ES-03/113

Russel J. Wilson, Superintendent
Sandy Hook Unit, Gateway National Recreation Area
National Park Service
P.O. Box 530
Fort Hancock, New Jersey 07732

Dear Mr. Wilson:

This constitutes the U.S. Fish and Wildlife Service's (Service) Biological Opinion, in accordance with Section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq*.) (ESA), on the effects of the National Park Service's (NPS) proposed Multiuse Pathway (path), to be constructed in the Sandy Hook Unit of Gateway National Recreation Area (Sandy Hook), on the federally listed (threatened) piping plover (*Charadrius melodus*) in South Beach nesting areas.

In our February 3, 2003 correspondence (ES-02/874), the Service concurred that the proposed path is not likely to adversely affect the following federally listed species: (endangered) roseate tern (*Sterna dougallii*); or (threatened) seabeach amaranth (*Amaranthus pumilus*), northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*), or bald eagle (*Haliaeetus leucocephalus*). Therefore, effects to these species are not considered in this Biological Opinion.

In our February 3, 2003 letter, the Service also concurred that the proposed path is not likely to adversely affect the federally listed (threatened) piping plover (*Charadrius melodus*) in areas of Sandy Hook outside the Critical Zone (Figure 1). However, based upon a February 5, 2003 site visit with NPS staff, the Service now finds that piping plovers in the Fee Beach and Hidden Beach nesting areas (Figure 2) may also experience some adverse effects. Therefore, this Biological Opinion addresses piping plovers in all three South Beach nesting areas. Piping plovers elsewhere on Sandy Hook are not likely to be adversely affected by the proposed path; therefore, these populations are not included in this Biological Opinion.

This Biological Opinion is based on information provided in the August 2002 Environmental Assessment (EA), the February 10, 2002 NPS letter modifying the project description in the vicinity of the Critical Zone, telephone and electronic mail exchanges with NPS staff, field investigations, and other sources of information. A complete administrative record of this consultation is on file in the Service's New Jersey Field Office.

CONSULTATION HISTORY

May 16, 2000	The Service attended a multi-agency preliminary scoping meeting at Sandy Hook to discuss the Multiuse Pathway.
June 5, 2000	Via letter, the Service provided conservation recommendations to avoid adverse effects to piping plovers from the proposed path.
June 21, 2001	Via letter, the Service requested a project update, and informed the NPS that informal consultation must also include the newly-discovered occurrence of seabeach amaranth on Sandy Hook.
December 10, 2002	The NPS submitted an August 2002 EA (National Park Service, 2002), and requested to be advised if additional information was needed to fulfill the consultation obligations of Section 7(a)(2) of the ESA. The EA included conservation measures and, in accordance with Section 7(c) of the ESA, an assessment of impacts to federally listed species. In the EA, the NPS concluded that no effects to piping plovers would occur from the proposed path if construction occurs outside the nesting season.
February 3, 2003	Via letter, the Service concurred that the proposed path is not likely to adversely affect piping plovers outside the Critical Zone nesting area, or other federally listed species occurring in Sandy Hook. The Service requested further consultation regarding plovers in the Critical Zone.
February 5, 2003	Service and NPS staff conducted a site visit of the South Beach nesting areas, and verbally agreed to initiate formal consultation.
February 7, 2003	Via electronic mail, NPS staff provided additional information.
February 10, 2003	Via electronic mail, NPS staff provided additional information, including a letter addressing effects to the "back dune" Critical Zone nest and providing conservation measures specific to this site.
February 11, 2003	Via electronic mail, the Service provided a draft project description including all conservation measures. The NPS concurred.

DESCRIPTION OF THE PROPOSED ACTION

The purposes of the proposed Multiuse Path are to: (1) improve visitor safety; and (2) encourage alternative (non-automobile-dependant) transportation to Sandy Hook and recreational activities within the park. The path would run from the south boundary of Sandy Hook to a proposed ferry terminus in the Fort Hancock area of the park. The proposed path would be paved with asphalt, 12 feet wide with 2-foot shoulders on either side, for a total width of 16 feet. The construction corridor would be up to 20 feet wide (National Park Service, 2002). In the South Beach area, the bay-side shoulder may be eliminated, for a total path width of 14 feet (the existing road shoulder can be used instead) (Lane, pers. comm, 2003). Designated path uses would include non-motorized activities such as biking, walking, jogging, and skating (National Park Service, 2002). The South Beach portion of the path will probably be constructed following the 2003 piping plover nesting season (Lane, pers. comm., 2003).

A rock seawall runs from the southern end of Sandy Hook to Beach Area C. A sheet metal bulkhead runs north about 600 feet from Beach Area C. An artificial dune line stabilized with sand fencing extends the length of the Critical Zone beach, from Beach Area C to the bulkhead. Dunes continue south, on the ocean side of the sheet metal bulkhead, and on the bay side of the seawall. The proposed path route is separated from the Hidden Beach and Fee Beach piping plover nesting areas by the seawall and dune line, and is separated from two of the three recent Critical Zone nests by the sheet metal bulkhead and dunes.

Page 23 of the EA ("Mitigation") incorporates the Service's June 2000 recommendations for the South Beach area. The conservation measures include:

- prohibited construction during the nesting season;
- prohibited beach access or pathway amenities in front of nesting areas;
- signs and fencing to discourage visitors from crossing over the seawall into the nesting area;
- monitoring and continued implementation of the park's piping plover management plan;
- continued coordination and consultation with the Service; and
- efforts to educate park visitors about the piping plover and other beach-nesting birds.

In 2002, a piping plover nest was established in the back dune area of the Critical Zone, an area that had not been previously used by plovers. The nest site is north of the sheet metal bulkhead and south of Beach Area D. This nest was located between the dune crest and Hartshorne Drive, on the bay side of the dune in an elevated plateau. One chick from this nest fledged (MacArthur, pers. comm., 2003).

As originally proposed, the path would have been routed directly through the back dune nest site (Figure 3). Affects to this nest site were not addressed in the EA, but are addressed in a letter from the NPS, which the Service received by electronic mail on February 10, 2003. In that letter, the NPS proposes the following additional conservation measures specific to the "back dune" Critical Zone nest:

- relocate the path from its original route to an alignment that continues north past the nest site parallel to Hartshorne Drive to avoid the 2002 nest site and immediate vicinity (the original path route veered up into the dune towards the ocean, directly through the nest site);

- construct a new artificial dune line between the path and the nest site to create a visual buffer;

- place sand fencing along the new dune as a further visual buffer and to discourage visitors from leaving the path and accessing the beach through nesting areas;

- modify the existing artificial dune as recommended by the Service to improve piping plover access from the nest site to the oceanfront beach; and

- apply all other conservation measures (above) to the Critical Zone nesting area as well as to the Hidden Beach and Fee Beach nesting areas.

SPECIES STATUS

Relevant biological and ecological information considered by the Service in formulating this Biological Opinion was provided in a May 2002 Biological Opinion Regarding effects of the recent Interim Beach Fill project at the Critical Zone and South Beach areas on the piping plover and seabeach amaranth (U.S. Fish and Wildlife Service, 2002). No biological information has subsequently become available that would affect the Service's formulation of the Biological Opinion regarding the proposed path. Therefore, biological information from the Service (2002) is incorporated into this document by reference, and updated with preliminary 2002 population and productivity information (Enclosure 1).

ENVIRONMENTAL BASELINE

Species Status Within the Action Area

Piping plovers nest in six areas of Sandy Hook's ocean front beaches (Figure 2). Relevant piping plover nesting data are provided in Enclosure 2.

Factors Affecting Species Environment Within the Action Area

The Service incorporates into this document by reference the detailed discussion of factors affecting piping plovers on Sandy Hook, with an emphasis on the Critical Zone, that was provided in our May 2002 Biological Opinion regarding the Interim Beach Fill project (U.S. Fish and Wildlife Service, 2002). That Biological Opinion included detailed information regarding habitat, predation, recreational use, and other beach nesting birds.

The only important change in conditions since the May 2002 Biological Opinion is completion of the Interim Beach Fill in fall 2002, which widened and elevated the ocean side beach at the Critical Zone. The Interim Beach Fill involved the transport of 253,000 cubic yards of sand from the designated offshore borrow area to the project area, and the subsequent manipulation of fill to achieve the targeted beach profile. Project plans called for a construction template (target beach profile) of a flat, variable-width berm at an elevation of approximately 11 feet. Seaward of the berm, plans called for approximately 200 feet of gently sloping fore beach (U.S. Fish and Wildlife Service, 2002). A scarp was present in this area at the February 5, 2003 site visit, as the fill material is still adjusting (MacArthur, pers. comm., 2003). Increased beach width will likely affect piping plover nest site selection in 2003, especially if the fill material attains the intended, gradually sloping profile before the nesting season.

EFFECTS OF THE ACTION

Beneficial Effects

The NPS proposes to construct a new dune line between the proposed path route and the 2002 "back dune" Critical Zone nest site. Should piping plovers nest at this site again, this new dune line will benefit the birds by providing a barrier to minimize the chance that unfledged chicks will cross Hartshorne Drive to reach bay-side foraging areas. Road crossing would subject the chicks to injury or death from passing vehicles.

The NPS also proposes to modify the existing artificial dune line as recommended by the Service. In 2002, chicks hatching from this nest site passed over the dune crest and through the sand fencing to access the ocean front beach. Once on the beach, the brood did not return to the back dune nest site (MacArthur, 2003). By creating gaps in the existing dune crest and removing and modifying the existing sand fencing, the NPS can improve piping plover access from the back dune nest site to the ocean beach.

Direct Adverse Effects

The NPS has re-routed the proposed path, avoiding direct destruction of the nest site. However, the immediate vicinity of the nest site, and possibly the site itself, will be affected by construction of the new

dune and modification of the old dune.

The NPS proposes to conduct all path-related construction in the South Beach area outside the piping plover nesting season. This applies to the Critical Zone, Hidden Beach, and Fee Beach nesting areas. In its February 10, 2002 letter, the NPS concurred with the Service's February 3, 2003 recommendation to revise the dates given in the EA for piping plover nesting season. The nesting season is now defined for this project as "March 15 to the fledging of the last chick in the South Beach area."

Based on the seasonal restriction, the Service does not anticipate any direct adverse effects to birds (*i.e.*, physical injury, death, harassment) from construction. However, the Service does anticipate direct adverse effects to habitat, constituting harm, during dune reconfiguration. This habitat modification will affect a back dune nesting area occupied by one nest in 2002, and never occupied previously. Whether this or other plover pairs will nest in this area in 2003 (prior to dune reconfiguration) cannot be predicted. Other factors may affect nest site selection, particularly the presence or absence of foxes (*Vulpes vulpes*) (MacArthur, pers. comm., 2003), and the newly widened Critical Zone ocean front beach.

Neither path construction nor dune reconfiguration will affect the physical configuration of the ocean front beach territory used by the 2002 "back dune" pair for adult and brood foraging, although the foraging territory was affected by the recent beach fill (considered in the Service's May 2002 Biological Opinion).

Indirect Adverse Effects

The proposed path will direct visitors to a narrow corridor in close proximity to three piping plover nesting areas. This corridor, between South Beach nesting areas and Hartshorne Drive, currently receives minimal visitor use; therefore, a significant increase is expected. The dunes, seawall, and sheet metal bulkhead will serve to minimize disturbance to nesting birds from visitors that remain on the path. However, the Service anticipates increased levels of disturbance to nesting birds from visitors crossing from the path into closed nesting areas, despite NPS conservation measures to prevent this behavior (*i.e.*, no path amenities in the South Beach area, signs and fencing to prohibit entry).

CUMULATIVE EFFECTS

Cumulative effects include those 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 addressed here because they require separate consultation pursuant to Section 7 of the ESA. Although justified for independent safety and recreational reasons, the Multiuse Pathway is proposed with the future ferry terminal in mind. The combination of the ferry terminal and the path is likely to cause significant increases in the number of visitors to Sandy Hook, and to direct these visitors immediately adjacent to three piping plover nesting areas. However, the ferry terminal is

an independent future federal action requiring consultation, and does not meet the ESA definition of "cumulative effects." Therefore, the ferry terminal project was not considered in this Biological Opinion.

CONCLUSION

After reviewing the current status of the piping plover, the environmental baseline for the action area, the effects of the proposed project, and cumulative effects, the Service's Biological Opinion is that the Multiuse Pathway, Sandy Hook, Monmouth County, New Jersey, is not likely to jeopardize the continued existence of the piping plover.

Conservation measures proposed by the NPS were central in the Service's evaluation of effects. These include path design that incorporates visual and sound barriers between the path and nesting areas, efforts to limit unauthorized visitor access from the path to closed nesting areas, a seasonal restriction on construction, and efforts to protect the "back dune" Critical Zone nest site. The NPS proposes to include these conservation measures as part of its agency action; therefore, they were considered as an integral part of the proposed project and are nondiscretionary.

The Multiuse Pathway will indirectly result in elevated disturbance of piping plovers in three nesting areas. The project will directly alter one back dune nest site, but includes measures to benefit this nest site and minimize the habitat disturbance. No critical habitat has been designated for these species; therefore, no critical habitat will be affected.

INCIDENTAL TAKE STATEMENT

Definition of Incidental Take

Sections 4(d) and 9 of ESA, as amended, prohibit *taking* (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special exemption. *Harm* is further defined to include 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 as actions that create the likelihood of injury to listed species by annoying it 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 any take of listed animal species that results from, but is not the purpose of, carrying out 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.

Extent of Anticipated Take

The Service anticipates the following incidental take of piping plovers from the Multiuse Pathway:

1. Harm due to habitat modification of a "back dune" nesting area at the Critical Zone, occupied by one nest in 2002. Conservation measures may prevent abandonment or reduced success of this nest site, or may even improve habitat conditions at this site. However, the effectiveness of these measures cannot be anticipated, and other factors may affect nest site selection, particularly the presence or absence of foxes and the newly widened Critical Zone ocean front beach. Given these uncertainties, the Service assumes a worst case scenario; abandonment of the nest site or failure of the nest to fledge any chicks due to project-related habitat modifications.

2. Increased harassment of piping plovers nesting at the Critical Zone, Hidden Beach, and Fee Beach Areas, beginning upon completion of the South Beach portion of the project and continuing for the life of the Multiuse Pathway. The Service does not anticipate disturbance from visitors remaining on the path. However, the Service expects approximately three documented instances of harassment per year in the South Beach area from unauthorized visitor access from the path into nesting areas. Based on NPS conservation measures and existing beach nesting bird management efforts, the Service does not expect the increased level of harassment to result in physical injury or death of birds, but does anticipate some adverse effects on reproductive success.

Effect of The Take

The Service has determined that the level of take anticipated, as described above, from the proposed action is not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The measures described below are non-discretionary, and must be undertaken by the NPS for the exemption in Section 7(o)(2) of the ESA to apply. The NPS has a continuing duty to implement the activity covered by this Incidental Take Statement. If the NPS: (1) fails to implement the terms and conditions; or (2) fails to require all contractors to adhere to the terms and conditions of the Incidental Take Statement, the protective coverage of Section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the NPS must report the progress of the action and its impact on the species to the Service as specified in the Incidental Take Statement.

The Service concludes that the following reasonable and prudent measures (RPMs) are necessary and appropriate to minimize take of piping plovers. The Service recognizes that RPMs 2-5 below are generally addressed by NPS conservation measures; these RPMs and their implementing terms and conditions clarify specific means for implementation and coordination.

1. Ensure that all project engineers, contractors, and construction staff are fully informed

of and compliant with all conservation measures, reasonable and prudent measures, and terms and conditions.

2. Ensure that the final design and construction of the path and reconfigured dune system in the vicinity of the "back dune" nest site at the Critical Zone incorporate Service recommendations to protect plovers.
3. Ensure that final design and construction of fencing and signs to minimize visitor access from the path into nesting areas incorporate Service recommendations to protect piping plovers.

4. Take all reasonable steps to minimize disturbance to piping plovers from unauthorized visitor access from the path into nesting areas.

5. Incorporate outreach and education along the South Beach portion of the path to increase visitor awareness of the piping plover and its habitat requirements.

Terms and Conditions

In order to be exempt from the prohibitions of Section 9 of the ESA, the NPS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are nondiscretionary.

1. Provide all project engineers, contractors, and construction staff with a written summary of this Biological Opinion (including all conservation measures and terms and conditions), a written statement that all conservation measures, reasonable and prudent measures, and terms and conditions contained herein are non-discretionary, including project timing.

2. Coordinate with this office to develop the final design of the path and the reconfigured dune system in the vicinity of the "back dune" nest site at the Critical Zone. Submit final proposed project plans for the Critical Zone to this office for review. Do not initiate construction until the Service has concurred in writing with the final plans.

3. Coordinate with this office to develop the final design of fencing and signs to minimize visitor access from the path into South Beach nesting areas. Submit final proposed South Beach fencing and sign plans to this office for review. Do not initiate construction until the Service has had an opportunity to review the final plans and has issued a concurrence in writing.

4. Reconfigure dunes in the Critical Zone, and install fencing and signs throughout the South Beach area, prior to or concurrent with path construction, and outside the piping plover nesting season.

5. Document instances of unauthorized visitor access from the path into nesting areas, recording the date, number of visitors, any observed plover response, and the NPS staff response. Submit this information to the Service annually, following the first three nesting seasons after completion of the South Beach portion of the path, even if no incidents were documented. After 3 years, consult with this office to determine if further reporting is warranted.

6. Supplement NPS staff resources at South Beach nesting areas as needed based upon the extent of documented disturbances to plovers caused by visitor access from the path into nesting areas. If additional staff resources are needed to address increased disturbances, provide additional staff resources rather than diverting existing staff from other beach nesting bird management activities. Coordinate with the Service regarding South Beach staffing requirements in this Biological Opinion, as well as those in the Biological Opinion for the Interim Beach Fill project.

7. Take other corrective actions as needed, based upon the extent of documented disturbances to piping plovers caused by visitor access from the path into South Beach nesting areas. Work with the Service to develop and implement further measures as necessary, such as modified signs or fencing, increased enforcement or penalties for unauthorized entry, or seasonal path closures.

8. Develop a plan for public education regarding beach nesting birds along the South Beach portion of the path, including signs, brochures, and interpretive staff. Submit the plan to this office for review, and coordinate with the Service regarding South Beach outreach and educational requirements in this Biological Opinion, as well as those in the Biological Opinion for the Interim Beach Fill project.

9. Exercise care in handling any specimens of dead piping plover adults, young, or non-viable eggs to preserve biological material in the best possible state. In conjunction with the preservation of any specimens, the finder is responsible for ensuring that evidence intrinsic to determining the cause of death of the specimen is not unnecessarily disturbed. Finding dead or non-viable specimens does not imply enforcement proceedings pursuant to the ESA. Reporting dead specimens is required for the Service to determine if take is reached or exceeded and to ensure that the terms and conditions are appropriate and effective.

   Upon locating a dead piping plover, initial notification must be made to the following Service Law Enforcement office:

   Senior Resident Agent
   U.S. Fish and Wildlife Service

Division of Law Enforcement
Sea Land Building, 2nd Floor
1210 Corbin Street
Elizabeth, New Jersey 07201
(973) 645-5910

Upon locating an abandoned nest or non-viable egg specimen, initial notification must be made to the following Service office:

Supervisor
U.S. Fish and Wildlife Service
New Jersey Field Office
927 N. Main Street, Bldg. D
Pleasantville, New Jersey 08232
(609) 646-9310

The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize incidental take that might otherwise result from the proposed action. If, during the course of the action, the aforementioned level of incidental take is exceeded, such incidental take would represent new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The NPS 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. The Service will not refer the incidental take of any migratory bird for prosecution under the Migratory Bird Treaty Act of 1918, as amended (16 U.S.C. §§ 703-712) if such take is in compliance with the terms and conditions specified herein.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the ESA directs federal agencies to utilize their authorities to further the purposes of the ESA 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.

The Service recommends the NPS conduct annual surveys for the northeastern beach tiger beetle and seabeach amaranth at the South Beach nesting areas. Report all survey results to this office annually, including any negative data.

REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the Interim Beach Fill of the Critical Zone, Sandy Hook, Monmouth County, New Jersey. 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 is 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 immediately, pending reinitiation.

Any change to timing of the project's schedule as stated in the project description would constitute relevant new information, and will require reinitiation of consultation prior to the start of any project-related work or activities. Reinitiation of consultation will also be required if the documented level of plover disturbance in South Beach nesting areas is substantially above the Service's expectation (*i.e.*, approximately three instances per year).

The Service appreciates your cooperation in satisfying the requirements of Section 7(a)(2) of the ESA, and your efforts to minimize adverse effects to federally listed species from the Multiuse Pathway. If you have any questions or concerns regarding this consultation, please contact John C. Staples or Wendy Walsh of my staff at (609) 646-9310, extensions 18 and 48, respectively.

Sincerely,

Clifford G. Day
Supervisor

Enclosure

REFERENCES

Literature Cited

National Park Service. 2002. Environmental assessment Multiuse Pathway. U.S. Department of the Interior, National Park Service, Gateway National Recreation Area, Sandy Hook Unit, Fort Hancock, New Jersey. 92 pp.

U.S. Fish and Wildlife Service. 2002. Biological opinion of the effects of an interim beach fill at the Critical Zone and South Beach areas of the Sandy Hook Unit of Gateway National Recreation Area, Monmouth County, New Jersey on the piping plover (*Charadrius melodus*) and seabeach amaranth (*Amaranthus pumilus*). U.S. Department of Interior, U.S. Fish and Wildlife Service, Pleasantville, New Jersey. 98 pp.

Personal Communications

Lane, B. 2003. National Park Ranger. Resource Management and Visitor Protection Division, Sandy Hook Unit, Gateway National Recreation Area, National Park Service, Fort Hancock, New Jersey.

McArthur, J. 2003. National Park Ranger. Resource Management and Visitor Protection Division, Sandy Hook Unit, Gateway National Recreation Area, National Park Service, Fort Hancock, New Jersey.

cc: NJFO (4)
ARD, ES
SRA, LE, Elizabeth
R5, ES: Hecht
Bruce Lane, NPS, Sandy Hook

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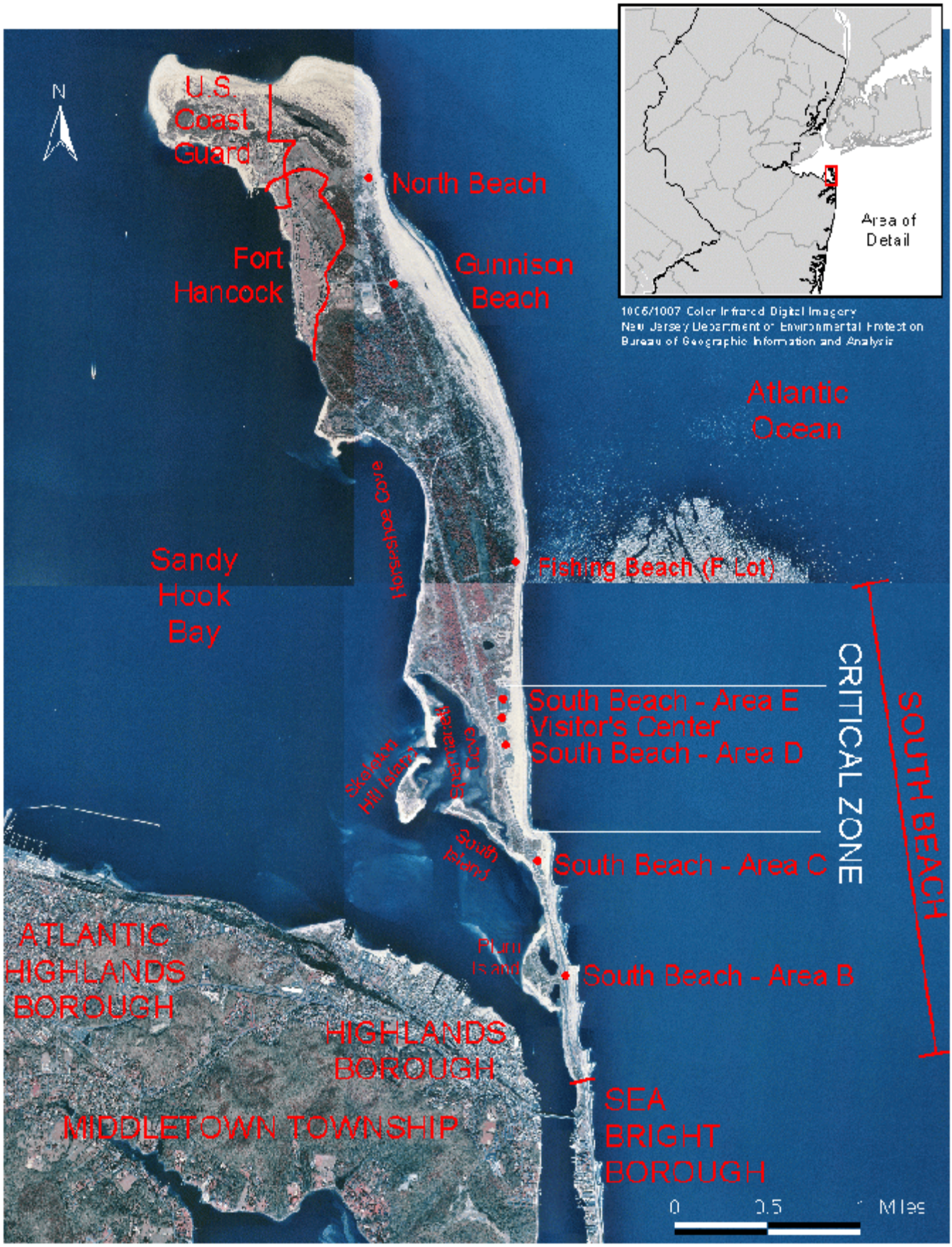

Figure 1. Sandy Hook Overview

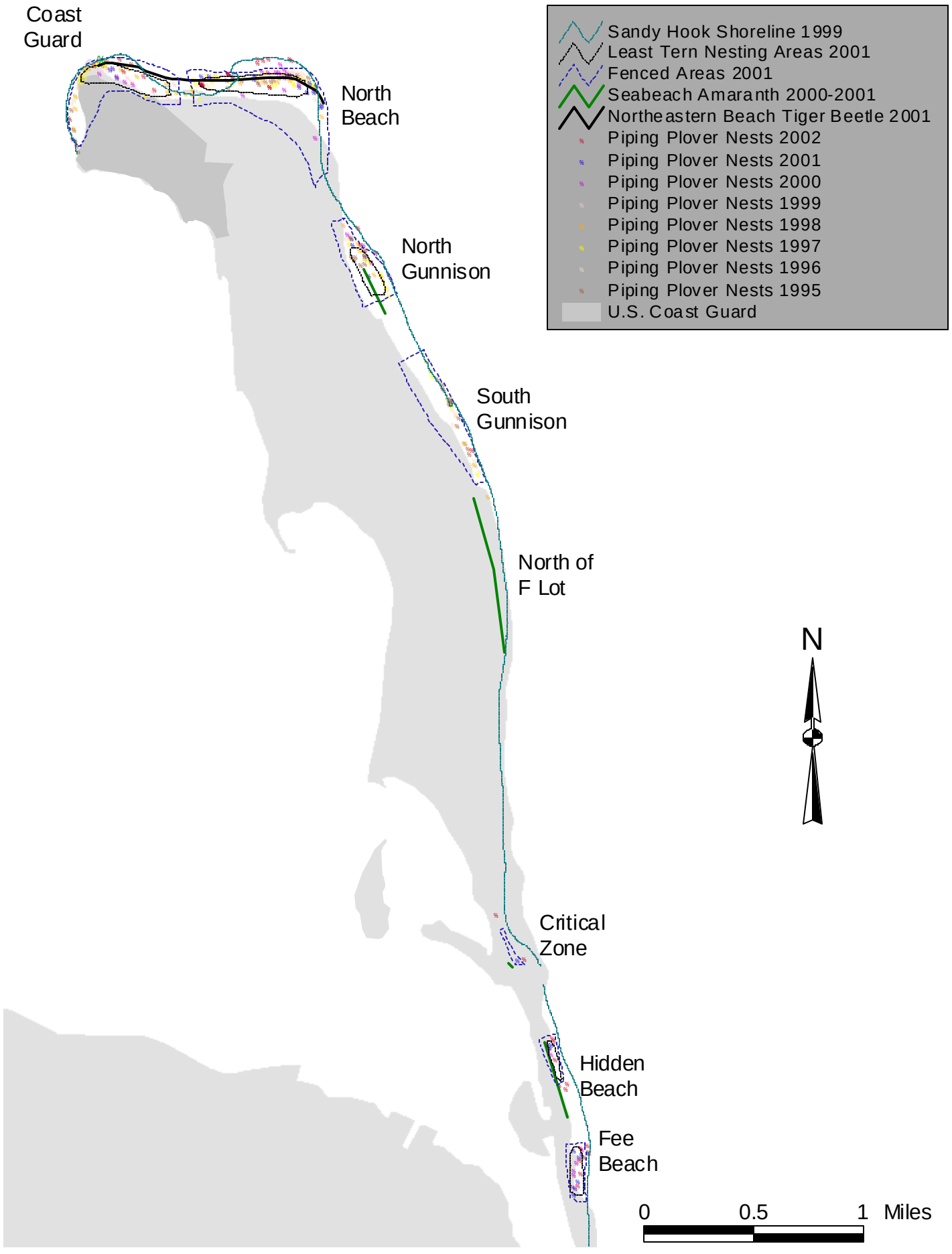

Figure 2. Distribution of Federally and State-Listed Beach Strand Species in Sandy Hook

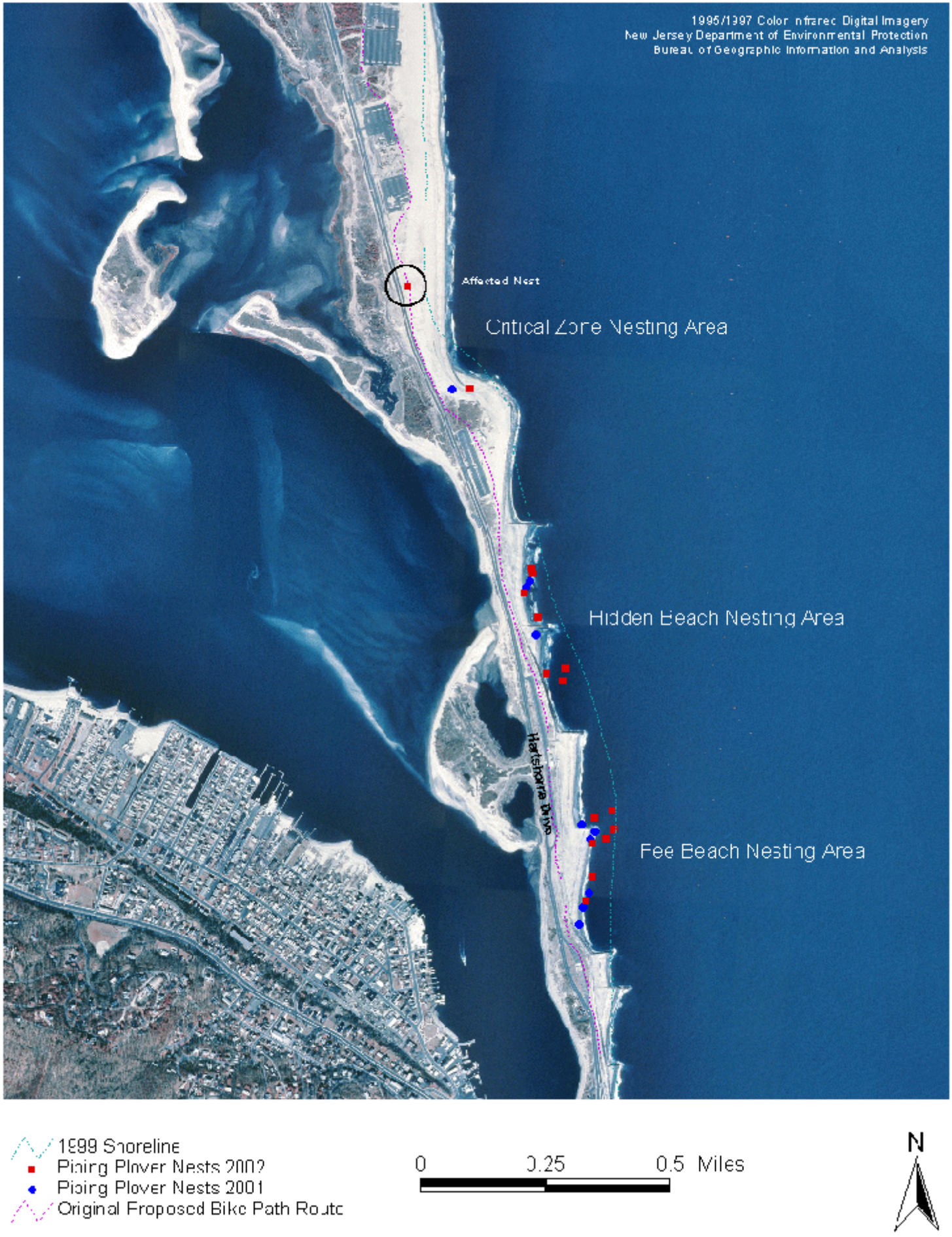

Figure 3. Piping Plover Nest and Path Locations

Enclosure 1

Preliminary 2002 Atlantic Coast Piping Plover Abundance and Productivity Estimates

PLEASE CITE ALL FIGURES IN PARENTHESES AS "PRELIMINARY ESTIMATES"

State/Region	Nesting Pairs*	Productivity (chicks fledged/pair)	Number of Pairs on which Productivity is based	Source
Maine	65	1.40	65	J. Jones
New Hampshire	7	0.14	7	C. Dudley
Massachusetts	(530)	(1.10)	(525)	S. Melvin
Rhode Island	58	1.95	58	C. Raithel
Connecticut	31	1.87	31	J. Victoria
NEW ENGLAND	(691)	(1.23)	(686)	
New York	369	1.62	337	M. Gibbons
New Jersey	138	1.17	138	T. Pover
NY-NJ REGION	507	1.49	475	
Delaware	6	1.17	6	H. Niederriter
Maryland	60	1.85	60	J. Kumer
Virginia	120	1.19	108	R.Boettcher
North Carolina	23	0.17	23	D. Allen
SOUTHERN REGION	209	1.27	197	
U.S. TOTAL/AVERAGE	(1407)	(1.32)	(1358)	
EASTERN CANADA	275	1.18	219	J. McKnight
ATLANTIC COAST	(1682)			

preliminary estimates

* Numbers compare with those shown in Table 1 of the 2000-2001 Status Update.

Enclosure 2

Sandy Hook Piping Plover Nesting Data, All Nesting Areas Combined, 1990 - 2001

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
# of nesting pairs	18	20	21	25	36	43	40	42	29	27	29	31
# of eggs	75	83	87	100	146	193	200	195	145	107	124	140
# of eggs hatched	44	53	67	87	111	108	94	28	49	79	92	94
% of eggs hatched	58	63	77	87	76	54	47	14	34	74	74	67
# of chicks fledged	21	23	35	45	70	57	51	15	29	50	51	49
% of chicks fledged	48	45	52	52	63	53	54	54	59	63	55	52
FLEDGE RATE	1.17	1.15	1.70	1.80	1.94	1.32	1.27	0.36	1.00	1.85	1.76	1.58

Sandy Hook South Beach Piping Plover Nesting Data by Nesting Area, 1987-2002

	Critical Zone		Hidden Beach		Fee Beach	
Year	**# Pairs**	**Productivity**	**# Pairs**	**Productivity**	**# Pairs**	**Productivity**
1987	1	2.00	0	na	0	na
1988	0	na	0	na	0	na
1989	0	na	0	na	0	na
1990	2	0.00	0	na	0	na
1991	4	0.50	0	na	0	na
1992	5	1.20	1	1.00	0	na
1993	5	0.60	0	na	0	na
1994	5	1.60	0	na	0	na
1995	6	0.50	0	na	0	na
1996	2	0.00	0	na	0	na
1997	0	na	6	2.00	0	na
1998	0	na	4	0.75	1	0.00
1999	0	na	4	0.50	2	2.00
2000	0	na	3	3.33	6	1.17
2001	1	1.00	3	2.00	7	1.14
2002	2	1.50	5	2.00	7	1.57