May 24, 1999

Kenneth E. Hitch
Engineering/Planning Division
New England District
Corps of Engineers
696 Virginia Road
Concord, MA 01742-2751

Dear Mr. Hitch:

This document transmits the Fish and Wildlife Service's biological opinion on the proposed maintenance dredging of Wells Harbor and the disposal of dredged material on Wells and Drakes Island beaches in Wells, Maine, and on its effects on the federally-threatened Atlantic Coast piping plover (*Charadrius melodus*). Our response to your April 2, 1999 request for formal consultation is in accordance with section 7 of the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 *et seq*.). Your request for formal consultation was received on April 8, 1999.

Our biological opinion is based in large part on information provided in your April 2, 1999 letter of request, the September 1996 Draft Environmental Assessment, telephone conversations with Mark Habel of the Corps' Construction/Operations Division, and site visits. A complete administrative record of this consultation is on file at this office.

CONSULTATION HISTORY

March 17, 1989	Letter from the Service to Mr. B. Timson, of Timson, Schepps and Peters discussing the proposed development of Wells Harbor, Maine.
November 1, 1989	Letter from the Service to the Maine Department of Environmental Protection commenting on a report concerning the proposed development of the Wells Harbor Navigation Project.
June 14, 1996	Letter from the Service responding to the proposal by the Corps of Engineers and the Town of Wells to redevelop the Wells Harbor Navigation Project.

October 23, 1996	Letter from the Service to the Corps of Engineers providing comments on the draft Environmental Assessment for Wells Harbor, Maine.
December 3, 1996	Letter from the Service to the Chairman, Maine Board of Environmental Protection regarding the Service's October 23, 1996 pre-filed testimony and procedural issues for the joint Corps/Town application for the Wells Harbor Project.
July 1, 1997	Letter from the Service to the Chairman, Maine Board of Environmental Protection providing comments on April 1997 alternatives analysis for the proposed Wells Harbor redevelopment project.
April 23, 1998	Meeting held in Wells, Maine to discuss plover management at Wells and Drakes Island Beaches.
November 19, 1998	Letter from the Corps to the Service requesting initiation of formal consultation on the Town portion of the Wells Harbor redevelopment project.
December 11, 1998	Letter from Service to the Corps stating that the application request did not provide adequate information to initiate formal consultation.
January 5, 1999	Meeting held with the Corps, Town of Wells, Save Our Shores, Wells and the Service to discuss the proposed Wells Harbor dredging project and potential impacts to piping plovers
January 19, 1999	Letter from the Service to the Corps discussing toxicity testing of sediment samples from Wells Harbor.
March 2, 1999	Meeting held with the Corps, Town of Wells, S.O.S. Wells, Maine Department of Environmental Protection, U.S. Environmental Protection Agency, and aides to Senators Collins and Snowe to discuss the Section 7 consultation process for the Wells Harbor redevelopment project.
March 9, 1999	Meeting and site visit to the proposed dredge disposal sites. Participants included the Service, Corps, S.O.S. Wells, Maine DEP, and staff from the offices of Senators Snowe and Collins.
April 8, 1999	The Service received the Corps request dated April 2, 1999 to initiate formal consultation.

April 16, 1999 Service letter sent to the Corps indicating that the Corps' request for formal consultation had been received and was acceptable to initiate consultation.

April 17, 1999 Town of Wells passed Article 71 "Adoption of Beach Management Guidelines to Protect Piping Plovers". The Article authorizes the Board of Selectmen to adopt regulations consistent with the Service's guidelines for managing piping plovers on Town-owned property. The Article also authorizes the Board to enter into agreements with private landowners to manage plovers.

BIOLOGICAL OPINION

It is my biological opinion that the proposed project will not jeopardize the continued existence of the federally-threatened Atlantic Coast piping plover. Critical habitat has not been designated for this species.

Project Description

The proposed action consists of two projects involving the dredging of approximately 190,000 cy of material. The Wells Harbor federal navigation project consists of approximately 160,000 cy of material to be dredged from the 8-foot MLLW entrance channel (with advanced maintenance to -10 feet MLLW), the 6-foot MLLW inner harbor channel and anchorage, and the 8-foot relocated outer harbor settling basin. The Town of Wells municipal landing project involves approximately 30,000 cy of material dredged to 6 feet below MLLW. Dredged material for both portions of the proposed action will be pumped via land-based and floating pipelines to discharge areas on Wells Beach and Drakes Island.

Dredging will be done using a hydraulic dredge, and will originate in the entrance channel and proceed through the inner harbor. Approximately 130,000 cy of dredged material from the entrance channel will be discharged onto Drakes Island Beach. Material dredged from the southern end of the inner harbor (about 60,000 cy) will be discharged to Wells Beach. The Corps of Engineers will be responsible for dredging, construction of discharge structures, transport of material to the receiving nourishment areas, and rough spreading of the material. The Town of Wells will be responsible for the final distribution of the material as well as the finish grading to design elevations and slopes. Detailed descriptions of the hydraulic dredging and disposal operations are found in supporting documentation provided in the April 2, 1999 letter initiating consultation.

Wells Beach Nourishment - The area proposed for nourishment extends approximately 1,300 feet along the beach, beginning at the municipal parking lot at Casino Square and running north to the beach in front of large multi-story motels. The finished beach elevations would have a width of 10 to 30 feet above the berm crest elevation (2 to 3 feet above MHW). The widest portion of the beach would be

immediately in front of the municipal parking area with a narrowing of the beach as the nourishment proceeds north.

The dredged material will be pumped to Wells Beach via a pipeline originating in the inner harbor, extending across the developed residential area along public roads and rights-of-way. The pipeline will enter the beach proper at right-of-way #14 and will run to MHW south of the south jetty. Alternatively, a floating pipeline may be run through the inlet and over the south jetty to the same point on the beach. There are three alternatives for transporting the material to Casino Square from the pipeline termination point:

1) The pipeline would travel south along MHW to Casino Square with a land-based booster pump. At Casino Square, the material would be discharged into a diked containment area for dewatering and subsequent distribution using heavy equipment.

2) The pipeline would connect to an offshore floating pipeline and barge-mounted booster pump. The material would be pumped onshore via a pipeline running south to Casino Square, where it would be discharged into a diked containment area for dewatering and distribution as in #1.

3) The material would be discharged directly at right-of-way #14 into a diked containment area for dewatering. Once dry, the material would be trucked along the beach and stockpiled at Casino Square for further distribution.

Nourishment at Drakes Island Beach - Dredged material originating from the channel, outer harbor and upper (northern) end of the inner harbor would be pumped via pipeline to reach landfall over the shore arm of the north jetty. The pipeline would run north above the MHW line to the discharge area, avoiding the vegetated dune and piping plover nesting area.

The nourishment zone at Drakes Island would extend north of the public right-of-way at the foot of Drakes Island Road and run northerly approximately 2,000 feet to the north end of Laudholm Beach Road. A toe dike would be built along the beach between MHW and MLW to contain discharged material and permit dewatering. Once dry, the material would be redistributed and graded using heavy equipment. After final grading, the beach would have a width of about 20 to 50 feet above the berm crest elevation.

In addition, the Corps and the Town of Wells have agreed to the following:

- Beach profiles at both discharge sites will have maximum slopes of 10:1 and will not be planted with vegetation in order to provide potential suitable nesting habitat for piping plovers.

- All construction activities will be restricted to the period of September 1 to April 1 to avoid impacts to breeding piping plovers.

- The Town of Wells will be held responsible for managing and protecting piping plovers pursuant to conditions provided in this biological opinion by means of a Memorandum of Agreement with the Corps.

The State of Maine Board Order placed a condition on the Town of Wells' application for dredging the Harbor that requires a monitoring program in the adjacent marsh beginning in 1998 and extending five years beyond the completion of the dredging project. Given that the Harbor will not be dredged for at least five years, the duration of the impacts to piping plovers will be determined by the duration of the beach created by the nourished areas. Without major storm events, the rate of sand transport from the nourished beaches will cause the beaches to last only approximately two to three years (M. Habel, COE, pers. comm., 1999).

Status of the Species

Species description/Life history

Piping plovers are small, sand-colored shorebirds approximately 7 inches long with a wing span of approximately 15 inches (USFWS 1996). The USFWS recognizes three distinct populations: the Atlantic Coast population, the Great Lakes population and the Northern Great Plains population. The Atlantic Coast population of piping plovers breeds on coastal beaches from Newfoundland to North Carolina (and occasionally in South Carolina), and winters 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 (MacIvor 1990) in Massachusetts and March 28 in Nova Scotia (Cairns 1977). 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.

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).

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 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.

Status and distribution

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, Hecht 1998).

Inasmuch as pressure on Atlantic Coast beach habitat from development and human disturbance is pervasive and unrelenting, the recovery of the Atlantic Coast piping plover population is occurring in the context of an extremely intensive protection effort being implemented on an annual basis. Since being listed as threatened in 1986 (USFWS 1985), the Atlantic Coast population has increased from approximately 800 pairs to almost 1375 pairs in 1998 (Table 1). The initial increase between 1986 and 1989 is attributable to increased survey efforts in two states, whereas the increase between 1989 and 1996 was a reflection of increased management and protection. However, the latter increase has been unevenly distributed, with the greatest proportion of population gain centered in the New England states. Since 1995, the rate of growth has slowed considerably, primarily due to a smaller increase in numbers of piping plover pairs in the New England states, as well as a net decrease in pairs in New Jersey (A. Hecht, USFWS, *in litt*., 1999).

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

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, and recovery units do not represent biologically distinct population segments under the Endangered Species Act (USFWS 1996).

Since 1989, the New England recovery unit has increased by 421 pairs, while the New York-New Jersey recovery unit gained 19 pairs, the Southern (DE-MD-VA-NC) recovery unit gained four pairs and the Atlantic Canada recovery unit declined 29 pairs. Until 1998, substantially higher productivity rates have been observed in New England than elsewhere in the population's range. In 1998, the number of chicks fledged per pair decreased from an average of 1.6 chicks per pair (the average productivity for the period 1988 to 1997) to ±1.45 chicks per pair (A. Hecht, *in litt.*, 1999).

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. As of 1998, there were 627 pairs of piping plovers in New England with an average productivity of ±1.45 chicks per pair. Although the population goal for the New England Recovery Unit has been met, the average productivity has declined in recent years and is now below the 1.5 chicks/pair threshold needed to maintain a secure population.

Environmental Baseline

As defined in 50 CFR 402.02, "action" means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by federal agencies in the United States or upon the high seas. The "action area" is defined as all areas to be affected directly or indirectly by the federal action, and not merely the immediate area involved in the action. The direct and indirect effects of the actions and activities resulting from the federal action must be considered in conjunction with the effects of other past and present federal, state, or private activities, as well as the cumulative effects of reasonably certain future state or private activities within the action area. The Service has determined that the action area for this project will encompass Wells Beach and Drakes Island.

Description of the Action Area

The action area includes: 1) all portions of beaches on Wells Beach and Drakes Island that will receive dredged material, 2) the sites that will be affected by the pipeline discharging the dredged material, and 3) adjacent beaches that might be used by plovers nesting on newly-deposited dredged material. On Wells Beach, the action area will begin at Casino Square, proceed the length of the proposed beach nourishment area (approximately 1,300 feet) and continue north to either the south jetty or to right-of-way #14 where the discharge pipeline will enter the Beach from the residential area, depending on the route chosen for the pipeline to access the beach proper. The action area on Drakes Island will include the 2,000 foot-long nourishment area, as well as the area affected by the pipeline transporting the dredged material. In addition, currently existing plover habitat that may be accessed by plover broods nesting on the nourished area is considered to be within the action area. This includes the beach south of the disposal area and extending south to the jetty.

Status of the species within the action area

Piping plovers have been monitored in Maine since 1981, when nine pairs statewide fledged 10 chicks. Since the early part of the 1980's, plovers have increased in number of pairs, number of sites occupied and productivity, although there has been a large variation in the number of pairs and in productivity on a year-to-year basis (Table 2). Productivity in general has been high compared to the average productivity for states outside of the New England Recovery Unit.

Plovers historically nested at Wells Beach and Drakes Island, although they were absent between 1981 and 1995 (Table 3). The Wells Beach, Drakes Island and Laudholm Beach (the north end of Drakes Island) complex represents approximately 6.25 miles (20%) of Maine's historic nesting habitat (M. Stadler, *in litt*., 1999). Since 1995, the number of breeding pairs at Wells Beach has increased annually, although nesting on Drakes Island south of Laudholm Beach has been sporadic. Productivity at Wells Beach has been variable (Jones *et al*., 1999). In 1998, four pairs of piping plovers attempted to nest on Wells Beach; however, only two pairs successfully fledged chicks (at an average of 1.25 chicks/pair). In 1996 and 1998, one pair of piping plovers nested on Drakes Island, but did not fledge any chicks.

Wells Beach and Drakes Island are a mixture of privately- and municipally-owned property. Most plovers nest on private property making their protection problematic since some landowners have been unwilling to allow symbolic fencing of nesting habitat and/or the installation of nest exclosures. Piping plover management has been largely subcontracted by the Maine Department of Inland Fisheries and Wildlife (MDIFW) to the Maine Audubon Society (MAS). Due to staff and funding shortages, the MAS is unable to monitor plovers at Wells Beach and Drakes Island more than twice weekly, and generally does not begin to consistently monitor plovers until May. Landowner contact for permission to fence and exclose plover nests is usually initiated after plovers have arrived. MDIFW standard recommendations to beach managers state that symbolic fencing may be erected after plovers have returned and begun to establish nest scrapes, or upon the discovery of a nest (M. Stadler, pers. comm., 1999). Service guidelines for managing plovers recommend that symbolic fencing of suitable nesting habitat be completed by April 1 (USFWS 1994). Moreover, the guidelines recommend symbolically fencing a 50m radius around the nest in order to avoid disturbing nesting plovers. Symbolic fencing around nests at Wells Beach and Drakes Island has been considerably smaller than the size recommended by the Service. In view of the above, we have concluded that piping plovers at Wells Beach and Drakes Island are not being managed in accordance with Service guidelines.

While the intertidal feeding habitat is very extensive (mean tidal range is greater than 8 feet), suitable nesting habitat appears to be a limiting factor for breeding piping plovers at Wells Beach and Drakes Island. The construction of the jetties at Wells Harbor inlet in 1962 resulted in the erosion of Wells Beach south of the jetties and Drakes Island north of the jetties. Plovers on Wells Beach generally nest at, and south of, right-of-way #14. In 1998, plovers nested at the ends of rights-of-way (the most open areas available on the Beach), or in front of homes near patches of dune grass. Much of Wells Beach is unavailable to nesting piping plovers due to the high tide extending almost to the base of the seawall running the length of the Beach, the lack of vegetation (providing protective cover for plovers), numerous footpaths from homes leading directly to the Beach, and narrow public rights-of-way. In the patches of available suitable habitat, there are few opportunities for plovers to nest undisturbed, given the current level of management.

Plover habitat is found immediately north of the jetty on Drakes Island in a “triangle” (the fillet impoundment of the jetty on which dunes have formed and vegetated since jetty construction) where homes are separated from the beach by the dunes. North of the triangle, the beach at Drakes Island narrows to a point where there is no longer suitable nesting habitat. Due to severe winter beach erosion, one section of the beach is nourished annually by the Town of Wells with stockpiled sand. This area, however, does not appear to be suitable nesting habitat because of its small size and narrow beach.

The beaches immediately abutting the jetties have accreted since construction of the jetties which have impounded fillets, or “triangles” of sand, sparsely covered by dune grass. However, north and south of these triangles, the beaches are sand starved and subject to erosion. Other than immediately adjacent to the jetties, there is very little dune formation at Wells Beach or Drakes Island. Moreover, dune grass in front of most private residences is unable to become established due to trampling (in some cases, it

is physically removed). Establishment of dune grass is important for two reasons: 1) dune grass provides plovers and their young cover from predators, and 2) without the establishment of dune grass, erosion of the beach is accelerated, degrading existing plover habitat and precluding the formation of new plover habitat.

The narrow configuration of the proposed nourishment at Wells Beach and the tall seawall immediately backing the Beach make it unlikely that plovers will attempt to nest at the disposal site on Wells Beach. However, evidence from beach nourishment projects elsewhere in New England suggests that it is likely that one or two pairs of plovers will attempt to establish nests on the nourished area on Drake's Island. The evidence also indicates that beaches in areas either historically known as piping plover habitat or adjacent to occupied piping plover habitat could be occupied within one to two years of nourishment. For example, only one pair of piping plovers nested at West Dennis Beach in Dennis, Massachusetts, prior to nourishment of an area approximately 120 feet wide by 300 feet long. Currently, two pairs are establishing territories and scraping nests (L. Gill, Massachusetts Audubon Society - Coastal Waterbird Program, pers. comm., 1999). On Dead Neck Sampson's Island in Osterville, Massachusetts, an area approximately 1,000 feet long by 125 feet wide was also nourished in 1998. Prior to the nourishment, no plovers nested at this location; currently there are at least two pairs scraping nests (L. Gill, pers. comm., 1999). Corn Hill Beach in Truro, Massachusetts was the site of a small beach nourishment project in 1997. Prior to nourishment, this area had not supported nesting piping plovers for over ten years. In 1998, the year following nourishment, two pairs of plovers nested within 25 feet of each other (L. Gill, pers. comm., 1999).

Areas adjacent to the nourished Beach may also be used by foraging and roosting plovers that nest on the newly-created habitat. Piping plovers and their young often move a great distance in search of food or to avoid perceived predators. At Drakes Island, plovers nesting on the nourished area may move their young south along the beach to the triangle north of the jetty and be subject to adverse effects from beach-goers.

Existing impacts on piping plovers

Between Memorial Day and Labor Day, Wells and Drakes Island Beaches are heavily-used recreational beaches. Both Beaches are backed by residences, the majority of which are rental units or summer use only. There are also a number of hotels on Wells Beach. Limited parking is available at both Beaches. An average of 9,000 to 13,000 people recreate at Wells Beach daily during the height of the summer season, and approximately 1,000 people per day recreate at Drakes Island beach (J. Carter, Town of Wells, pers. comm., 1999).

Over the last three or four years, incidents related to human interference with nesting plovers have been anecdotally reported (Jones *et al*., 1998, Jones *et al*., 1999). For example, free running dogs, illegal fires and fireworks, beach raking and inadequate buffers around nests and broods may have been causes of nest abandonment, egg loss and chick mortality at Wells Beach and Drakes Island. However, because plover monitoring occurs on such a limited basis, documentation of the causes of chick loss has

not been possible.

The Town of Wells rakes its beaches and picks up trash daily using a truck driving in the intertidal area. In 1998, spotters were assigned to walk in front of the vehicle in order to locate plovers and their broods on the beach (prior to 1998, trash pick-up staff did not actively search for plover chicks). The Town of Wells also removes wrack washed up on the beach on a regular basis using vehicles.

The Town of Wells is currently developing a beach management plan in cooperation with the MDIFW, the Service, and various landowner and conservation groups. This preliminary management plan for Wells and Drakes Island Beaches will outline ways for federal, state, municipal and local groups to protect piping plovers. Early drafts of the plan indicate that it will closely follow Service guidelines for managing piping plovers. Initially, monitoring of piping plovers will be accomplished using volunteers (if a sufficient number is recruited) and staff from the Maine Audubon Society (the Town of Wells has never hired staff to monitor plovers and does not intend to hire staff for the 1999 season).

Effects of the Action

Direct Effects

Direct effects on piping plovers nesting on existing habitat have been avoided by time-of-year restrictions placed on the project by the State of Maine Board Order and incorporated into the project proposal. Moreover, although existing plover habitat will be disturbed by the creation of a dike (Alternative 3 for Wells Beach nourishment) and/or the positioning of the pipeline and associated booster pumps required to transport dredged material (Alternatives 1 and 2), the beach will be returned to existing slope and grade prior to the return of the piping plovers.

Indirect effects

Indirect effects to piping plovers and their young nesting, foraging, or roosting on and adjacent to the nourished beach at Drakes Island will result primarily from recreational activities. Restoration of the eroded beach on Drakes Island will increase the amount of human activity as summer recreationists are drawn to the newly-created beach. Human recreational activities that may potentially adversely affect piping plovers include kite flying, volleyball games, illegal fires and fireworks, and unleashed pets. Furthermore, the Town of Wells maintains trash barrels at numerous points along Wells Beach and uses vehicles on a daily basis for beach cleanup. The Town also uses vehicles to remove the wrack line on a regular basis. Without adequate knowledge of plover nest and brood location, there is a possibility of disturbance to, or mortality of, plovers and their young.

Since most of the existing nests occur on private property, plover management activities require the permission of the landowner. This year, as in past years, landowners are being contacted by the Maine Audubon Society. However, permission to symbolically fence is rarely provided early in the plover nesting season. Although the Town was recently given the authority to manage piping plovers on town-owned property and to develop agreements to manage on privately-owned property (see Consultation History), the Town has not initiated landowner contacts nor instituted management actions on behalf of

the piping plover.

In view of the above, we conclude that unless actions are taken to reduce or eliminate human disturbance to nesting plovers, piping plovers will be unable to successfully hatch or rear chicks at the Drakes Island beach nourishment area.

Insignificant and discountable effects

Disposal of dredged material on plover feeding and nesting habitat has the potential to expose the birds and/or their prey species to toxic materials that could be present in the dredged sediments. To help assess the potential for such exposure, the Service requested that the Corps conduct toxicity testing of sediments proposed for dredging from Wells Harbor. The Service's rationale for requesting toxicity testing was based, in part, on a report by NOAA (Wolfe *et al.*, 1994) that demonstrates the poor correlation between typical sediment chemistry evaluation and sediment toxicity. (The NOAA report documents numerous cases in which there was significant toxicity to test species exposed to what appeared to be "chemically clean" sediments.) Unfortunately, the Corps refused the Service's request, choosing to rely on subjective assessment of sediment concentrations of a limited number of potential contaminants.

Lacking site-specific biological and comprehensive sediment chemical data, the Service conducted its own risk analysis to estimate the probability of adverse effects on piping plovers of the proposed dredging and disposal activities (Appendix 1). Our risk analysis relies on sediment chemistry information provided by the Corps, on other sediment data collected by the Service from 17 sites in southern Maine, and on extensive toxicological data in the scientific literature.

Our analysis concludes that 1) sediment concentrations **of measured contaminants** are generally within the ranges of acceptable toxicological benchmarks and criteria for the protection of sediment biota; 2) the concentrations of contaminants estimated to be present in plover food items are generally within conservative dietary benchmarks[2]; 3) there is a close comparison of sediment chemistry with local and regional background levels; and 4) there are numerous ameliorating physical and biological phenomena associated with proposed nourishment (e.g., total washing of sediments).

In view of the above, we find that 1) it is unlikely that the proposed action would increase the exposure of plovers or their prey to adverse effects due to chemical contamination, and 2) any

[2] While other, unidentified contaminants may be present that could harm plover prey or plovers themselves, or while several contaminants could be working synergistically to adversely affect plovers or their prey, it is impossible to assess these potential impacts without additional chemical and biological testing.

adverse effects relating to sediment toxicity on plovers and/or their prey are insignificant and discountable[3] under the proposed dredging and disposal plan.

Beneficial effects

Although there are extensive tidal flats providing almost unlimited foraging habitat for piping plovers at Wells and Drakes Island Beaches, the narrow beaches and minimal dune system severely restrict nesting opportunities. The creation of a beach 2,000 feet long on Drakes Island should provide additional habitat for one or more pairs of piping plovers.

Cumulative effects

Cumulative effects include the effects of future state, tribal, 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 Act.

Ongoing disturbance and predation (resulting from human activities attracting predators to the area) are likely to continue throughout the action area. Furthermore, recreational activity at Wells Beach and Drakes Island is expected to increase annually, as residential units are expanded and tourism of the area is promoted. With the escalating numbers of beach-goers and their pets, disturbance to breeding piping plovers is expected to increase. Until an effective management plan is put into place, plover productivity will be adversely affected by the increasing recreational use of the Beaches. Future dredging and subsequent beach nourishment actions that may affect piping plovers will be addressed in future biological opinions.

Conclusion

After reviewing the current status of the piping plover, the environmental baseline for the action area, the effects of the proposed dredging of Wells Harbor and beach nourishment on Wells Beach and Drakes Island, as well as the cumulative effects, it is the Service's biological opinion that the dredging and beach nourishment activities, as proposed, are not likely to jeopardize the continued existence of the piping plover. No critical habitat has been designated for this species; therefore, none will be affected.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and federal regulations pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to

[3]Insignificant effects are not able to be meaningfully measured, detected or evaluated. Discountable effects are effects that are extremely unlikely to occur.

harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including 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, carrying out of an otherwise lawful activity. 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 to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the Corps of Engineers so that they become binding conditions of any grant or permit issued to the Town of Wells, as appropriate, for the exemption in section 7(o)(2) to apply. The Corps has the continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions, or (2) fails to require the Town of Wells to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps or the Town of Wells must report the progress of the action and its impact to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

Amount or extent of take anticipated

The Service anticipates that all productivity for piping plovers establishing nests on the nourished beach at Drakes Island will be lost as long as the beach remains suitable habitat (approximately two to three years). Given the beach configuration, the Service anticipates that one to two pairs of piping plovers will attempt to nest on the nourished beach at Drakes Island, and all eggs and/or unfledged chicks from these pairs will be taken as a result of adverse indirect effects from the proposed action. The incidental take is expected to be in the form of 1) harassment of adults causing abandonment of the nest, and 2) mortality of eggs or chicks either from dogs, predators incidentally attracted by human recreational activities, crushing by pedestrians, or incidental activities (e.g. beach raking, volleyball, etc.).

Reasonable and prudent measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize incidental take of Atlantic Coast piping plovers:

- In order to avoid or minimize adverse effects on piping plovers and their young, nesting, roosting and foraging piping plovers must be protected and monitored on the nourished beach on Drakes Island and on the “triangle” of beach immediately north of the jetty on Drakes Island.

- All construction activities must occur outside of the piping plover breeding season of April 1 to September 1.

Terms and conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Army Corps of Engineers must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

Plover nesting habitat

1. All suitable piping plover nesting habitat should be delineated by a qualified piping plover monitor with posts and warning signs or symbolic fencing[4] on or before April 1 of each year.

2. If not already symbolically fenced, a 50 meter-radius around nests above the high tide line should be delineated with warning signs and symbolic fencing. Only persons engaged in rare species monitoring, management, or research activities should enter posted areas. These areas should remain fenced as long as viable eggs or unfledged chicks are present. Fencing is intended to prevent accidental crushing of nests and repeated flushing of incubating adults, and to provide an area where chicks can rest and seek shelter when large numbers of people are on the beach.

3. In cases where the nest is located less than 50 meters above the high tide line, near a seawall or a public access point, a qualified biologist should monitor responses of the birds to people recreating nearby, documenting observations in clearly-recorded field notes. Providing that birds are not exhibiting signs of disturbance, a smaller buffer may be maintained in such cases after conferring with the Service or the MDIFW.

4. Piping plover nests must be exclosed in accordance with Service guidelines and authorization issued by the MDIFW. Questions regarding the appropriateness of using exclosures on any particular site should be referred to the MDIFW.

5. The wrack line in front of piping plover nests or within 100 meters of broods should not be removed without consultation with the MDIFW or the Service.

6. Pets must be leashed and under control of their owners at all times from April 1 until August

[4] "Symbolic fencing" refers to one or two strands of light-weight string, tied between posts to delineate areas where pedestrians and vehicles should not enter.

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7. Kite flying should be prohibited within 200 meters of nesting or territorial adult or unfledged juvenile piping plovers between April 1 and August 31.

8. Fireworks must be prohibited from April 1 until August 31.

Plover monitoring

1. Monitoring must occur at least twice per week prior to May 1, and not less than three times per week thereafter,

and

Monitoring must occur daily whenever large numbers of pedestrians are on the beach or essential vehicles are used on a regular basis (i.e., monitor every day that vehicles pick up trash).

2. Monitors should document locations of territorial or courting plovers, nest locations, and observations of any reactions of incubating birds to pedestrian or vehicular disturbance.

3. Monitoring may be discontinued after July 1 at any site where nests or unfledged chicks are no longer present, or where plovers have not been seen.

Essential (non-emergency) vehicles

Because it is impossible to completely eliminate the possibility that a vehicle will accidently crush an unfledged plover chick, use of vehicles in the vicinity of broods should be avoided whenever possible. However, the Service recognizes that life-threatening situations on the beach may require emergency vehicle response. Furthermore, some "essential vehicles" may be required to provide for safety of pedestrian recreationists, law enforcement, maintenance of public property, or access to private dwellings not otherwise accessible.

1. Essential vehicles should travel through chick habitat areas only during daylight hours, and should be guided by a qualified monitor who has first determined the location of all unfledged plover chicks.

2. Speed of vehicles must not exceed five miles per hour.

3. Use of open four-wheel motorized all-terrain vehicles (ATVs) or non-motorized all-terrain bicycles is recommended whenever possible for monitoring and law enforcement because of the improved visibility afforded operators.

4. A log should be maintained by the beach manager of the date, time, vehicle number and operator, and purpose of each trip through areas where unfledged chicks are present. Personnel monitoring plovers should maintain and regularly update a log of the numbers and locations of unfledged plover chicks on each beach. Drivers of essential vehicles should review the log each day to determine the most recent number and location of unfledged chicks.

5. Essential vehicles should avoid driving on the wrack line, and travel should be infrequent enough to avoid creating deep ruts that could impede chick movements. If essential vehicles are creating ruts that could impede chick movements, use of essential vehicles should be further reduced and, if necessary, restricted to emergency vehicles only.

Reporting Requirements

1. Annual monitoring reports on piping plover productivity at Wells Beach and Drakes Island must be submitted to the Service no later than December 31 of each breeding season. Reports must provide information on the number of pairs nesting at each site, the number of nest attempts, number of eggs per nest attempt, number of chicks, number of chicks fledged, and causes of egg or chick mortality, if known.

   The contact for these reporting requirements is:

   Michael J. Bartlett, Supervisor
   New England Field Office
   U.S. Fish and Wildlife Service
   22 Bridge St., Unit #1
   Concord, NH 03301-4986
   (603) 225-1411

2. In the event that a crushed nest or dead adult or chick are found, the following U.S. Fish and Wildlife Service Law Enforcement agent must be contacted:

   Special Agent Kevin O'Brien
   U.S. Fish and Wildlife Service
   P.O. Box 1101
   Portsmouth, NH 03802
   (603) 433-0502

   If the Special Agent cannot be reached, contact Michael Bartlett at the address above.

The Service believes that up to two pairs of piping plovers will nest on the nourished beach at Drakes Island and all eggs and chicks (i.e., no productivity) will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Army Corps of Engineers must immediately provide an explanation of the causes of the taking, and review with the Service the need for possible modification of the reasonable and prudent measures.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

Task 4.0 of the Revised Piping Plover Recovery Plan focuses on the development and implementation of public information and education programs. Because the summer resident population of Wells Beach and Drakes Island is fairly transient, it is imperative to provide general as well as site-specific information and educational materials to beach users. Conservation measures that meet this need include:

- Informational brochures included in summer rental material discussing piping plover monitoring activities at Wells Beach and Drakes Island, as well as the “do’s and don’ts” of plover protection.
- Public service announcements on local cable television channels requesting the public to respect fenced or posted areas, keep pets leashed, remove trash in order to prevent attracting predators, or providing an update on piping plovers and their young.
- Training provided to lifeguards so that they might act as plover “ambassadors” to the general public.
- Predator management in coordination with MDIFW if it is determined that predation pressure is severely limiting productivity.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the reinitiation request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary federal agency involvement or control over the action has been retained (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 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, any operations causing such take must cease pending reinitiation.

Sincerely yours,

Michael J. Bartlett
Supervisor
New England Field Office

LITERATURE CITED

Cairns, W.E. 1977. Breeding biology of Piping Plovers in southern Nova Scotia. M.S. Thesis. Dalhousie University, Halifax, Nova Scotia. 115 pp.

Cross, R.R. 1990. Monitoring, management and research of the piping plover at Chincoteague National Wildlife Refuge. Unpublished report. Virginia Department of Game and Inland Fisheries. 68 pp.

Goldin M., C. Griffin and S. Melvin. 1990. Reproductive and foraging ecology, human disturbance, and management of Piping Plovers at Breezy Point, Gateway National Recreation Area, New York, 1989. Progress report. 58 pp.

Haig, S.M. and L.W. Oring. 1988. Mate, site and territory fidelity in piping plover. Auk 105(4): 268-277.

Hake, M. 1993. 1993 summary of piping plover management program at Gateway NWRA Breezy Point district. Unpublished report. Gateway National Recreation Area, Long Island, New York. 29 pp.

Hecht, A. 1998. 1997 Status Update for the U.S. Atlantic Coast piping plover population. Sudbury, Massachusetts. 8 pp.

Jones, K. 1997. Piping plover habitat selection, home range, and reproductive success at Cape Cod National Seashore, Massachusetts. National Park Service Technical Report NPS/NESO-RNR/NRTR/97-03. 96 pp.

Jones, J., R. McCleery and B. Scolfield. 1998. 1997 piping plover and least tern project report. Maine Audubon Society. 17 pp.

Jones, J., G. Giumarro and K. Williamson. 1999. 1998 piping plover and least tern project report. Maine Audubon Society. 16 pp.

MacIvor, L.H. 1990. Population dynamics, breeding ecology, and management of Piping Plovers on Outer Cape Cod, Massachusetts. M.S. Thesis. University of Massachusetts, Amherst, Massachusetts. 100 pp.

Strauss, E. 1990. Reproductive success, life history patterns, and behavioral variation in a population of Piping Plovers subjected to human disturbance (1982-1989). Ph.D. dissertation. Tufts University, Medford, Massachusetts.

U.S. Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Determination