areas and trails of the beach as posted.

      When a Piping Plover or Least Tern nesting habitat is located and identified, it should be clearly marked with symbolic fencing and warning signs. Plover or tern nests that are located and identified shall be mapped by qualified monitors, and the information shall be shared between the Towns as soon as possible.

      When vehicular access infringes upon the nesting habitat, vehicle traffic and parking shall be rerouted, or altered, around the outside edge of the nesting habitat for as long as the nesting habitat is active, to ensure the safety of the plovers or terns. Marking and posting of the habitat shall be performed in accordance with the guidelines set forth in the Management Plan.

      As long as adequate provisions have been made to alter the traffic pattern around the habitat area, vehicular access may be continued. However, if no viable rerouting of traffic is possible due to the location of the nesting habitat, vehicles shall be prohibited through, or into the delineated nesting habitat area. Vehicular access shall be prohibited for as long as necessary to ensure the proper fledging of the plovers and terns as set forth in this beach management plan.

      Only essential vehicles, described below, shall be permitted to have access into or through the nesting habitat area, and only under the conditions described below.
      All vehicular access restrictions, and conditions of access, will be consistent with the Massachusetts Division of Fisheries and Wildlife document, known as, "Guidelines For Managing Recreational Use Of Beaches To Protect Piping Plovers, Terns, And Their Habitats In Massachusetts" (1993), utilizing signage, symbolic fencing, use of monitors, and methods that are designed to protect the plover and tern nesting habitat.

   b. Definitions of Essential Vehicles.
      Essential Vehicles (Category 1): Public Safety Vehicles used for emergency service purposes belonging to a municipality, county, state, or federal entity for a police agency, fire service or rescue service; vehicles belonging to Natural Resources and Public Works of the Towns of Orleans or Chatham providing necessary services or maintenance, and vehicles operated for species monitoring and management.

      Essential Vehicles (Category 2): Vehicles bearing an Orleans Camp Licensees sticker and belonging to Licensees of "camps" (structural dwellings), their immediate family members and contractors providing emergency repair.

   c. Access of Essential Vehicles.
      Under restricted conditions, as outlined below, essential vehicles may be permitted to have access into and through a nesting habitat area containing unfledged chicks. Access will take place only during daylight hours, with the exception of emergency situations involving

imminent threat to public health and/or safety. Open, 3 or 4 wheel all-terrain vehicles (ATVs) shall be used whenever possible for monitoring and law enforcement because of the improved visibility afforded the operator.

The access of essential vehicles (Category 1) shall be limited by utilizing monitor(s), who, after determining the location of unfledged chicks, shall accompany and walk in front of the vehicle operating at a speed of five (5) miles per hour proceeding through plover or tern nesting habitat. These essential vehicles (Category 1) will be restricted to operate in this manner, through a plover or tern nesting habitat, on a public safety, need-only basis, and will limit the number of trips through the identified area to only the minimum necessary to accomplish the necessary objective.

Town of Chatham public safety essential vehicles operating through the Orleans portion of Nauset Beach will operate in the above described manner, and additionally, shall be required to notify the Town of Orleans Natural Resources Department, in advance, to make arrangements for access through the Orleans section of Nauset Beach. Emergency situations may require access without prior notice or other provisional arrangements, but will be conducted as closely to this manner as possible.

Vehicular access for essential vehicles (Category 2) shall be required to make arrangements, notifying Orleans in advance, utilizing the above described method. In addition, essential vehicles (Category 2) shall be required to have the Orleans Natural Resources personnel on scene to supervise the method of vehicular access. It is anticipated that such vehicular access will be limited to 1-2 times per day, and limited to one camp owner pass per day, subject to the availability of personnel. It is further anticipated that any escort service will require the hiring of additional personnel. An operator of an essential vehicle (Category 2) shall be responsible for all incremental escort costs and shall reimburse Orleans as applicable.

Any decision as to providing vehicular access for essential vehicles (Category 2) to restricted areas of the Beach shall be discussed, reviewed and approved by the Orleans Natural Resources Manager prior to access being granted, subject to the availability of personnel.

There shall be no vehicular access other than the methods described above, and shall be consistent with the document, "*Guidelines For Managing Recreational Use Of Beaches To Protect Piping Plovers, Terns, And Their Habitats In Massachusetts*," (1993) issued by the Massachusetts Division of Fisheries and Wildlife.

IX. Hold Harmless. Each Town agrees to hold harmless, and to the extent permitted by law, to indemnify the other Town and its representatives, employees and agents, from and against any and all liability, suits, claims, losses, injuries or expenses (including reasonable attorneys' fees) brought by a third party, arising from or with respect to any acts or omissions of the representatives, employees and agents of the indemnitor Town as referenced in, related to and/or arising out of this Agreement.

X. Representations. Each Town warrants and represents that its Board of Selectmen is duly authorized to enter into this Agreement.

This agreement is binding upon on the respective towns as well as their various boards, commissions, departments and officers.

Executed as of the day and the year first above written.

TOWN OF CHATHAM
Board of Selectmen

TOWN OF ORLEANS
Board of Selectmen

G. Mitigation Escrow Agreement Orleans

FORD AND FORD ATTORNEYS AT LAW
72 MAIN STREET, P.O. BOX 485
WEST HARWICH, MA 02671
TEL. (508)430-1900 FAX (508)430-9979
office@fordandfordattorneys.com

MICHAEL D. FORD
JEFFREY M. FORD

February 6, 2018

Thomas W. French, Ph.D., Assistant Director
National Heritage and Endangered Species Program
Attn: Regulatory Review, CMP No. 014-244.DFW
Division of Fisheries and Wildlife
1 Rabbit Hill Road, North Drive
Westborough, MA 01581

Re: Escrow Agreement
Orleans Conservation & Management Permit 016-283.DFW

Dear Mr. French:

Please be advised in my capacity as escrow agent, I received a check on Wednesday, January 24, 2018 from the Town of Orleans in the amount of $5,800 and deposited said sum in the existing escrow account.

This brings the total balance in the account as of February 6, 2018 to $21,931.20. A copy of the deposit slip (shows the current balance) and check is enclosed for your records.

If you have any questions please feel free to call me.

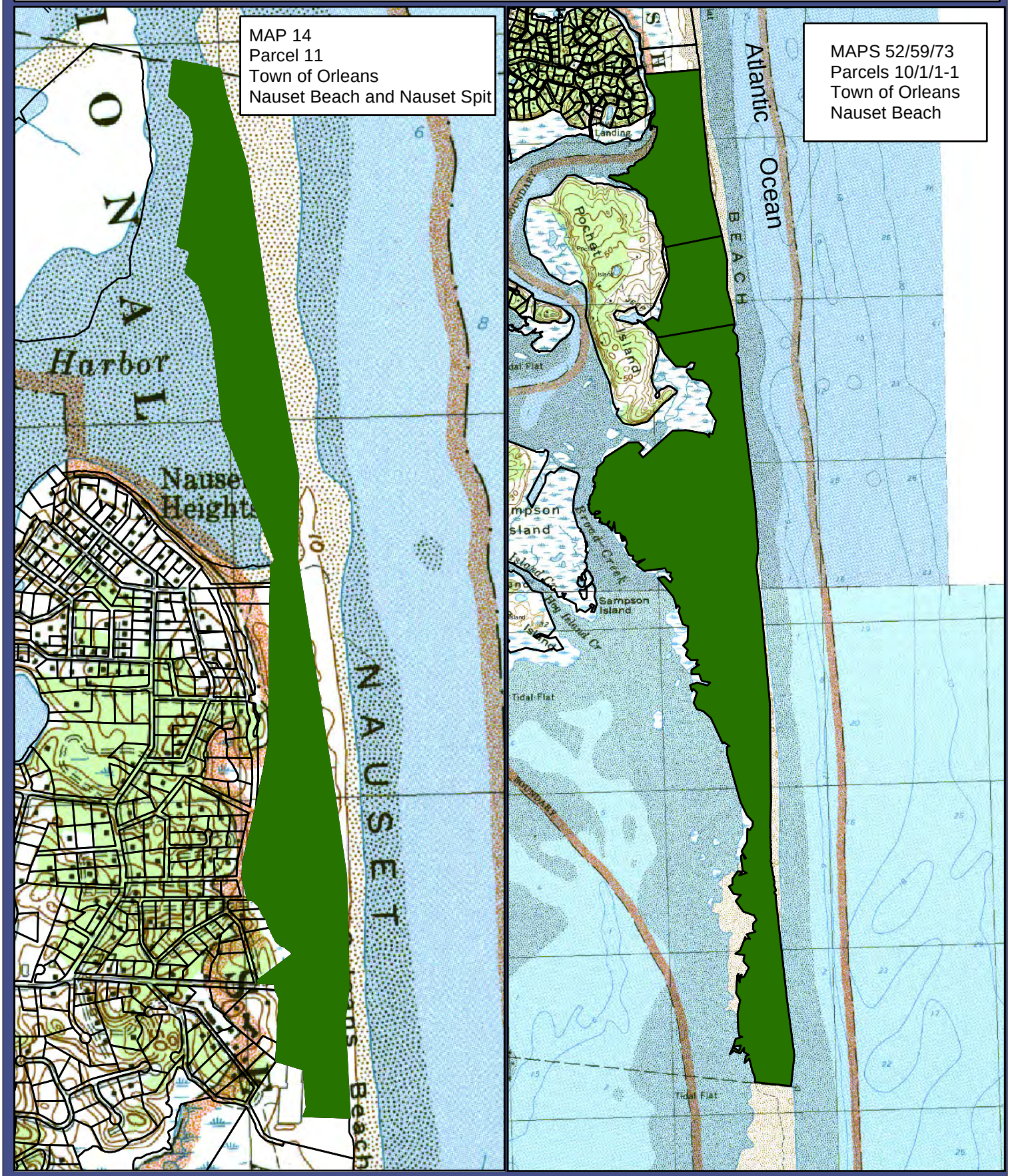
Very truly yours,

Michael D. Ford, Esq.
MDF/jlg
Enc.

Cc: John Kelley
Nate Sears
Cathy Doane

H. Proof of Ownership: Assessor's Map of Beach Parcels

Assessor's Maps for Beach



This map is illustrative and intended for planning purposes only. Orleans Conservation, 2015

N W E S

0 337.5 675 1,350 Feet