REF: ES # 05-001(F) June 15, 2005

Rachel Marino
Environmental Branch Chief
United States Coast Guard
Civil Engineering Unit Providence
300 Metro Center Blvd.
Warwick, RI 02886

Dear Ms. Marino:

The U.S. Fish and Wildlife Service has reviewed The Trustees of Reservation's (The Trustees) application for a U.S. Coast Guard Marine Event Permit to hold fireworks in Ipswich, Massachusetts on July 3, 2005, with a rain date of July 4, 2005. This document represents the Service's Biological Opinion on the effects of the action on the federally-threatened piping plover (*Charadrius melodu*s) in accordance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.).

This Biological Opinion is based on information provided in your May 27, 2005 letter describing the proposed project and requesting initiation of formal consultation. It is also based on a draft Biological Evaluation of the effects of the fireworks on piping plovers prepared by The Trustees, documentation provided by the Parker River National Wildlife Refuge and discussions with Mr. Luke Dlhopolsky of your staff, Susi von Oettingen of my staff, and Mr. Franz Ingelfinger, Northeast Regional Ecologist for The Trustees.

I. CONSULTATION HISTORY

May 25, 2005 – New England Field Office biologist Susi von Oettingen is notified by Franz Ingelfinger of The Trustees of Reservation of the proposed July 3, 2005 fireworks and the pending Marine Events Permit application to the U.S. Coast Guard in a telephone conversation.

May 27, 2005 – The U.S. Coast Guard requests initiation of formal consultation on a Marine Event Permit for the July 3, 2005 fireworks event at Crane Beach, Ipswich, Massachusetts.

June 2, 2005 – U.S. Fish and Wildlife Service sends letter acknowledging receipt of request to initiate formal consultation, stating that there is sufficient information to initiate consultation.

II. BIOLOGICAL OPINION

DESCRIPTION OF THE PROPOSED ACTION

Fireworks Event
The proposed action is the discharge of fireworks from The Trustees property, Castle Hill in Ipswich, Massachusetts, on July 3, 2005 or July 4, 2005 (rain date). Approximately 946 shells ranging from 3" to 12" will be detonated between 9:10 and 9:40 p.m., similar to past displays. Castle Hill is an upland site overlooking Crane Beach and Ipswich Bay. The action area includes Crane Beach and Sandy Point State Reservation, Ipswich, Massachusetts.

Spectator Management
Crane Beach
An estimated 2,400 to 3,500 spectators are expected to attend the fireworks at Crane Beach, with additional spectators viewing from Sandy Point State Reservation, and from boats anchored in the mouth of the Ipswich and Parker Rivers. Spectators at Crane Beach observe the display along the main beach adjacent to the boardwalks covering a linear distance of approximately ½ mile. The beach is closed to pedestrians within 0.36 mile of the launch site.

In addition to the annual recreational management measures undertaken by The Trustees to protect nesting piping plovers and least terns (*Sterna antillarum*) at Crane beach, The Trustees (sponsor of the fireworks event) will implement protective measures, as outlined in the U.S. Fish and Wildlife Service (Service) guidelines for managing fireworks in the vicinity of piping plovers (USFWS 1997), to prevent spectators observing the fireworks from disturbing piping plovers at Crane Beach. These measures include:

1. Symbolic fencing will be extended around active piping plover nests to provide a minimum of a 100-meter buffer between active nests and the viewing public to minimize disturbance from spectators during the display.

2. The symbolic fence will be reinforced with electric predator mesh in areas where spectators will be located in front of nesting areas (east of the beach boardwalks to the end of the patrolled swim area) to increase the visibility and effectiveness of symbolic fencing. The electric mesh will not be turned on, but has proven to be an effective pedestrian deterrent during the display and is more porous to nesting shorebirds than snow fencing.

3. Adequate numbers (consistent with anticipated numbers of spectators) of monitors and enforcement personnel will be provided before, during and after the event to ensure compliance with closed areas and the prohibition of fires and private pyrotechnics. During past displays, 10-12 staff have been on hand to manage spectators at Crane Beach. This has included: four biological monitors (including The Trustees regional ecologist), two lifeguards, one enforcement ranger, one Ipswich police detail, and two to four additional beach managers.

4. Piping plover habitats and active pairs will be intensively surveyed for at least four days prior to the event to locate nests, adult plovers, chicks and fledglings.

5. Except in response to an actual public emergency, no staff vehicles or ATVs will be permitted on the beach during the event in locations where chicks are present.

6. Staff will remain on the beach until all spectators have left. Crowds generally disperse quickly, although traffic exiting Crane Beach and Castle Hill can be expected to last for up to 1.5 hours after the end of the display. The beach is usually cleared by 11:00 pm.

7. Consistent with seasonal management at Crane Beach, dogs will not be allowed.

8. Trash will be removed at daylight.

9. The Trustees will provide the Service with a report of the piping plover monitoring activities.

Sandy Point State Reservation

The parking area at Sandy Point State Reservation accommodates 45-50 vehicles and in past years the fireworks display has attracted between 100-150 spectators at Sandy Point. To prevent spectators observing the fireworks from disturbing piping plovers at Crane Beach, adequate numbers (consistent with anticipated numbers of spectators) of monitors and enforcement personnel will be provided during and after the event to ensure compliance with closed areas and the prohibition of fires and private pyrotechnics. Staffing includes a ranger from the Parker River National Wildlife Refuge stationed at the parking area (F. Drauszewski, USFWS, pers. comm., 2005), and two to three enforcement personnel provided by staff from Salisbury Beach State Park (M. Magnifico, Massachusetts Department of Environmental Management, pers. comm., 2005).

RANGEWIDE STATUS OF THE SPECIES

Piping plovers are small, sand-colored shorebirds approximately 7 inches long with a wing span of approximately 15 inches (USFWS 1996). In 1985, the Service listed the piping plover under the ESA of 1973, as amended, and recognized three distinct populations: the Atlantic Coast population listed threatened, the Great Lakes population listed endangered, and the Northern Great Plains population listed threatened (USFWS 1985). Critical habitat was designated for the wintering population of all piping plover populations in 2001 (USFWS 2001), encompassing 137 areas from North Carolina to Texas.

Atlantic Coast piping plovers breed on coastal beaches from Newfoundland to North Carolina (and occasionally in South Carolina), and winter along the Atlantic Coast from North Carolina south, along the Gulf Coast, and in the Caribbean (USFWS 1996). In general, piping plovers begin returning to their Atlantic Coast nesting beaches in mid-March (Cross 1990, Goldin *et al*., 1990, MacIvor 1990, Hake 1993, USFWS 1996). Piping plovers have been documented to return as early as March 15 in Massachusetts. By early April, males begin to establish and defend

territories and court females (USFWS 1996). Piping plovers are monogamous, but usually shift mates between years (Wilcox 1959, Haig and Oring 1988, MacIvor 1990), and less frequently between nesting attempts in a given year (Haig and Oring 1988, MacIvor 1990, Strauss 1990). Plovers are known to breed at one year of age (MacIvor 1990), but the rate at which this occurs is unknown.

Clutch size is usually four eggs, and eggs are usually incubated for 27-28 days before hatching. Piping plovers generally fledge only a single brood per season, but may re-nest several times if previous nests are lost.

Upon hatching, precocial[1] piping plover chicks may move hundreds of yards from the nest site during their first week of life. Adults lead the chicks to and from feeding areas, shelter them from harsh weather and protect young from perceived predators. K. Jones (1997) studied home ranges of piping plovers at the Cape Cod National Seashore in Massachusetts and observed that most broods moved an average of 500m from their nests after hatching and before fledging. Two plover families with chicks within 16 to 21 days old were found to forage up to 1,000m from their nests. Plover broods have also been observed to move up to 1,600m from their nest and back in one day, and have moved maximum distances of more than 4,000m before fledging (Jones 1997).

Chicks remain together with one or both parents until they fledge at 25 to 35 days of age. Depending on the date of hatching, unfledged chicks may be present on beaches from late May through mid-August, although most have fledged by late July or early August.

Piping plovers nest above the high tide line on coastal beaches, sandflats at the ends of sandspits and barrier islands, gently sloping foredunes, blowout areas behind primary dunes, sparsely vegetated dunes, and washover areas cut into or between dunes. Feeding areas include intertidal portions of ocean beaches, washover areas, mudflats, sandflats, wrack lines, and shorelines of coastal ponds, lagoons or salt marshes (USFWS 1996).

Loss and degradation of habitat due to development and shoreline stabilization have been major contributors to the species' decline. Disturbance by humans and pets often reduces the functional suitability of habitat and causes direct and indirect mortality of eggs and chicks. Predation has also been identified as a major factor limiting piping plover reproductive success at many Atlantic Coast sites, and substantial evidence shows that human activities are affecting types, numbers, and activity patterns of predators, thereby exacerbating natural predation (USFWS 1996).

Inasmuch as pressure on Atlantic Coast beach habitat from development and human disturbance is unrelenting, the recovery of the Atlantic Coast piping plover population is occurring in the context of extremely intensive management that is annually implemented on almost all plover beaches. Since being listed, the Atlantic Coast population has doubled from approximately 800 pairs to an estimated 1,668 pairs in 2004 (USFWS 2005), while the U.S. portion of the population has more than doubled from approximately 550 pairs to an estimated 1,423 pairs. The

[1] Precocial birds are mobile and capable of foraging for themselves within several hours of hatching.

initial increase between 1986 and 1989 is attributed to increased survey efforts especially in two states, whereas any increase after 1989 is a reflection of increased management and protection (USFWS 2002).

Status – Rangewide and Recovery Unit

To facilitate an even distribution of the Atlantic Coast piping plover population for recovery purposes, four recovery units were developed: Atlantic Canada, New England, New York-New Jersey, and Southern. Current information indicates that most Atlantic Coast piping plovers nest within their natal region, that regional population trends are related to regional productivity, and that intensive regional protection efforts contribute to increases in regional piping plover numbers (USFWS 1996). However, at least some dispersal is ongoing within the Atlantic Coast piping plover population; therefore, recovery units do not represent biologically distinct population segments under the ESA (USFWS 1996).

Since 1989, the New England recovery unit increased by 480 pairs, the New York-New Jersey recovery unit gained approximately 211 pairs, the Southern (DE-MD-VA-NC) recovery unit gained on average four pairs and the Atlantic Canada recovery unit gained approximately 23 pairs.[2] In general, New England productivity is either equal to or higher than other recovery units, although estimated productivity in 2003 was the second lowest recorded for this unit (USFWS 2004). Inclement weather and increased predation on both adults and their young are no doubt responsible for the decreased productivity.

The Revised Recovery Plan for the Atlantic Coast piping plover (USFWS 1996) identified a recovery objective for delisting the species, as well as five criteria for meeting the recovery objective. The overall objective is to ensure the long-term viability of the Atlantic Coast plover population in the wild. Delisting of the Atlantic Coast piping plover population may be considered when the following criteria have been met:

- increase and maintain for five years a total of 2,000 breeding pairs, distributed among four recovery units;
- verify the adequacy of a 2,000-pair population of piping plovers to maintain heterozygosity and allelic diversity over the long term;
- achieve a five-year average productivity of 1.5 fledged chicks per pair in each of the recovery units;
- institute long-term agreements to assure protection and management sufficient to maintain the population targets and average productivity in each recovery unit;
- ensure long-term maintenance of wintering habitat, sufficient in quantity, quality, and distribution to maintain survival rates for a 2,000-pair population.

The New England Recovery Unit target is a minimum of 625 pairs. In 2003, there were approximately 686 pairs of piping plovers in New England with an average productivity of "1.19 chicks per pair (USFWS 2004). Preliminary data for 2004 indicate that there were 659 pairs of plovers in New England with an average productivity of ± 1.33 chicks per pair (USFWS 2005). Although the population goal for the New England Recovery Unit has been met, the average

[2] The discussion on recovery unit gains for 2003 is based on preliminary data and may be subject to revision.

productivity has declined in recent years and is now below the 1.5 chicks/pair threshold needed to maintain a secure population.

Five non-jeopardy formal consultations have been written for projects within the New England Recovery Unit. Most of the consultations were with the U.S. Coast Guard for Marine Event Permits for fireworks events in coastal areas of Connecticut and Massachusetts (Table 1). One consultation was written for the U.S. Army Corps of Engineers for maintenance dredging and disposal of dredged material on plover habitat. Allowable incidental take was rarely reached and never exceeded. An emergency consultation addressed the effects from oil spill and clean-up response activities in Buzzards Bay, Massachusetts and identified lost productivity, although there was no evidence of direct mortality of eggs, chicks or adults.

Table 1. Previous biological opinions completed for piping plovers in New England

Year	Project	Incidental Take		Project Completed
		Amount/Extent of Take	Documented	
1997	Fireworks (Connecticut)	4 pairs of plovers and their broods/Harassment	No mortality or loss of productivity	Yes
1997	Fireworks (Massachusetts)	2 pairs of plovers/Harassment	No mortality or loss of productivity	Yes
1999	Beach nourishment/dredging (Maine)	2 pairs no productivity/harassment and mortality of young for the life of the project	1 pair 2002, no young, 1 pair 2003, 1 young	Yes, effects are ongoing
2000	Fireworks (Massachusetts)	1 egg /Mortality 4 broods/Harassment	No mortality or loss of productivity	Yes
2003	Fireworks (Connecticut)	2 pairs of plovers/Harassment	No plovers present during event	Yes
2004	Oil Spill Response (Massachusetts)	4 pairs lost or delayed productivity, unquantifiable take due to harassment	Harassment observed, loss of productivity unknown	Yes, Emergency Consultation

ENVIRONMENTAL BASELINE

Crane Beach

Crane Beach is owned and managed by The Trustees, a member-supported nonprofit [501(c)3] organization whose stated mission is to preserve the Massachusetts landscape. Since 1985, The Trustees have protectively managed piping plovers and implemented the state and federal guidelines for managing piping plovers on recreational beaches (MADFW 1993; USFWS 1994). Since 1985, the number of piping plovers breeding at Crane Beach has increased from five pairs to a high of 45 pairs in 2000; declining to 32 breeding pairs in 2004 (Figure 1) (Munkwitz and Ingelfinger 2004). Since 1986, Crane Beach has produced 1,195 chicks and 717 fledglings, the most of any single site in Massachusetts (Draft Biological Evaluation 2005). Over the 19-year recovery effort, Crane Beach piping plover productivity has averaged 1.77 fledglings per

breeding pair (Munkwitz and Ingelfinger 2004). Until 2000, productivity at the site had been strong, exceeding 2.0 fledglings per pair; however, since 2000, avian predation at exclosures has challenged recovery at the site (Figure 2).

Figure 1. Number of Piping Plover breeding pairs and fledglings produced at Crane Beach 1986 – 2004 (taken from TTOR June 6, 2005 Biological Evaluation).

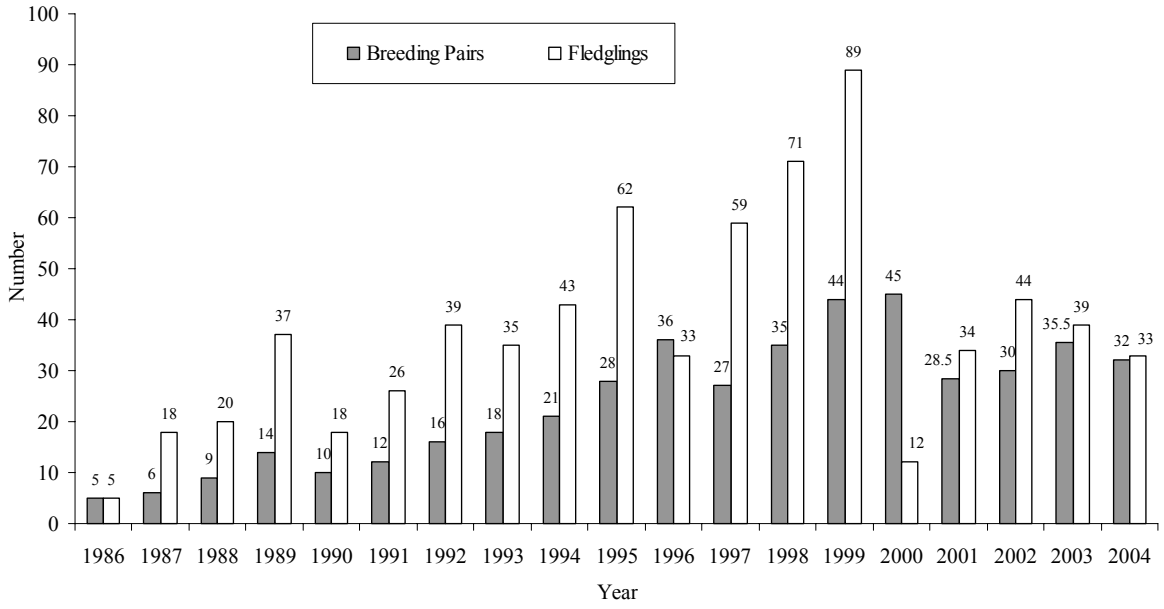
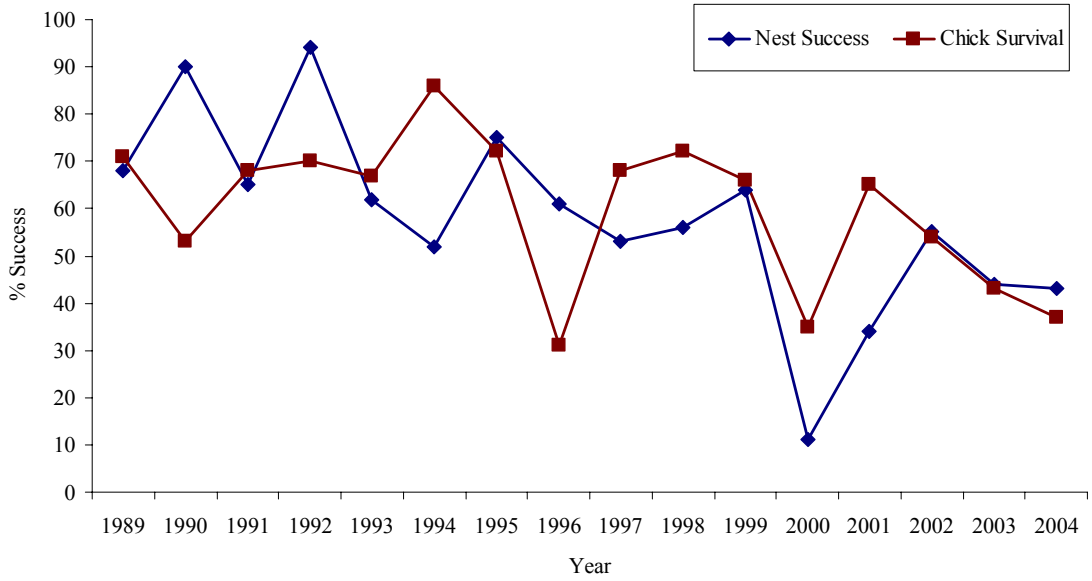


Figure 2. Piping Plover nest success and chick survival on Crane Beach 1989-2004.



The Trustees have responded to decreased productivity due to exclosure ineffectiveness by experimenting with exclosure design and the use of electric fencing to deter mammalian predation. Management adaptations initiated at Crane Beach have been adopted by other beaches experiencing similar predation challenges. Since 2002, The Trustees have consulted on the use of electric fencing with federal, state, and NGO plover and tern managers from Maine to Florida and west to Texas, and in 2005 loaned electric fencing to Massachusetts Audubon to assist with their least tern recovery efforts in Chatham, Massachusetts.

Piping plovers at Crane Beach are monitored daily from April 1 through August by a team of three wildlife technicians coordinated and assisted by The Trustees Northeast Regional Ecologist. The entire length of the 4.5-mile-long barrier beach is symbolically fenced and posted, nests are exclosed, and plover nests and broods are checked daily by wildlife technicians. Pedestrians are allowed to pass in front of the posted area. Primary recreational activities include sunbathing, swimming, and picnicking. Pets and private vehicles are not allowed at Crane Beach. Crane Beach is closed between sunset and sunrise.

Since 1981, The Trustees has held an annual Independence Day celebration, which has included the discharge of fireworks from Castle Hill. Changes in beach morphology since 2001 have created the potential for piping plover pairs, nests, and chicks to be present within ½ mile of the display. Each breeding season since 2001, there has been one active pair of piping plovers within the ½-mile buffer of the display: 2001 – 4 chicks age 24 days; 2002 – 4 chicks age 12 days; 2003 – 2 fledglings age 31 days; and 2004 – 4 chicks age 2 days. These pairs have fledged 4, 4, 2, and 3 chicks respectively. The brood in 2004 fell to three chicks after July 13, nine days following the Fourth of July display. The four-year average productivity for plovers breeding within ½-mile buffer zone of the display is 3.25 chicks fledged per pair and exceeds the four-year average for Crane Beach of 1.23 fledglings per breeding pair.

Behavioral observations during the 2004 display were telling: prior to the display, between 7:30 and 8:40 p.m. the plover adults and chicks were intermittently brooding and feeding. From 8:40 until 9:05 p.m., the chicks were being brooded by an adult. From 9:05 to 9:15 p.m., it was too dark for focal observations. The display commenced at 9:20 p.m. and both adults were heard alarming within the vicinity of where the chicks were last observed. After approximately four minutes, the adult piping plovers no longer made alarm calls. Observations of the adult plovers during the display confirmed that they did not leave the site. It was too dark to locate the chicks following the display. When biologists returned to the site at 4:45 a.m. the next morning, the two adults and four chicks were observed feeding along the upper beach (Draft Biological Evaluation 2005).

Sandy Point State Reservation

Sandy Point State Reservation is located at the southern tip of Plum Island and is an unstaffed state-run facility. Access is acquired thought the Parker River National Wildlife Refuge (Refuge), a gated facility. Piping plover activity at Sandy Point has been monitored by volunteers and federal agents from the Refuge. Since 1998, the site has supported 2-4 breeding pairs; productivity at the site has been variable: 1998 – 4 pairs fledged 5 chicks; 1999 – 4 pairs fledged 5 chicks; 2000 – 2 pairs fledged 3 chicks; 2001 – 3 pairs fledged 0 chicks; 2002 – 2 pairs

fledged 3 chicks; 2003 – 3 pairs fledged 3 chicks; and in 2004 – 4 pairs fledged 0 chicks. (N. Pau, USFWS, pers. comm., 2005).

Management of piping plovers at Sandy Point is a collaborative effort between the Massachusetts Department of Environmental Management and Refuge staff. Refuge biologists monitor piping plovers at Sandy Point, maintain symbolic fencing around active nesting areas, and erect exclosures to protect nests from predation. The state is responsible for other facets of beach management at the site.

Action Area

The action area, considered to be the area of direct and indirect effects, includes the entire length of Crane Beach and Sandy Point State Reservation, Ipswich, Massachusetts.

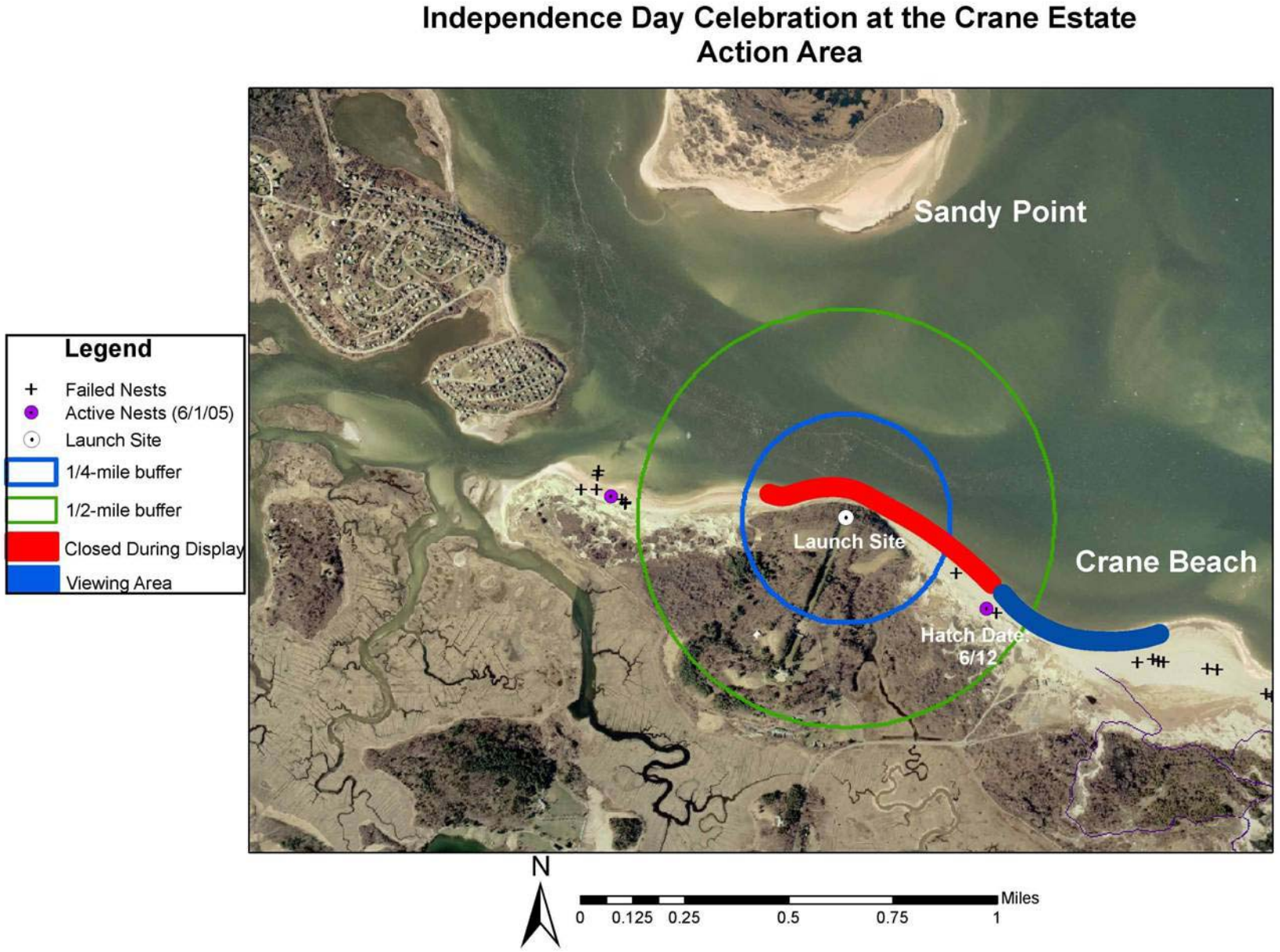
Effects of the Action

In evaluating the effects of the federal action under consideration in this consultation, 50 CFR 402.2 and 402.14(g)(3) requires the Service to evaluate the direct and indirect effects of the action on the species.

Direct adverse effects from fireworks result from the associated noise, lights, and rarely, accidental wildfires. Fireworks early in the breeding season may cause plovers conducting courtship activities to abandon their territories. Direct injury can be caused by the explosions or debris fallout. Moreover, piping plovers and terns (which frequently nest adjacent to or near plovers) will often abandon their nests and broods during fireworks displays, exposing eggs and chicks to weather and predators. If a flightless chick were to become permanently separated from its parents during the confusion, mortality would be almost certain. The Service has concluded that plovers may be directly affected by fireworks located less than 0.5 to 0.75 mile from the nearest plover nesting and/or foraging area (USFWS 1997). The Trustees fireworks event may be located less than ½ mile of 1 to 2 nesting pairs of piping plovers. Previous experience suggests that nesting pairs may establish as close as 0.3 mile from the launching site. The most serious impacts, including debris fallout, are not anticipated at Crane Beach due to the relatively small size of the shells and the projected fallout distance. However, loud reports may disturb plovers, especially during the final salute, preventing them from foraging or resting. The reports may even cause temporary or permanent abandonment of nests at Crane Beach (if plover eggs have not hatched), or separate adults from their young. Sandy Point State Reservation is located outside the ¾-mile zone of direct impacts (Figure 3).

Commercial fireworks displays often draw large crowds that may pose threats to nearby plovers. These crowds may be situated at some distance from the actual launch site, for example, across an inlet. A number of spectators (2,400 to 3,500 people) at Crane Beach and associated crowd control activities may indirectly affect piping plovers. These indirect effects may result from spectators walking through and/or throwing objects (including illegal pyrotechnics) into plover nesting and brood-rearing areas and/or from the accumulation of additional trash (which attracts predators).

Figure 3. Map of Action Area.



Cumulative Effects

Cumulative effects include the effects of future state, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA.

Future increases in recreation at Crane Beach are tempered by guidelines adopted in the 2003 Crane Beach Management Plan stating that in the future, the parking area that services the beach will not exceed the total area of the current beach parking lot, and that overflow parking elsewhere on the Crane Estate will no longer be used to meet regular, peak demand. These guidelines are designed to cap the use of the beach at its current level. However, future increases in pedestrian recreation may be expected to occur on Crane Beach, primarily through increases in boater recreation. Increased recreational use may result in increased disturbance to nesting plovers if not appropriately managed.

Currently, use of the beach is primarily for sunbathing and swimming. Impacts from the activities have been avoided through symbolic fencing of the entire beach, the use of exclosures, electric fencing, and intensive monitoring by biologists, and regulation enforcement by The Trustees lifeguards and beach rangers.

CONCLUSION

After reviewing the current status of the Atlantic Coast piping plover in the New England recovery unit, as well as throughout the rest of its range, the environmental baseline for the action area, the effects of the proposed fireworks event and the cumulative effects, it is the Service's Biological Opinion that the July 3, 2005 fireworks event as proposed is not likely to jeopardize the continued existence of the Atlantic Coast piping plover population or the New England recovery unit. No critical habitat has been designated in New England for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the ESA and federal regulations pursuant to Section 4(d) of the ESA prohibit the take of threatened or endangered species respectively, without a special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct. Harm is defined by the Service as an act that actually kills or injures wildlife, and is further defined as significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity conducted by the federal agency or the applicant.

Under the terms of Section 7(b)(4) and Section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered a prohibited taking, provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The Coast Guard Marine Event Permit is issued based upon the information about the proposed activity provided by the sponsor in its "Application for Approval of Marine Event". The applicant (The Trustees of Reservation) has included measures that are outlined in the Service's "Guidelines for Managing Fireworks In The Vicinity Of Piping Plovers and Seabeach Amaranth on the U.S. Atlantic Coast" (USFWS 1997). Therefore, the measures described in the "Spectator Management" section (pages 2 and 3 of this document) are part of the application that the Coast Guard will consider for approval. It is anticipated that implementation of these measures as part of the proposed activity will result in avoidance of significant environmental impacts. Once approval is granted, the applicant is required to conduct the event in the manner described in the application. If the applicant fails to conduct the activity as described in their approved application, including compliance with the terms and conditions of the incidental take statement issued by the Service, we understand that the Marine Event Permit may be revoked and the protective coverage of Section 7(o)(2) may lapse.

The Service anticipates that incidental take of the federally-threatened piping plover is likely to occur during the fireworks event primarily in the form of harassment and possible egg mortality. The disruption of normal behavior including feeding, resting and/or brooding may result from increased human presence and activity at Crane and Sandy Point Beaches. Direct disturbance of plovers by fireworks may occur at Crane Beach since these nesting areas are located within ½ mile of the fireworks discharge area. Plovers may exhibit more alarm behavior and have less opportunity to feed throughout the evening when large shells explode during the fireworks event. If chicks are very young at the time of the event, chick growth rates and/or the number of days to fledging could be adversely affected as a result of the disturbance. For those plovers incubating eggs during the event, the explosions may cause adults to leave the nest for a short time. At Crane Beach, eggs may be lost to predators or may be chilled to the point of causing mortality.

Due to the protective measures proposed by The Trustees that will restrict spectators from Crane Beach and Sandy Point State Reservation, the Service anticipates that the proposed fireworks event is not likely to indirectly adversely affect piping plovers. Therefore, the Service does not anticipate any take associated with indirect effects.

However, it is likely there will be direct adverse effects to one to two pairs of plovers that may be within ½ mile of the fireworks discharge site. The Service anticipates that one egg may be lost due to temporary abandonment of the nests should a successful nest be established within ½ mile of the discharge site. In addition, the Service anticipates "take" in the form of harassment of all chicks, especially those aged 10 days or younger at Crane Beach. Piping plover chicks typically triple their weight during their first two weeks after hatching and need to achieve at least 60% of this weight gain by day 12 to ensure a reasonable likelihood of survival (Cairns 1977). We believe that young plover chicks using Crane Beach will be harassed by fireworks noises and light flashes that may disturb roosting during the event, and feeding during the event and for a period afterward, potentially delaying weight gain and increasing their vulnerability to mortality.

Reasonable and Prudent Measures

Reasonable and prudent measures are measures considered necessary or appropriate to minimize the amount or extent of anticipated incidental take of the species. Reasonable and prudent measures, along with the terms and conditions that implement them, cannot alter the basic design, location, scope, duration, or limit of the action, and may involve only minor changes.

Pursuant to Section 7(b)(4) of the ESA, the Service believes there are no reasonable and prudent measures necessary and appropriate to minimize take because all such measures have been incorporated into the project description.

Terms and Conditions

Terms and conditions include, but are not limited to, monitoring and reporting requirements that are tailored to the nature of the action and the particular needs of the species involved. These terms and conditions must be incorporated as binding conditions of any permit issued by the U.S. Coast Guard. The measures proposed by The Trustees meet the Service's requirements for managing piping plovers during fireworks events and no further terms and conditions are required other than the reporting of any impacts to piping plovers from the event.

Reporting and Monitoring Requirements

The Trustees must provide the Service with a report of the piping plover monitoring activities on Crane Beach and Sandy Point State Reservation before, during and after the fireworks event. The contact for these reporting requirements is as follows:

Michael J. Bartlett, Supervisor
New England Field Office
U.S. Fish and Wildlife Service
70 Commercial St., Suite 300
Concord, NH 03301
(603) 223-2541

In order to determine the effectiveness of the protective measures proposed by The Trustees in lieu of Terms and Conditions, the following should be undertaken:

1. A qualified biologist should determine the location and status of all adult plovers, nests, and chicks within ¼ mile of spectator viewing areas on the day of the event and again on the following day.

2. Counts should be taken of human tracks that intersect the perimeter of symbolically-fenced areas, before and after the event.

3. Counts should be taken of persons actually observed inside symbolically-fenced areas during the event.

4. Counts should be taken of instances of illegal pyrotechnics used on the beach during the event.

5. Counts should be taken of trash/litter items inside symbolically-fenced areas, before and after the event. For very large areas or areas that have substantial amounts of trash before the event, trash counts may be conducted in sample plots.

6. Counts should be taken of breaks in symbolic fences.

Reinitiation Notice

This concludes formal consultation on the federal action outlined in the May 27, 2005 request. As provided in 50 CFR Section 402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, all activities that are causing such take must cease until such time as any necessary consultation is completed in order to avoid violation of Section 9 of the ESA.

The Service appreciates the opportunity to work with the U.S. Coast Guard in fulfilling our mutual responsibilities under the ESA. Please contact Susi von Oettingen of this office at (603) 223-2541, extension 22, if you have any questions or require additional information.

Sincerely yours,

Michael J. Bartlett
Supervisor
New England Field Office

CC: Reading file
Luke Dlhopolsky, USCG
Scott Melvin, MADFW
ES: SvonOettingen:June 15, 2005:603-223-2541, ext. 22

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