Appendix B: 2016 Nauset Beach Orleans Certificate of Inclusion (COI) Report

2016

STATEWIDE HABITAT CONSERVATION PLAN
NAUSET BEACH REPORT

TOWN OF ORLEANS, MASSACHUSETTS

Submitted by:
Town of Orleans Department of Natural Resources
Nathan Sears, Natural Resources Manager
139 Main Street, Orleans MA 02653
Telephone (508) 240-3755 – Fax (508) 240-3388
www.town.orleans.ma.us

Introduction of Statewide HCP in 2016

On July 8, 2016, the Massachusetts Division of Fisheries & Wildlife and the U.S. Fish & Wildlife Service issued a Certificate of Inclusion to the Town of Orleans under the new Statewide Habitat Conservation Plan (HCP). Orleans had filed their request for a Certificate of Inclusion in December of 2015. In March of 2016 they filed their application which included a comprehensive Impact Avoidance and Minimization Plan and a Mitigation Plan designed to offset any incidental takes approved by MADFW and the USFW Service. Under the Permit standard, Orleans was eligible for 2 take exposures based on the number of productive nesting piping plover pairs in 2015.

The Town of Orleans Statewide HCP was implemented on July 14, 2016 and concluded August 2, 2016. A total of 7 out of 8 HCP chicks fledged. Two take exposures were requested and approved for two broods located in the Pochet Wash area. Both broods were located in the approximate area shown in Figure 1 below.

The Nauset Beach Barrier Beach system includes the Nauset Spit, Nauset Public Bathing Beach, and Nauset Beach South. These areas are owned and operated by the Town of Orleans. 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).

The Nauset Barrier System is a wealth of resource areas much of which provide excellent habitat to many species of wildlife. The resource areas previously mentioned, 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) make up the barrier system and within them are rare and unique conditions that provide excellent habitat specifically on the Nauset Spit and Nauset Beach South.

In 2016, The Town of Orleans, once again, conducted a permitted HCP monitoring program where OSV use continued to be allowed in the areas of unfledged chicks in the area generally known as the Pochet Wash on Nauset Beach South. This area includes the “Little Pochet Wash” which is adjacent to Pochet Creek as well as the “Nemo Wash” which is adjacent to Pochet Island. Geographically the area known as the Pochet Wash begins at Trail 1 on Nauset Beach South and runs north .8 mile.

The Pochet area is located approximately three-quarters of a mile south of the Nauset Public Beach and is the only means of access to the majority of available area of Nauset Beach South via OSV. Nesting and related piping plover activity in a this .8 mile long area is the primary reason for what has evolved into a predictable annual complete OSV access closure on Nauset Beach South. These closures related to piping plover prevent OSV access to approximately five (5) miles of beach located between the Pochet Wash and the southern end of Nauset Beach South in the Town of Chatham. Currently, when piping plover protection mandates complete closure of the Pochet Wash to OSV access, OSV use on the remaining portion of the five (5) mile area south of Pochet would otherwise be in compliance with all protective guidelines.

P4A Brood Self-Escort Zone 1

1200 feet in maximum length

P7 Brood Self-Escort Zone 2

1600 feet in maximum length

In accordance with our COI request, the Town of Orleans managed Nauset Beach in accordance with state and federal guidelines, with the exception of implementing the authorized covered activities. This included, but was not limited to management of OSV corridors, beach cleaning

and refuse management, enforcement of Rules and Regulations, installation of symbolic fencing, daily shorebird monitoring, and data reporting. As required in the COI, the Town hired core seasonal staff as well as supplemental staff to implement the covered activities. Daily logs and datasheets were kept to document key activities including installation of symbolic fencing, shorebird monitoring, and enforcement of rules and regulations, (e.g. pets).

Orleans has over 25 years of experience managing this beach in accordance with *State and Federal Guidelines For Managing Recreational Activities in Piping Plover and Least Tern Habitats* (1993) (1994), Best management practices are carried out such as symbolic fencing, and restricted access to habitat on the resource. Use of other measures such as exclosures can further benefit plover populations. The Town of Orleans has a longstanding history of implementing such measures in full compliance with the Guidelines and will continue to do so during the HCP.

Determination of the Self-Escort Zones

The specific locations of the self-escort zones were intended to be adaptive and variable to reflect the location of each brood. The self-escort OSV zones shifted north and south along the identified route depending on piping plover locations and/or movements. Additionally, 100 feet on either side of the OSV sand trail was included in the corridor as the "safety zone" for plover chicks.

The self-escort zones were never moved laterally and were clearly marked at the beginning and termination points and had a 15-foot travel width delineated with wooden stakes. Updated zone boundaries were reported daily to the Natural Resources Manager and Beach Director by the Shorebird Specialist prior to commencement of vehicle access.

Based upon foraging habits of the maturing chicks and their developing mobility, the self-escort zones at Little Pochet Wash and the Nemo Wash were modified in length to 1200 feet and 1600 feet, respectively (as shown in Figure 1).

HCP Shorebird Monitors and Required Qualifications

Nine HCP monitors were hired and trained beginning on July 1st. Training occurred for a period of approximately 2 weeks until staff was confident that all the HCP monitors were capable of monitoring the HCP broods and adults. The training and monitoring focused on minimizing the disturbance to the broods during the access windows. Monitors were required to demonstrate that they could find tiny chicks and track their movement without hovering over them and interfering with their natural behavior. Monitors were also trained in all the HCP Procedures and Conditions so that they were able to effectively provide outreach education and enforcement to all the beachgoers.

Each Monitor kept a separate daily observation log and recorded the activity of the adult and the chick specific to foraging and territorial behavior, and if broods crossed or approached <100 feet from the OSV corridor. Monitoring also included recording the need for increased signage or fencing to afford greater protection to the HCP broods. The monitoring logs were reviewed daily by the Shorebird Specialist and Assistant Shorebird Monitor and a weekly report was sent by email to MADFW that included the daily vehicle trip count; daily observations; and description of any rules violations and enforcement actions taken.

The duties of a HCP Shorebird Monitors are described as follows:

- Working in assigned habitat areas, must be able to: identify piping plovers, least and common terns, American oystercatchers, 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 and ensure compliance with the HCP procedures and conditions.
- Re-route vehicles around protected areas and escort vehicles through protected area as necessary.
- Assist the Lead Shorebird Monitor in field surveys and bird counts.
- Provide clear concise data summaries of nesting activities to the Lead Shorebird Monitor for inclusion in annual reports.
- Performs other duties as assigned and in conjunction with other Town departments and employees.

The HCP Shorebird Monitor were required to have the following minimum qualifications:

- A high school diploma or equivalent.
- Ability to gain a working knowledge of State and Federal Guidelines for the protection of Piping Plovers, Least and Common Terns, and American Oystercatchers on multi-use recreational beaches.
- Good observational skills.
- Ability to perform physical labor associated with the placing of posts, signage, symbolic fencing, and protective exclosures in habitat areas.
- Ability to walk up to 1-3 miles per day within habitat area for survey and protection activities.
- Knowledge and experience, or willingness to obtain, with four wheel drive vehicles, small boat handling, and two-way radio communications.
- Ability to work independently with little direct supervisory oversight.

- Strong people skills, team oriented, and ability to work in a collaborative, problem-solving approach.
- A valid Massachusetts driver's license

HCP Training

Day 1- Orientation: The Natural Resource Manager met with all HCP Monitors and Endangered Species Staff to present an overview of HCP Program and the HCP Monitor responsibilities and what would be expected of each Monitor. All HCP Monitors were required to be present.

Full-time Shorebird Monitors distributed written training materials from the Massachusetts Coastal Waterbird Monitoring and Training program. Also included, was the visual aid age classification system for determining the plover chick age and development from 4 days of age to 24 + days and fledge maturity.

Basic Field Training Subjects:

- Piping plover natural history
- Nesting ecology including nesting courtship behavior, egg laying, egg incubation, hatch dates, fledge dates
- Locating adults, nests, and chicks
- Chick Movement and foraging habits, including history of HCP pairs
- Monitoring chicks and adults from appropriate distance
- The range of behavior of adults and chicks
- Field equipment needed, shift change procedures, HCP User Guide and Addendum
- Adverse weather conditions on the beach, shelter in place rule
- Violation procedures and radio communications when violations occur
- Medical Emergency procedures
- Radio communication procedures
- Personal items needed daily – water, proper clothing, insect repellent
- Expectations of management with respect to HCP Monitor duties and responsibilities
- Importance of following procedures as outlined in HCP Guide and Addendum
- Proper field monitoring and movement of chicks and adults with emphasis on importance of allowing chicks to develop their foraging range and to monitor from distance, while insuring that brood maintains safe distance from OSV corridor during HCP windows, stopping traffic, and communicating with HCP users
- How to identify predators and tracks preceding or following a predation event, properly recording the event
- How to avoid leaving scent near monitoring areas so predators do not key on monitors scent
- Individual shift procedures and daily assignments and posting locations, monitoring broods, gate monitoring and self-escort zone monitoring

- Each monitor was given extensive field training for observing and locating chicks at various ages with attending adults.
- Equipment and club car responsibilities
- Interaction with general public and contact numbers for supervisors

Prior to initiation of the HCP, each HCP Monitor was required to identify and find the P4A and P7 adults and chicks prior to gate opening at 8:00 a.m. They were also trained on locating chicks by observing other broods on the Nauset Spit and Nauset Beach South. During this time, chick stages of development were from less than 1 week to 3 weeks of age. HCP Monitors also assisted in developing the self-escort zones and signage. A dry run was conducted prior to initiating the HCP.

Monitoring Frequency

Monitoring of nesting Piping Plovers and Least terns not associated with the covered activities occurred daily during dawn and dusk hours 7 days per week by the Shorebird Specialist and seasonal Shorebird Monitor. Census and nesting data was compiled and submitted to DFW via the online data entry system PIPLODES and TERNODES.

During implementation of the covered activity, six HCP brood monitors were assigned to the self escort zones each day, split into two shifts. Brood monitors met at the beginning and end of their shifts to discuss daily observations and to share the most recent observations and activity. This allowed monitors to share observations that are unique to a specific time of day, i.e. the ability to locate tracks in the lower light that might be obscured in the mid-day sun. It also allowed monitors to observe the behavior of the pairs over the course of the entire day as well as help determine their foraging range. Daily observations were relayed to the Natural Resources Manager.

Rangers, Monitors, and Schedules

Monitors were equipped with radios for communications with Beach Rangers, the Beach Director, monitoring staff, and the Natural Resources Manager. Orleans provided all necessary equipment including binoculars, daily log sheets, rain gear, and transportation. Once it was decided that two incidental takes were going to be applied to the two broods, then HCP staff began the HCP self-escort program. The monitors followed their assigned schedules and the daily HCP monitoring shifts commenced. The morning shifts were from *6:30 a.m. – 2:30 p.m.* and the afternoon shifts from *2:00 p.m. – 7:30 p.m*. Three monitors staffed each shift. One monitor was responsible for keeping visual contact with each brood, one monitor or a Beach Ranger was responsible for policing the self-escort zone, and one monitor was staffed at the entrance gate. All monitors were responsible for assisting in locating the chicks prior to opening the self-escort zone during the specified access and egress windows. See sample schedule below:

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
6:30a-2:30p	Leah/Alexis/ Jamien	Alexis/Steph Jamien	Steph/Alexis/ Jamien	Alexis/Steph/ Jamien	Susan/Rachel Kevin	Rachel/Susan Kevin	Leah/Alexis/ Jamien
2:00p-7:30p	Rachel/Steph/ Kevin	Steph/Len Kevin	Chris/Steph/ Paul	Kevin/Len/ Paul	Chris/Len/ Paul	Leah/Chris/ Paul	Susan/Rachel/ Paul

Nauset Beach Rangers were on duty from 7:30 a.m. – 1 a.m. daily during the HCP self-escort program. The monitor staffed at the entrance gate was responsible for ensuring that all over-sand vehicles participating in the HCP were in possession of a signed copy (by the operator) of the *HCP Procedures and Conditions* and that they were fully aware of the protocols. The gate monitor was also responsible for recording the over-sand vehicle activity (# of passes) in the daily log. Signage reiterating the *HCP Procedures and Conditions* were displayed at the gate. The Nauset Beach Ranger was responsible for the opening and closing of the self-escort gates and enforcing the rules and regulations. The Nauset Beach Ranger was also responsible for clearing the beach of vehicles and raking the ruts with a mechanical beach drag at the end of the afternoon egress window (unfledged chicks were located and monitored prior and during rut smoothing).

Shorebird Data Collection and Recording Protocols

Each Shorebird monitor filled out a Shorebird Monitoring Daily Log Report and Nest Observation Form. The daily log contained a narrative of the plover and tern activity. Each Monitor read the other Monitor's comments daily. They compared notes and observations, discussed trends, movement, and behavior. The information contained specific dates on egg counts, occurrences, exclosures, and predator activity.

Data reporting

In addition to daily logs, daily spread sheets and GIS data was also kept. A nest data summary sheet was posted and consulted which showed all relevant dates including dates eggs appear, predation issues, nest failures, predicted hatch dates, and chick fledging rates. All nest data recorded on the GIS was available via cloud server at a work station in the Administration Building and a tablet in the field.

Vehicle Access

Under the HCP, the number of vehicles that were able to access Nauset Beach South was reduced from 375 vehicles allowed under the OOC to 180 vehicles. This reduced 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 plover chicks was 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, escorting was initiated past a brood no sooner than 24 hours after all chicks had hatched.

Vehicle Escort Program

The Town of Orleans vehicle escort protocol was administered by the Orleans Natural Resources Manager and the Orleans Beach Director. The protocol was as follows:

Frequency: Three times daily (times may be flexible within hour)
Morning Session: 08:00 – 10:00
Mid-Day Session: 12:00 noon - 2:00 p.m.
Afternoon Session: 16:00 – 18:00
Number of vehicles: 180 self-escorted vehicles for a maximum of 360 Vehicles.

Determination for the Implementation of two Incidental Takes (2 Broods)

On July 13, it was determined by the Natural Resources Manager that all but two remaining broods in the Pochet Wash had successfully fledged. The two remaining broods were identified as P4A and P7.

For several days, Monitors and HCP Shorebird Monitors observed the foraging habits of the adults and chicks of both broods prior to the initiation of the HCP. Based upon detailed daily observations, including their foraging range and daily movement, the self-escort zones were established. (See Figure 1)

P4A Brood Observations

The P4 pair re-nest (P4A) was found on June 6, 2016 with 1 egg and went to four eggs on June 11, 2016. It was identified as P4A. Four eggs hatched on July 6, 2016. They were 8 days old at the time the HCP was implemented on July 14, 2016.

The brood remained on the coastal beach and foraged in the wrack line within the immediate area of their original nest site. The OSV corridor was west of their foraging area and separated by a heavily vegetated coastal dune. The OSV trail was set up to be compliant with the HCP at no more than 15’ wide with necessary pull over areas to allow for two way traffic.

A week into the HCP, the P4A brood moved slightly north and the HCP Self-Escort Zone was adjusted to reflect their movement.

The P4A adults remained in the immediate area of their nest site and foraged on the wrack line east of the dune system separating them from the OSV corridor.

In the first 13 days, the P4A adults were observed moving the chicks back to the front beach each time they attempted to cross the OSV corridor. The P7 brood, which was located directly west of the P4A brood, occupied that area. Territorial fighting between the P4A and P7 broods was observed on occasion. No plover tracks were observed in the morning crossing the corridor after the OSV corridor had been raked to level tire ruts. Therefore, we did not attribute the behavior of the adults as responding adversely to the HCP windows of access and activity, rather it was attributed to territorial behavior between the P4A brood and the other HCP brood P7.

There was also a substantial dune separating the brood from the front beach and the OSV corridor. There were no observations that the OSV Self-Escort Zone vehicle or foot traffic had any major effect on the foraging habits or general behavior of the P4A brood. Their foraging and feeding behavior was observed as normal and robust. They also were observed as resting under small dusty miller (Centaurea cineraria) flora to take shade in the heat of the day. Both adults were attentive.

Incident with P4A Adults and Chicks

On July 19, 2016, the 2 P4A adults and 1 chick went missing. A search was conducted for several days of the entire north and south area for the adults. There was no evidence of predation (feathers or remains). The disappearance corresponded with a full moon and high tide. There were Eastern coyote (Coywolf) tracks in the foraging area where the chicks and adults had been observed the previous day. However, it was very common for coyotes to routinely run the wrack line along the entire barrier beach in search of food at night.

Figure 4

Figure 4 shows a coyote captured on game camera at electronic baited exclosure south of the P4A foraging area. During extreme high tides, the area in which the chicks and adults forage and hide is substantially reduced which places them directly in the path of the coyotes running the high tide wrack line. These electrified dummy exclosures attempted to modify the behavior of coyotes and other omnivores. Approximately 7 nests in the Pochet area were exclosed. No digging or close encounter circling occurred during the incubation period. Exclosures with incubating adults were constructed to mimic electrified exclosures.

While it is possible the adults were predated by a coyote, no definitive proof could be found as the proximate cause of the P4A adults and chick disappearance.

Another possible cause for the disappearance could have been the presence of avian predators which were also very active during the plover breeding season. Avian predators observed in the vicinity of P4A included great horned owls, red tail hawks, cooper hawks, sharp shinned or marsh hawks, falcons, northern harriers and ospreys. Great horned owl tracks were observed just south of the nest area on several occasions and a great horned owl nest was known to be located on Little Pochet Island just south of the P4A brood. Two osprey nests were also located near the P4A foraging area. Nauset Shorebird Monitors have seen ospreys perched on logs washed up in storms in the Pochet area.

There was also the possibility that the P4A adults simply abandoned the chicks. However, the fact that the adults remained in the immediate area of their first nest and re-nested in the presence of beach walkers, indicted they were tolerant of human activity nearby.

Finally, it is possible that the HCP activity and the presence of over-sand vehicles and self-escorts walking through the escort zones could have resulted in the adults abandoning the

chicks. The adults seemed tolerant of the activity and were buffered from it by the presence of a large dune area east of the corridor along the length of their foraging area.

Additionally, on July 20, a second P4A chick went missing. Monitors believe this chick may have been separated from the brood due to the lack of parental care**.** A small chick was observed with the brood identified as SB1A south of P4A in the area between Trail 4 and Trail 5 on July 25, 2016. The chick may have wandered south and been adopted by SB1A brood. It was undersized compared to the other chicks in the SB1A brood and fledged at the same time as the 2 P4A chicks. There were no other nests in the area and all the chicks and broods were accounted for. The remaining 2 chicks continued to forage and eventually fledge.

P7 Brood Observations

The P7 nest was found on May 20, 2016 with 2 eggs and went to four eggs on May 24, 2016. Four eggs hatched on June 22, 2016. At the time the HCP was implemented, the chicks were already 3 weeks of age and healthy. They remained on the west side of the self-escort zone and fed on the tidal flats near Pochet Creek and crossed back and forth daily between the windows of access and at night. The 4 chicks were deemed as fully fledged on July 19, 2016. The P7 Self Escort Zone was then eliminated at the end of five days.

Least Terns

All of the terns in the area nested in a large colony in Chatham. No nesting tern colony developed on Nauset Spit or Nauset Beach South.

Diamondback terrapins

<u>Diamondback terrapin protocols</u>

Orleans Shorebird Monitors attended a training seminar sponsored by Mass. Audubon at the Wellfleet Bay Sanctuary. The training included the biological behavior of terrapins, including nesting behavior and identifying locating nests and tracks of adult females and hatchlings.

Once a nest was located by HCP staff, the Sanctuary was called immediately. Robert Prescott, Director of the Sanctuary, meets HCP Shorebird Monitors at the nest site. Mr. Prescott, who holds a permit issued by MADFW to handle terrapins, determined if the nest should be enclosed or relocated based on its proximity to the OSV corridor. Relocated nests were moved to the west side of the corridor to reduce the need for hatchlings to cross the corridor while OSV traffic was occurring.

Field data on the nest location was recorded, including GPS coordinates, the number of eggs, depth of nest, and an estimated age of the eggs. A hatch date was then assigned to the nest. Based on predicted hatch dates, the Wellfleet Bay Wildlife Sanctuary trained hatchling volunteers were assigned to individual nests and monitored the nests daily at 8:00 a.m. and again at 5:00 p.m. prior to the hatch. Once the hatch occurred, the hatchlings were transported to the Sanctuary to be released in the field at a later date.

2016 Season

Three terrapin nests were located by HCP Shorebird Monitors in close proximity to the OSV corridor. In accordance with the established protocol for protecting terrapin nests at Nauset, Robert Prescott, Director of the Mass Audubon's Wellfleet Bay Wildlife Sanctuary, and Paul Wightman, Orleans Shorebird Specialist and Endangered Species Monitor, moved the nests to a protected location on the west side of the OSV corridor. Enclosures were placed on the nests and monitored by Wellfleet Audubon Sanctuary volunteers at 8:00 a.m. and again at 5:00 p.m. daily. Once hatched, the Wellfleet Bay Wildlife Sanctuary trained hatchling volunteers transported the hatchlings to the Sanctuary to be released in the field at a later date.

On September 10, 2016, 39 terrapin hatchings were released at the Pochet area by Robert Prescott. School children participated in the release and the event was covered by the Cape Codder Newspaper as part of our public outreach effort.

Additionally, two wild nests were located by Audubon volunteers and did not require relocation. No hatchlings were overwintered by the Barnstable Department of Natural Resources due to lack of tank space.

Daily Trip Counts during 3 Windows of Access and HCP Brood Observations made by HCP Monitors

HCP week 1: July 14-20

Thursday, July 14: 19 OSV, 3 Self-contained (41 passes)
Friday, July 15: 30 OSV, 4 Self-contained (64 passes)
Saturday, July 16: 104 OSV, 9 Self-contained (199 passes)
Sunday, July 17: 50 OSV, 1 Self-contained (116 passes)
Monday, July 18: 35 OSV (69 passes)
Tuesday, July 19: 18 OSV (36 passes)
Wednesday, July 20: 13 OSV (26 passes)

All self-escorted no caravans.

P4A

Thursday, July 14: 3 chicks- Chicks and adults were on the front beach in the morning, but in the afternoon crossed the road several times and spent time in a washout in between the road and the front beach.

Friday, July 15: 4 chicks- Chicks and adults on the front beach, moving farther south, escort zone adjusted accordingly. HCP corridor adjusted to maximum of 15 feet, with pull-offs.

Saturday, July 16: 4 chicks- All 4 chicks located on the front beach in the early morning, but separated (2 with one adult and 2 with the other) in the afternoon. 2 crossed the ORV trail with an adult but the adult brought them back to feed on the front beach.

Sunday, July 17: 4 chicks- 1 chick and 1 adult located near trail 1, but quickly rejoined the others on the front beach within the escort zone.

Monday, July 18: 4 chicks- Chicks stayed on the front beach, feeding in the rack line most of the day, with several disappearances into the dune grass. During the closed times, the chicks and adults crossed the road but came back to the front beach quickly.

Tuesday, July 19: 3 chicks- Chicks stayed on the front beach, feeding in the wrack line most of the day, with several disappearances into the dune grass. No attempts were made to cross the OSV trail. Adults could not be located, possible predation.

Wednesday, July 20: 2 chicks- Chicks stayed on the front beach all day. We were unable to locate the 2 adults and 2 chicks. Escort zone extended. P7 monitors moved to cover more of the road.

P7

Thursday, July 14: 4 chicks- Feeding in the marsh with both adults all day, during the hottest part of the day all of the chicks hid in the marsh grass.

Friday, July 15: 4 chicks- same as the day before, with one chick wandering farther from the others.

Saturday, July 16: 4 chicks - The adults are very attentive and kept the chicks in the back marsh most of the time. They crossed from the front beach over the ORV trail in the early morning and spent the remainder of the day feeding in the marsh and hiding in the marsh grass. Adults exhibiting territorial behavior towards older, fledged chicks in the area.

Sunday, July 17: 4 chicks- 3 fledged, 1 still not flying far enough. Fledged chicks stayed on the front beach, but unfledged chick stayed in the marsh feeding with 1 adult.

Monday, July 18: 4 chicks fledged

Tuesday, July 19: P7 escort zone removed

No violations

Notes:
1 of the P4A chicks hatched with an irregular leg and has a hard time running and is slightly smaller than the other chicks. Full-time monitors have observed that all of the P4A chicks are undeveloped but continuing to forage and feed normally. The P4A chicks were 9 days old at the time the HCP was initiated.

P4A Brood Event – On the morning of July 19, 2016 the 2 P4A adults could not be located. 1 chick was also missing. No signs of predated plovers were observed in the area. Possible causes could have been (1) abandonment or (2) predation. The event correlated with a high tide and full moon at 12:01 a.m. the tide was 11.1 feet. During a high tide, the section of beach where the chicks and adults forage is significantly narrowed due to the incoming tide. Coyotes typically run the wrack line traveling along the high water. It is also possible that nocturnal avian raptors which have been observed in the area of P4A may have also been a factor.

Abandonment – Because the adults had a nest predated while they were incubating but remained in the area to re-nest the possibility of abandonment is less likely than predation.

HCP week 2: July 21-27

Thursday, July 21: 26 OSV and 2 SC (54 passes)
Friday, July 22: 39 OSV and 10 SC (88 passes)
Saturday, July 23: 109 OSV and 4 SC (222 passes)
Sunday, July 24: 95 OSV and 1 SC (217 passes)
Monday, July 25: 26 OSV and 4 SC (58 passes)
Tuesday, July 26: 29 OSV and 0 SC (48 passes)
Wednesday, July 27: 34 OSV and 31 SC (66 passes)

All self-escorted, no caravans.

P4A

Thursday, July 21: 2 chicks – chicks feeding on the front beach, still no adults in the area and 2 missing chicks. No attempts were made to cross the OSV trail. In the heat of the day the chicks hid in the dune grass on the front beach but came out to feed again in the evening.

Friday, July 22: 1 chick – chick was not feeding regularly, but stayed on the front beach and spent most of the day hidden in the dune grass. Because of the disappearance of the 2nd chick, an extra monitor was stationed in the road to ensure that the lost chick did not wander into the road.

Saturday, July 23: 2 chicks – Second chick was located in the morning on the front beach much farther north of the first chick. Both were monitored separately until they rejoined around midday to hide in the grass.

Sunday, July 24: 2 chicks – both chicks have been feeding on the front beach regularly and are beginning to spread their wings and are growing tail feathers.

Monday, July 25: 2 chicks – Chicks have moved north on the front beach into a more protected area with more dunes and grass, as well as other shorebirds. The escort zone was adjusted accordingly.

Tuesday, July 26: 2 chicks – Chicks were feeding on the front beach all day, except in the hottest times of day when they hid in dune grass. Both chicks are beginning to show flight capabilities, one more than the other.

Wednesday, July 27: 2 chicks – Same as the day before, with longer flight distances.

No violations

Notes: *1 chick located in the closed area between trails 4-5 (on July 25). It seems that SB1A may have adopted 1 smaller chick. The chick is the same age as the P4A chicks. We think that the chick may have been separated and moved south where it was acquired by SB1A. It is approximately the same size as P4A chicks and smaller than SB1A chicks and may have wandered down the beach after the adults disappeared.*

HCP week 3 - July 28-August 3

Thursday, July 28: 41 OSV and 2 SC (84 passes)
Friday, July 29: 5 OSV and 12 SC (22 passes)
Saturday, July 30: 128 OSV, 11 SC (267 passes)
Sunday, July 31: 46 and 1 SC (114 passes)
Monday, August 1: OSV and 1 SC (79 passes)
Tuesday, August 2: 19 OSV 0 SC (41 passes)
Wednesday: ORV opened HCP concluded

All self-escorted, no caravans.

P4A

Thursday, July 28: both stayed on the front beach all day and hid during the hottest part of the day

Friday, July 29: same as day before

Saturday, July 30: same as day before

Sunday, July 31: both flying ~20 feet

Monday, August 1: 1 fledged, 2nd still flying ~20 feet

Tuesday, August 2: both fledged

Wednesday, August 3: ORV opened HCP concluded

No violations

Notes: *The separated chick at trail 3 fledged on the same day as the second chick (8/2/2016) and did not return. The chick was located on Monday (7/25).*

Summary 2016 HCP Program

The Overall Success of the HCP and Piping Plover Productivity at Nauset Beach 2016

In 2016, the addition of a 3rd access window increased visitor use substantially. Subsequently, the number of passes was substantially increased from the HCP in 2015. This is attributed to the additional window of access and two-way traffic during all access windows. Overall, very positive feedback was received by staff from users.

Overall, the 2016 Nauset Beach Piping Plover Monitoring Program was a success. Our overall fledge rate was 2.11. We had a 95.24% fledge rate on all eggs that hatched. Several nest eggs did not hatch which reduced our overall productivity.

Total Vehicle Passes: 1,191 vehicle passes divided by 2 (on and off beach) = 976 vehicles accessed Nauset Beach South during the HCP. The duration of the HCP was 20 days. This was an increase of 821 vehicles over the 155 vehicles and 300 passes that took place in 2015.

Caravans: There were no caravans in 2016 during the HCP.

Violation Incidents - There were no reported violation incidents in 2016.

Medical Emergencies - There were 2 medical emergencies requests to leave the beach outside of the permitted access times. The HCP staff followed the procedures outlined into the HCP and User Guide. The individuals requesting to leave were escorted off the beach without incident.

Recommendations: The Town of Orleans has no recommendations at this time.