

# CAPE HATTERAS NATIONAL SEASHORE

## INTERIM PROTECTED SPECIES MANAGEMENT STRATEGY/ ENVIRONMENTAL ASSESSMENT

### ERRATA

The following changes have been made to the *Interim Protected Species Management Strategy/ Environmental Assessment* (strategy/EA) for Cape Hatteras National Seashore (the Seashore) (January 2006) to correct minor statements of fact, update information, and disclose minor adjustments to the preferred alternative and impact analysis. These are changes in addition to the errata published February 15, 2006 during the public comment period on the strategy/EA (see appendix A). Changes are in response to consultation with the U.S. Fish and Wildlife Service (USFWS), Seashore staff experience during the 2006 breeding season, and public comment on the strategy/EA. Additions to the text are identified by underlines and deletions are marked by ~~strikeout~~ unless otherwise noted.

Since the strategy/EA was released, the National Park Service (NPS) *Management Policies 2001* have been updated to the *NPS Management Policies 2006*. This change is applicable throughout the document. Except where noted, section names and numbers are still correct.

### EXECUTIVE SUMMARY

#### 1. TABLE A: SUMMARY OF IMPACTS, PAGE XI:

The following editorial corrections have been made:

State Listed and Special Status Species				
<b>American Oystercatcher</b>	Species surveying and management actions under alternative A would result in minor to moderate adverse impacts on the American oystercatcher. Because protection measures for nesting oystercatchers and their habitat are both inconsistently applied and entail some risks when they are applied, recreational use under alternative A is likely to lead to major adverse impacts. Cumulative impacts would be long-term, moderate to major and adverse. Impairment to American oystercatchers at Cape Hatteras National Seashore would not occur.	Under alternative B, overall protection to nesting oystercatchers would be much improved over alternative A. However, there is still a likely chance of direct, moderate impacts to early nesting oystercatchers from surveying and impacts to all oystercatchers nesting outside of historical breeding sites or in or near to the ORV corridor. In these cases, buffer size might not be large enough to shield the birds <del>for</del> from recreation and surveying disturbances or from the risk of being run over by a vehicle. Predator numbers would likely be an ongoing source of oystercatcher egg and chick loss under alternative B. Overall, alternative B would have mostly long-term, minor adverse impacts on the oystercatcher from recreational use. Cumulative impacts would also be long-term, minor and adverse. Impairment to American oystercatchers would not occur under alternative B.	Under alternative C, overall protection to nesting oystercatchers would be much improved over alternative A. However, there is still a likely chance of direct impacts to early nesting oystercatchers and to all oystercatchers nesting outside of historical breeding sites, outside of other bird closures (such as those for piping plovers), or in or near to the ORV corridor. In these cases, buffer size might not be large enough to shield the birds <del>for</del> <u>from</u> recreation and surveying disturbances or from the risk of being run over by a vehicle. Predator numbers would likely continue to be an ongoing source of oystercatcher egg and chick loss under alternative C. Therefore, alternative C would result in long-term, moderate, adverse impacts to American oystercatchers. Cumulative impacts would be long-term, minor to moderate, and adverse. Impairment to American oystercatcher would not occur under alternative C.	Under alternative D, overall protection to nesting oystercatchers would be much improved over alternative A. However, there is still a likely chance of direct minor to moderate impacts to early nesting oystercatchers from surveying and management-research associated with implementing bypasses and impacts to all oystercatchers nesting in or near to the ORV corridor. In these cases, buffer size might not be large enough to shield the birds <del>for</del> <u>from</u> recreation and surveying disturbances or from the risk of being run over by a vehicle. Predator numbers would likely continue to be an ongoing source of oystercatcher egg and chick loss under alternative D. Overall, alternative D would have long-term, moderate, adverse impacts from recreational use and surveying. Cumulative impacts would be long-term, minor to moderate, and adverse. Impairment to American oystercatcher would not occur under alternative D.

## PURPOSE OF AND NEED FOR ACTION

### 2. INTRODUCTION, NEED FOR ACTION, PAGE 1

The following editorial correction has been made:

“The need for a management strategy that complies with the Endangered Species Act, the Migratory Bird Treaty Act, NPS management policies, and park enabling legislation, and that avoids adverse ~~affects~~ effects to protected species.”

### 3. PROJECT SITE LOCATION, PAGE 2

The following text corrections have been made for clarification:

“Officially authorized in 1937 along the Outer Banks of North Carolina, Cape Hatteras is the nation’s first national seashore. Consisting of more than 30,000 acres distributed along ~~64~~ 62 miles of shoreline, Cape Hatteras National Seashore is part of a dynamic barrier island system. Federal ownership in the Seashore extends from ocean to sound across three barrier islands—Ocracoke, Hatteras, and Bodie—spanning Dare and Hyde counties (see “Figure 1: Vicinity Map”). The U.S. Coast Guard property and eight village enclaves are excluded from the Seashore boundaries. The villages include Rodanthe, Waves, Salvo, Avon, Buxton, Frisco, and Hatteras on Hatteras Island and Ocracoke on Ocracoke Island. On the oceanside of the villages, federal ownership was established as a 500-foot strip measured landward from the mean ~~low~~ high water at the time of acquisition.”

### 4. PROTECTED BIRD SPECIES, AMERICAN OYSTERCATCHER, PAGE 9

The following editorial correction has been made:

“In response to low reproductive rates in 2005, the North Carolina Wildlife Resources Commission and the Southeastern Shorebird Conservation Plan proposed listing the American oystercatcher as a state-listed species of special concern (Myers 2005). The listing has yet to be approved by the state General Assembly (~~J. Gerwin, State Curator of Birds, pers. comm., M. Lyons, NPS, M. Lyons, NPS, pers. comm., D. Otto, The Louis Berger Group, Inc., September 9, 2005b~~).”

### 5. RELATED LAWS, POLICIES, PLANS AND ACTIONS, PAGES 24-27

The following changes are a result of the 2006 update to the NPS *Management Policies*:

“An action constitutes an impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values” (NPS *Management Policies* ~~2001~~ 2006, sec. ~~4.4.4~~ 1.4.5). To determine impairment, the NPS must evaluate “the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts” (NPS *Management Policies* ~~2001~~ 2006, sec. ~~4.4.4~~ 1.4.5). This strategy/EA, therefore, analyzes the effects of the management alternatives on park resources and values and determines if these effects would cause impairment.”

“NPS *Management Policies* ~~2001~~ 2006 instructs park units to “Maintain as part of the natural ecosystems of parks all ~~native~~ plants and animals native to park ecosystems...by minimizing human

impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them” (NPS ~~2000a~~ 2006, 4.4.1).

The NPS *Management Policies* ~~2001~~ 2006 directs park unites to determine all management actions for the protection and perpetuation of federally, state, or locally listed species through the park management planning process, and to include consultation with lead federal and state agencies as appropriate. Sec. 4.4.2.3, Management of Threatened or Endangered Plants and Animals, specifically states:

The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both pro-actively conserve listed species and prevent detrimental effects on these species. To meet these obligations, the Service will:

- Cooperate with both the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that National Park Service actions comply with both the written requirements and the spirit of the Endangered Species Act. ~~It is particularly important that this cooperation includes~~ This cooperation should include the full range of activities associated with the Endangered Species Act, including consultation, conferencing, informal discussions, and securing of all necessary scientific and/or recovery permits.
- Undertake active management programs to inventory, monitor, restore, and maintain listed species’ habitats, control detrimental non- native species, ~~control~~ manage detrimental visitor access, and re-establish extirpated populations as necessary to maintain the species and the habitats upon which they depend.”

“Section 4.4.2.1 states:

Whenever the Service removes plants or animals, manages plant or animal populations to reduce their sizes, or allows others to remove plants or animals for an authorized purpose, the Service will seek to ensure that such removals will not cause unacceptable impacts to native resources, natural processes, or other park resources. Whenever the Service identifies a possible need for reducing the size of a park plant or animal population, the Service will use scientifically valid resource information obtained through consultation with technical experts, literature review, inventory, monitoring, or research to evaluate the identified need for population management, ~~and to~~ the Service will document it in the appropriate park management plan.

~~In planning and implementing plant and animal population management actions, the Service will follow established planning procedures, including provisions for public review and comment. The Service will consult, as appropriate, with other federal land-managing agencies, the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, state agencies, tribal governments, and others. Such consultation will address (1) the management of selected animal populations, (2) research involving the taking of animal species of management interest to these agencies, and (3) cooperative studies and plans dealing with the public hunting and fishing of animal populations that occur across park boundaries.~~

In addition, the Service will manage such removals to prevent them from interfering broadly with:

- Natural habitats, natural abundances, and natural distributions of native species and natural processes;
- Rare, threatened, and endangered plant or animal species or their critical habitats;
- Scientific study, interpretation, environmental education, appreciation of wildlife, or other public benefits;
- Opportunities to restore depressed populations of native species; or
- Breeding or spawning grounds of native species.

Where the need to reduce animal populations may be due to persistent human/animal conflicts, the Service will determine whether or not it can eliminate or mitigate the conflicts by modifying or curtailing the conflicting visitor use or other human activities. Where visitor use or other human activities cannot be modified or curtailed, the Service may directly reduce the animal population by using several animal population management techniques, either separately or together. These techniques include relocation, public hunting on lands outside the park or where legislatively authorized within a park, habitat management, predator restoration, reproductive intervention, and destruction of animals by NPS personnel or their authorized agents. Where animal populations are reduced, destroyed animals may be left in natural areas of the park to decompose unless there are human safety concerns regarding attraction of potentially harmful scavengers to populated sites or trails or other human health and sanitary concerns associated with decomposition. Live animals or carcasses may be removed from parks according to the provisions of applicable laws, agreements, and regulations, including the granting of preference to Native Americans.”

## ALTERNATIVES

### 6. TABLE 2: ALTERNATIVES ELEMENTS SUMMARY – SPECIES MANAGEMENT, PAGES 82-83

The following editorial corrections have been made:

**Alternative A: No-Action  
Alternative, Continuation of 2004  
Management (baseline)**

Unfledged Chicks:

PIPL: Establish 3,000 ft buffer on either side of nest from oceanside low water line to soundside.

AMOY: Establish buffer around ~~nests~~ chicks determined on a case by case basis, as approved by the Superintendent.

CWB: 150 ft closure around ~~nests~~ chicks.

WIPL: No buffers/closures.

**7. TABLE 2: ALTERNATIVES ELEMENTS SUMMARY – SPECIES MANAGEMENT, PAGE 85**

The following editorial corrections have been made:

	<b>Alternative A: No-Action Alternative, Continuation of 2004 Management (baseline)</b>	<b>Alternative B: Undisturbed Area Focus</b>	<b>Alternative C: Tailored Management Focus</b>	<b>Alternative D: Access/Research Component Focus (Preferred Alternative)</b>
<b>Sea Turtles</b>				
<b>Nest Closures/ Buffers</b>	If nest found, establish <del>30-ft<sup>2</sup></del> <u>30-foot by 30-foot</u> buffer with symbolic fencing and signage around nest.	If nest found, establish <del>30-ft<sup>2</sup></del> <u>30-foot by 30-foot</u> buffer with symbolic fencing and signage around nest.	If nest found, establish <del>30-ft<sup>2</sup></del> <u>30-foot by 30-foot</u> buffer with symbolic fencing and signage around nest.	Establish <del>30-ft<sup>2</sup></del> <u>30-foot by 30-foot</u> buffer with symbolic fencing and signage around nest.

**8. ALTERNATIVES TABLE 4: ANALYSIS OF HOW ALTERNATIVES MEET THE OBJECTIVES, PAGES 104–107**

The following analysis was completed for the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A*). This analysis should be included as an additional column to Table 4, pp. 104-106 in the original strategy/EA.

**TABLE 4: ANALYSIS OF HOW ALTERNATIVES MEET THE OBJECTIVES**

Objectives in Taking Action	Modified Preferred Alternative – Alternative D ( <i>Access/Research Component Focus with Elements of Alternative A</i> )
<b>Management Methodology</b>	
Establish adaptive interim management practices and procedures that have the ability to respond to changes in the seashore's dynamic physical and biological environment.	Meets objective to a large degree. Protected species management measures, including the performance measures detailed in the Errata, would be adaptive and provide for more recreational uses. The modified preferred alternative also allows the Seashore to adapt to changes in habitat that result from the seashore's dynamic environment.
Establish procedures for prompt and efficient public notification of protected species management actions and the reasons for these actions.	Fully meets objective. The existing notification methods would be expanded upon and greater species protection and closure information provided. However, under the modified preferred alternative, the potential for constant change in the closures would make prompt and efficient notification more difficult.
Establish an ongoing and meaningful dialogue with the multiple publics interested in and affected by protected species management to ensure development of an implementable strategy.	Meets objective to a moderate degree. Communication and outreach with the community would be increased. The provision for a greater flexibility in resource management could increase compliance with the closures and result in a more implementable strategy.
<b>Visitor Experience</b>	
Provide for continued recreational use and access consistent with required management of protected species.	Meets objective to a large degree. Allows for a greater range of recreational uses, while providing resource protection.
Increase opportunities for public awareness and understanding of NPS resource management and visitor use policies and responsibilities as they pertain to the seashore and protected species management.	Meets objective to a large degree. Opportunities to increase public awareness and understanding about protected species management would increase. In addition to the existing television programs and printed materials, other educational opportunities would be present.
<b>Threatened, Endangered, and Other Protected Species</b>	
Provide threatened, endangered, and other protected species (e.g., state-listed species) and their habitats protection from adverse impacts related to recreational uses as required by laws and policies, such as the Migratory Bird Treaty Act, Endangered Species Act, and NPS management policies.	Meets objective to a moderate degree. The modified preferred alternative provides a higher level of protection over the current condition although the level of surveying and management under the modified preferred alternative leaves room for some risk to the protected species addressed in the strategy/EA. Furthermore, as detailed in the Errata under the modified preferred alternative, the NPS would reinitiate consultation with the U.S. Fish and Wildlife Service as part of the annual review process identified in the USFWS Amended Biological Opinion (2007) if one or more of the identified performance targets are not met.
Consult with the USFWS to ensure that NPS management actions comply with the requirements of the Endangered Species Act.	Fully meets the objective. As mandated by NPS management policies and other regulations, the seashore would fully comply with the Endangered Species Act. Furthermore, as detailed in the Errata under the modified preferred alternative, the NPS would reinitiate consultation with the U.S. Fish and Wildlife Service as part of the annual review process identified in the USFWS Amended Biological Opinion (2007) if one or more of the identified performance targets are not met.
<b>Seashore Operations</b>	
Provide for effective protected species management while maintaining other seashore operations.	Meets objective to a large degree. Additional protected species management demands may have some impact on other Seashore operations, but these operations would be maintained.

## **9. SELECTED ALTERNATIVE (MODIFIED PREFERRED ALTERNATIVE – ALTERNATIVE D (ACCESS/RESEARCH COMPONENT FOCUS) WITH ELEMENTS OF ALTERNATIVE A), PAGE 64**

[The following text represents the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A*. This text should be inserted in its entirety on p. 64 of the EA. All pages referenced in the following text refer to the page numbers in the original strategy/EA. For readability, the text was not underlined.]

With respect to the non-federally listed species, the NPS would implement the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A* using the following elements from alternative A:

1. The park would establish resource closures when nesting behavior is observed, rather than establishing pre-nesting closures for species other than piping plover (see strategy/EA, pages 43–44 and “Table 1: Alternatives Elements Summary—Species Observations” and “Table 2: Alternatives Elements Summary—Species Management”). Some, but not all, of the American oystercatcher, Wilson’s plover and colonial waterbird nesting areas occur within the piping plover pre-nesting areas; thus the non-federally listed species would continue to benefit by the pre-nesting areas established for piping plovers as described in alternative D and by the relative lack of disturbance in all areas outside the designated ORV corridor. Outside the spits and Cape Point, the non-listed species usually nest near the toe of the dune, which is outside of or near the edge of the ORV corridor. As nesting behavior is observed in these locations, the width of the ORV corridor would be reduced (narrowed toward the high tide line) to provide a buffer around the birds. In areas in which the buffer zone would eliminate the ORV corridor, the park would identify alternate ORV routes if available or provide a bypass if possible. The existing prohibition of pets outside the ORV corridor at the spits and Cape Point would also benefit these non-listed species.
2. American oystercatcher nesting buffer/closure would be established based on adult’s reaction to human disturbance (see alternative A, pages 43–44, tables 1 and 2). Closures would vary in size dependent on best professional judgment. If resource closures are created around nests, the Seashore would adjust the ORV corridor whenever possible to allow ORV passage and the ORV corridor width would be reduced if necessary. In areas in which the buffer zone would eliminate the ORV corridor, the Seashore would identify alternate ORV routes if available, or provide a bypass (see “Short-term Bypass Route Criteria” on page 56-57) if possible. Observations would allow the Seashore to be responsive to individuality in bird behavior when determining an adequate size of closure zones around nests. The creation of a bypass may be approached as a research opportunity to gather data useful for interim management and for the long-term ORV management plan/EIS to test for distance at which vehicle disturbance to nesting American oystercatchers occurs (see alternative D, page 59). Based in part on the U.S. Geological Survey (USGS) protocols<sup>1</sup>, alternative D in the strategy/EA recommended a 300-foot to 450-foot buffer around American oystercatcher nests. Based on experience from the 2006

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<sup>1</sup> The USGS protocols were prepared under an interagency agreement for the Seashore by the U.S. Geological Survey (USGS). The USGS is the scientific research agency for the Department of the Interior. The information and recommendations presented in the protocols represent the professional opinions of scientists that analyzed and interpreted the scientific data associated with protected species found at the Seashore. In addition to the Protocols, many other factors such as federal laws and mandates, NPS management policies, public input, practical field experience, and other scientific opinion were considered in the development of the strategy/EA.

nesting season, as well as recent research at Cape Lookout and Cape Hatteras National Seashores (“Effects of human recreation on the incubation behavior of American Oystercatchers” by McGowan C.P. and T.R. Simons, *Wilson Journal of Ornithology* 118(4):485-293, 2006), it was determined that this buffer size was frequently not required for American oystercatcher nests and, if routinely implemented, would result in virtually all key spits and points and most other beaches being completely closed to public (ORV and pedestrian) access as soon as nests occur through incubation and fledging. The research states that the birds appear to have habituated to the presence of ORVs (Whittaker and Knight 1998; as cited in McGowan and Simons 2006). NPS staff has observed on numerous occasions that it is possible to drive relatively close to an American oystercatcher nest without disturbing the bird incubating the nest. Actual distance varies based on individual bird behavior. Because of these factors, the buffer size for nesting American oystercatchers would be more flexible compared to the distances specified in alternative D.

3. The park would use a standard buffer distance of 150 feet to 300 feet for colonial waterbird nests, with the exact distance within that range dependent on best professional judgment based on the adult’s reaction to human disturbance (see alternative A, “Table 2: Alternatives Elements Summary—Species Management”). Alternative A uses a 150-foot buffer around colonial waterbird nests, which is the same standard used in other parks including Cape Lookout and Cape Cod National Seashores, and is based in part on guidance from the North American Colonial Waterbird Conservation Management Plan. Alternative D (see page 59 and “Table 2: Alternatives Elements Summary—Species Management”) recommended a 300-foot to 450-foot buffer for colonial waterbird nests, based in part on the USGS protocols. Based on the guidance and in-the-field experience, NPS believes a buffer of 150 feet to 300 feet, to vary within that range based on the adult’s reaction to human disturbance, would provide effective protection.
4. Under the modified preferred alternative, the Seashore would standardize the initial buffer distance around all species of non-federally listed chicks at 150 feet to 300 feet, which may then vary in size within that range dependent on best professional judgment based on the adult’s reaction to human disturbance and for American oystercatcher also based on brood mobility. Alternative A (pages 43–44, “Table 2: Alternatives Elements Summary—Species Management”) provides for an unquantified buffer determined on a case-by-case basis, to be approved by the superintendent, around unfledged American oystercatcher chicks and a buffer of 150 feet around unfledged colonial waterbird chicks. Alternative D (page 59) proposed a 300-foot buffer around American oystercatcher and least tern chicks, and 600 feet around chicks of other terns and black skimmers. As provided in alternatives A and D, under the modified preferred alternative, management would combine elements of alternatives A and D and be responsive to individuality in bird behavior when determining adequate size of closure zones around broods. Under the modified preferred alternative, a 150-foot to 300-foot buffer would be provided for unfledged chicks. Within these buffer limits, the buffer could be adjusted based on bird behavior.
5. When recreation closures are created around non-federally listed chicks, the Seashore would adjust the ORV corridor whenever possible to allow vehicle passage and the ORV corridor would be reduced if necessary. In areas in which the buffer zone would eliminate the ORV corridor, the Seashore would identify alternate ORV routes if available. If there are no alternate ORV routes, then, if possible, the Seashore would establish a bypass. The Seashore would close the beach down to the waterline if necessary to allow chicks access to foraging areas. Observations would allow the Seashore to be responsive to individuality

in bird behavior when determining adequate size of closure zones around broods (alternative D, page 59).

At most American oystercatcher or colonial waterbird nest locations during the 2006 breeding season, the park was able to provide a full beach closure for chicks of non-listed species and still provide an “alternate route” (i.e., ORV users could get around the closure to reach open areas via some other route or bypass). Under the modified preferred alternative, NPS anticipates that there would be temporary full beach closures in most locations when chicks are present with alternate access around the closures when possible. In the few situations where an alternate route or bypass is not accessible, NPS would employ an access option that minimizes and manages the risk of unintentional take on chicks of non-federally listed species. The draft NPS/USFWS service-wide Memorandum of Understanding on Migratory Bird Treaty Act species<sup>2</sup> provides for the use of “conservation measures in unintentional take situations” to minimize or avoid the risk of take. For non-federally listed species, the USFWS indicates that the buffer zones, reduced speed limits, pedestrian-only access, daylight-only access, etc., all constitute reasonable, “protective measures” (P. Benjamin, USFWS, pers. comm., M. Murray, National Park Service, May 2, 2007). These few limited situations may be approached as a research opportunity to gather data useful for interim management and for the long-term ORV management plan/EIS to test for distance at which vehicle disturbance to shorebird chicks occurs.

6. Winter/Non-breeding habitat for piping plover and for three non-federally listed species, American oystercatchers, Wilson’s plovers, and red knots, would be surveyed. Observation protocols for wintering/migrating shorebirds have been developed by the NPS Inventory and Monitoring Program and tested at the Seashore during the non-breeding season of 2006-2007. NPS and USFWS would jointly review the observation protocols and agree on monitoring protocols that would be implemented for these species (alternative D, “Table 2: Alternatives Elements Summary—Species Management”).
7. The park would monitor and document results of the interim strategy/EA so NPS can provide information to the long-term planning process, which can then allow for adjustments in the strategy that did not produce the planned results (alternative D, p. 60).

The elements of the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A* derived from alternative D are detailed on pages 48–51 and provided below.

1. Implementation of this action would replace Superintendent’s Order 10: Monitoring and Protection of Species of Concern.
2. In general, because of the dynamic nature of the Seashore beaches and inlets, the management may change by location and time, and new sites (bars, islands) may require additional management, or management actions may become inapplicable for certain sites due to changes in ground conditions (e.g., habitat changes with vegetation growth).
3. Areas with symbolic fencing (string between posts) would be closed to recreational access.

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<sup>2</sup> Executive Order 13186—Responsibilities of Federal Agencies To Protect Migratory Birds requires each federal agency taking actions that are likely to have negative effects on migratory bird populations to develop and implement a Memorandum of Understanding with the USFWS that shall promote the conservation of migratory bird populations.

4. Data collection under each alternative would include documenting breeding and nest locations using a geographic positioning system (GPS) and incorporating data into a geographic information system. The Seashore has submitted a request for funding to update the geographic information system and develop standardized protocols for collecting data for the geographic information system.
5. Existing NPS regulations would continue to be implemented.
6. Predator management would continue with the removal of predators as needed. Use of predator exclosures over piping plover nests would continue. In addition, the Seashore has initiated the planning process to develop a Predator Control Plan/EA in cooperation with the U.S. Department of Agriculture. Thus, current levels of predator management would continue until a Predator Control Plan/EA can be drafted, published for public review, approved, and implemented.
7. The following study would continue for at least another year at the Seashore:

“Monitoring and Management of American Oystercatcher on Cape Hatteras National Seashore” conducted by Dr. Ted Simons and Shiloh Shulte, Cooperative Research Group, North Carolina State University. The study will monitor American oystercatcher nesting and chick success/survival, and document unfledged chick behavior.
8. ORV access would continue to be managed according to Superintendent’s Order 7. Unless otherwise posted, the maximum speed is 25 miles per hour. Superintendent’s Order 7 specifically provides for an “Ocean Beach Zone” in which ORVs would “...be permitted within 150 feet of the existing tideline...” The ORV Use Areas provided for in Superintendent’s Order 7, commonly referred to as the ORV corridor, would be marked at the spits and Cape Point by posts placed 150 feet landward from the average, normal high tide line or, if existing, and less than 150 feet, at the vegetation or the toe of the remnant dune line. During breeding season (April 1 through August 31) the interim protected species management strategy would provide for a 100-foot-wide corridor in protected species breeding areas. Due to the large number of miles of beach, the corridor would not be marked in areas where the dune line provides a physical barrier. The 150-foot ORV corridor would be provided in areas of the Seashore outside of those areas specifically designated or being managed for species protection, seasonal ORV closures, and safety closures. Implementation of the preferred alternative would result in the review and update of Superintendent’s Order 7: ORV Management, as determined necessary.
9. Essential use vehicles would enter restricted areas subject to the guidelines in the Essential Vehicles section of the U.S. Fish and Wildlife Service Piping Plover (*Charadrius melodus*), Atlantic Coast Population, Revised Recovery Plan (USFWS 1996a). Due to the soft sand conditions at the Seashore, the maximum speed of essential use vehicles would not exceed 10 miles per hour.
10. Weekly minimum frequencies would be provided for species observations. If a need is established for more frequent observations than the minimum stated, and staff is available, the Seashore may conduct observations more frequently on a case-by-case basis.
11. Staff used for field observations, education, and outreach would be trained by qualified NPS staff and would meet the following minimum qualifications:
  - a. Completion of an instruction course conducted by a qualified staff biologist. Training would occur at the beginning of the season (March/April) and again in April/May. Training would include:
    - i. Job description/expectations

- ii. Personal safety
- iii. Professional behavior
- iv. NPS and Seashore rules, regulations, policies
- v. Geographic locations orientation
- vi. Awareness of the community and their role in it
- vii. Seashore personnel and job descriptions
- viii. ATV/beach driving
- ix. Protected species surveying and management
  - 1. Identification
  - 2. Behavior
  - 3. Needs
  - 4. Closures
- x. Completion of observation forms, etc.
- xi. Overview of existing Seashore activities and studies
- xii. Equipment operation, care, and upkeep
- xiii. Outreach and education

b. Returning staff may not need the full training.

12. Temporary/seasonal staff would be hired using the following procedure:

Temporary/seasonal staff would be hired and trained by April 1 to begin bird monitoring and protection, education, and outreach activities. A few returning previously trained, experienced staff may start in mid-March to help prepare equipment, signs, etc. for the season, to help prepare for the training and to help permanent staff with initial monitoring before April 1. Any additional temporary/seasonal staff would be hired and trained by May 1 to conduct turtle monitoring and protection, education, and outreach activities, following the guidelines in the NCWRC Handbook for Sea Turtle Volunteers in North Carolina (Revised 2006). Job descriptions would be created with specific needs and standards for all skilled and unskilled positions. A standard for hiring seasonal employees, interns, and volunteers would be developed, including expectations and requirements for in-house training to occur at established times.

Recruiting could begin as early as October of the preceding year.

A list would be maintained of trained local volunteers and those interested in becoming trained to fill volunteer positions.

Set times for training and set start dates for seasonal staff would be established.

All the training information would be available for transmittal to all new staff during training. This would provide consistent information to everyone, and managers will be assured that seasonal employees, interns, and volunteers received consistent information.

13. Programming of staff time may be adjusted following the first season of the strategy implementation, i.e., following the 2007 breeding season.
14. The target level of law enforcement staffing would be a minimum of 17 positions, an increase of three permanent law enforcement positions over that in Fiscal Year 2005. It is planned that law enforcement staff activities would be directed to appropriate protected species projects. However, enforcement staff would be reallocated in the event that other emergency or enforcement situations must be attended to during high visitation periods. It is the responsibility of the Superintendent and law enforcement managers to direct their

resources where most needed depending on circumstances. If, and as this occurs, law enforcement staff may not be able to dedicate as much time to species protection.

15. The level of effort for outreach and compliance would include:
  - a. The Seashore would enforce proper trash disposal and anti-wildlife feeding regulations to reduce the attraction of predators to the area.
  - b. Annual protected species reports regarding the previous breeding season would be published on the Seashore website and an initial bird posting plan for the upcoming season would be drafted that provides pre-nesting closures.
  - c. A variety of educational and outreach materials would be developed regarding the impacts of trash disposal, wildlife feeding, fireworks, and pets on sensitive Seashore species. These would be distributed through a variety of methods that could include press releases, email announcements, and the use of local volunteer and community organizations.
  - d. Interpretive signage would be developed for certain species.

Under the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A*), the Seashore would implement protective measures seasonally for recent piping plover breeding areas (areas used at some time during the past three breeding seasons). The Seashore would establish resource closures when nesting behavior is observed, rather than establishing pre-nesting closures, for those state-listed species and species of special concern outlined previously. Sea turtle protections would be the same as alternative A with some variation in management. Seabeach amaranth resource closures would be established when a plant/seedling is found outside of an existing resource closure.

Alternative D and the modified preferred alternative provide for adaptive management in that the NPS can adjust the ORV corridor to allow for passage when necessary. If a buffer zone would eliminate the ORV corridor, the NPS would identify alternative ORV routes (if available) or provide a bypass (if possible). Additional management would include continued predator removal, additional recreation use restrictions, and public outreach. The modified preferred alternative would allow for some variability in species management based on the individual species behavior and would adapt management strategies to afford access where feasible while protecting species.

## **RECREATION AND OTHER SEASHORE MANAGEMENT**

Between April 1 and August 31 each year, a 100-foot-wide ORV corridor would be designated, where possible, above the mean high tide line in piping plover breeding areas used within the past three years or new habitat identified during the annual habitat assessment. Breeding areas outside the ORV corridor used within the past three years would be closed to pedestrian access using symbolic fencing at the same time. The ORV corridor would be delineated with posts below the dune line, maintaining a 100-foot corridor where possible taking into consideration necessary species closures.

Education would be provided for visitors regarding the wildlife values. In areas of reduced corridor width (i.e., narrower than 100 feet) a reduced speed limit of 10 miles per hour would be posted. Additionally, periodic patrols to observe and enforce compliance with closures would occur. During other times of the year ORV and pedestrian access would be restricted year-round to a corridor 150 feet duneward of the ocean mean high tide.

Pedestrian access would be maintained outside of the symbolically fenced areas. If no bird activity is seen by July 15, or if the area is abandoned for two weeks, whichever is later, the closure area would be reopened to recreation use.

Because closure zones would adjust to individual bird behavior, an ORV corridor may not be feasible for safety reasons or due to insufficient area. In these cases, the Seashore would attempt to identify an alternate ORV route. If no alternate route is available, a bypass would be considered using the bypass criteria outlined below. In piping plover breeding areas, an ORV closure would be implemented in the event an alternate route or bypass is unavailable.

Recent piping plover breeding habitats within the spits and Cape Point would be closed to ORVs and pedestrians beginning April 1. An ORV and pedestrian corridor would provide access around these closures, unless foraging chicks or safety issues requires that the access route be closed. If a closure is required, the decision-making process for providing continued ORV access would include consideration of an alternate ORV route or a bypass. If a turtle nest hatching could lead to the blocking of access to the spits, Cape Point or South Beach, access would be provided, if feasible, via alternate route or bypass. Seabeach amaranth occurring outside of existing species management closures would be protected from ORV and pedestrian access.

Short-term bypass route criteria:

- a. The bypass area would be routed around dunes and vegetation if possible. If necessary, ground leveling, consistent with the state coastal management program, may be considered if dune fields do not exceed 36 inches in height. Leveling would be done by hand (no machinery would be used).
- b. The bypass would take advantage of natural terrain (e.g., blowouts) to minimize ground altering disturbance to the natural areas and avoid impacts to wetlands.
- c. The bypass would be at a minimum wide enough to allow one ORV to safely pass, and a maximum of two lanes if "line of sight" vision is compromised.
- d. Natural area disturbance to accommodate avoidance of turtle or bird nesting would not exceed 6,000 square feet.
- e. Minimal vegetation impact would be allowed.

Federal or state-listed plants or plants falling under the category of special concern (e.g., seabeach amaranth, dune blue curls) would not be compromised.

Vegetation in altered areas would be expected to recover within the following growing season. If vegetation does not recover within one growing season, or by other natural process (such as overwash creating habitat), the Seashore would initiate restoration of vegetation.

Any vegetation removal would be performed with hand tools (no machinery would be used).

Areas would be restored if predicted recovery period exceeds one season. Bypass routes would not infringe upon or fragment an adjacent resource/safety closure. Bypass routes would not disturb or impact any cultural resource (i.e., shipwrecks).

## SPECIES SURVEYING AND MANAGEMENT

**Birds.** Species observation activities would be similar to previous management activities but with defined start dates and data gathering requirements (see “Table 1: Alternatives Elements Summary—Species Observation”). For example, staff would use a GPS to record the location of piping plover nests for incorporation into a GIS system. This would provide additional data for adapting resource management in following years. Seasonal closure areas would be established with symbolic fencing to minimize human disturbance in areas used by piping plover during the past three breeding seasons (defined as recent breeding habitat). An annual habitat assessment would be conducted in February or March. Based on this assessment, new habitat and suitable portions<sup>3</sup> of recent breeding habitat, such as some shoreline foraging areas and nesting habitat, would be closed to the public with symbolic fencing by April 1 each year. This annual habitat assessment would include Bodie Island Spit; Green Island; Cape Point, South Beach, and Hatteras Spit; and South Ocracoke. Beginning March 15 staff would survey recent piping plover breeding areas once a week and beginning April 1, staff would survey recent piping plover breeding areas three times per week. Recent breeding areas for other species would be surveyed twice per week. A range of observations would occur for each bird species by qualified staff across all life stages. Observations would be consistent with the terms and conditions of the USFWS Amended Biological Opinion (2007). Staff would observe species activities and potentially close areas, outside of defined pre-nesting closures, being used by other protected bird species. Closures would be removed if no bird activity is seen by July 15 or when the area has been abandoned for a 2-week period, whichever comes later. When piping plover nests are found in existing or newly established closure areas, Seashore staff would collect a variety of data including number of observations of plovers performing territorial defense or courtship outside symbolic fencing; number of observations of plovers making nest scrapes outside the symbolic fencing; and the number of vehicles, pedestrians, or pets within the symbolic fencing and/or in which tracks are observed crossing into posted habitat. For all species, 150-foot nest buffers would be established that could be adjusted based on observed bird behavior.

Closures would expand once the eggs hatch to protect unfledged chicks. Piping plover broods would be protected by a 600-foot to 3,000-foot buffer, depending on bird behavior. Based on piping plover behavior, the buffer could be reduced after the first week to no less than 300 feet, but may require expansion up to a maximum of 3,000 feet. This buffer would move if the piping plover chicks relocate and would incorporate resting and foraging sites. A 150-foot to 300-foot buffer would be established around American oystercatcher chicks, and a 150-foot to 300-foot buffer around colonial waterbird colonies when chicks are present. These buffers could be adjusted based on observed bird behavior. The Seashore would provide an alternate route or bypass around listed and non-listed chicks, if possible.

As under current management, closures and buffers would be removed once all of the chicks have fledged or are lost. Monitoring reports would include the fate (e.g., survived, fledged, lost to predators, etc.) of each brood relative to the management measures implemented. Suitable interior habitats at the spits and Cape Point would be closed year round to provide for resting and foraging for piping plover. At present, such suitable habitat includes ephemeral ponds and moist flats at Bodie Island Spit, Cape

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<sup>3</sup> On the Atlantic Coast, piping plovers nest in sand, gravel, or cobble substrates in backshore, dune, interdune blowout, overwash fan, and barrier flat zones of open or sparsely-vegetated beaches (Haig 1992). Nest sites may have little or no slope (Cairns 1982; Burger 1987), although nesting does occur on lower-elevation dunes (Cairns 1982). On wide beaches, piping plovers nest in the open to maintain a wide field of view, but on narrower beaches, eggs can be laid in clumps of vegetation (Cairns 1982). Where beaches are wide, piping plovers tend to nest far from the tide line to reduce risk of nest overwash, but this places nests closer to vegetated dunes, where risk of predation is high (Burger 1987).

Point, Hatteras Spit, and Ocracoke. The actual locations of suitable foraging and resting habitat may change periodically due to natural processes (i.e., overwashes).

Consistent with the USFWS Amended Biological Opinion (2007), procedures would be developed and implemented by the Seashore to ensure all concessioners and contractors doing work on or near the beach fully understand and comply with the plover protection measures implemented by the NPS.

**Sea Turtles.** The Seashore would follow the management guidelines defined by the NCWRC in its Handbook for Sea Turtle Volunteers in North Carolina (2006). An annual permit from the NCWRC would be required. Beaches would be patrolled daily beginning at dawn each day between May 1 and September 15 in search of sea turtle crawls and nests. As provided in the USFWS Amended Biological Opinion (2007), periodic monitoring (e.g., every two to three days) for unknown nesting and emerging hatchlings would continue, especially in areas of high visitation, through November 15. Monitoring would also occur for post-hatchling washbacks during periods when there are large quantities of seaweed washed ashore or following severe storm events. Staff would collect the same data as identified under current management and in the terms and conditions of the USFWS Amended Biological Opinion (2007). As is current practice, nests would be left in place unless there is a need to relocate them for environmental reasons. When a nest is found, staff would assess the need for relocation and follow relocation guidance identified in the NCWRC handbook. Any single nest left in place, or relocated, would be protected by an approximately 30-foot by 30-foot posted closure during the incubation period. These small closures would be expanded to the surf line approximately 50 to 55 days into incubation. The width of the closure is based on the type and level of use in the area of the beach where the nest was laid. Consistent with the USFWS Amended Biological Opinion (2007), procedures would be developed and implemented by the Seashore to ensure all concessioners and contractors doing work on or near the beach fully understand and comply with the sea turtle protection measures implemented by the NPS, including measures related to lighting.

**Seabeach Amaranth.** An annual survey would be conducted in August for new plants or seedlings. All resource closures would be surveyed for the presence of seabeach amaranth prior to reopening. Potential new habitat would be surveyed. Staff would record all locations of individual plants or plant clusters using a GPS.

#### **CONSERVATION MEASURES/RECOMMENDATIONS**

Conservation measures are discretionary activities intended to minimize or avoid adverse effects of an action on listed species or critical habitat, to help implement recovery plans, or to develop information. Conservation recommendations outlined in the USFWS Amended Biological Opinion (2007) would be considered for implementation. The Seashore would notify the USFWS when any of these conservation measures are implemented.

#### **PERFORMANCE MEASURES – PIPING PLOVER**

Based on public comments and discussions with the USFWS, performance measures were developed to gauge the success of the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A*. The terms and conditions in the USFWS Amended Biological Opinion (2007) require monitoring relative to the various breeding stages (number of breeding pairs, number of scrapes, number of nests, and number of fledglings); thus it is appropriate to have performance measures relative to most of these stages. In recent years (2003–2005) an average of 2.6 plover pairs have bred at the Seashore, with an average of 2 nests and 2.3 chicks fledged each year (NPS 2006b). Improvement on these results would be indicative of the success of the modified preferred alternative. There are four main recent breeding sites at the Seashore, Bodie Island, Cape

Point/South Beach, Hatteras Spit and Ocracoke, so it is reasonable to consider “four” as an initial target number for breeding pairs and a percentage of that number as an initial target for nesting attempts. The following performance measures would be considered minimum targets during the period the interim strategy would be in effect.

**Performance Measure 1, Number of Breeding Pairs:** The target would be four or more breeding pairs per year.

**Performance Measure 2, Number of Piping Plover Nests:** The target would be three or more nests or 75% of the number of breeding pairs, whichever is greater.

**Performance Measure 3, Number of Chicks Fledged:** The target would be an average of at least one chick per nest per year at the Seashore.

**Performance Measure 4, Monitoring Procedures:** For wintering piping plovers, the NPS and USFWS would jointly develop a systematic monitoring protocol to help establish where the wintering enclosure should be placed.

#### **PERFORMANCE MEASURES – SEA TURTLES**

The Seashore has averaged 75 turtle nests per year; however, this number is highly variable year-to-year. No trend is apparent for loggerhead or other turtle species at the Seashore (see page 73 of the Amended Biological Opinion (2007)). As detailed in the USFWS Amended Biological Opinion (2007), the Seashore has also generally represented approximately 10% of the total North Carolina sea turtle nests. Under the modified preferred alternative – *Alternative D (Access/Research Component Focus) with Elements of Alternative A*, the Seashore expects to continue to contribute approximately the same percentage of the state’s total sea turtle nests for all species. One of the primary anticipated responses of sea turtles (all species) to management actions would be a reduction in the false crawl to nest ratio. The ratio at the Seashore has been reported to be as high as 3:1. The literature (Dodd 1988) reports an observed ratio of 1:1 on undisturbed beaches (Dodd, C.K., Jr. 1988. Synopsis of the biological data on the loggerhead sea turtle *Caretta caretta* [Linnaeus 1758]. Fish and Wildlife Service Biological Report 88(14). 110 p. as cited p. 74 of the USFWS Amended Biological Opinion [2007]).

**Performance Measure 5, False Crawl Ratio:** The sea turtle false crawl to nest ratio target for all species would be less than or equal to 1:1 annually.

**Performance Measure 6, Percentage of Sea Turtle Nests (all species) in the State:** The target would be that the total number of sea turtle nests at Cape Hatteras National Seashore annually would be greater than or equal to 10 % annually of the statewide average for the previous five years.

#### **REINITIATION OF CONSULTATION IF PERFORMANCE MEASURE TARGETS NOT MET**

If one or more targets are not met, the Seashore would reinitiate consultation with USFWS as part of the annual review process identified in the USFWS Amended Biological Opinion (2007), unless the Seashore and the USFWS mutually agree that the failure to meet the target was caused by factors beyond the management control or influence of the Seashore (e.g., a higher than normal frequency of severe storms occurred during the breeding season resulting in an increased incidence of nest failures).

**TABLE 1: ALTERNATIVES ELEMENTS SUMMARY — SPECIES OBSERVATION (MODIFIED PREFERRED ALTERNATIVE)**

ACTIVITY	
<b>Survey Time and Frequency PRE-Nesting</b>	<p>Piping plover:                      March 15 – March 31 survey recent breeding areas at Bodie Island Spit, Cape Point and South Beach, Hatteras Spit, and the northern and southern ends of Ocracoke one time per week.</p> <p>April 1 – June 15 survey recent breeding areas at Bodie Island Spit, Cape Point and South Beach, Hatteras Spit, and the northern and southern ends of Ocracoke three times per week (or every other day) and potential new habitat two times per week. Survey for Wilson's plover during piping plover surveys.</p> <p>American oystercatcher: March 15 – June 15 survey recent breeding areas two times per week.</p> <p>Colonial waterbirds: May 1 – June 15 survey recent breeding areas two times per week.</p>
<b>Survey Time and Frequency Life Stages</b>	<p><u>Courtship/Mating:</u>                      If species are observed exhibiting territorial or courtship behavior during two consecutive surveys in historic habitat, observe three times per week. If scrapes or eggs are observed, survey three times per week.                      Survey potential new habitat two times per week.</p> <hr/> <p><u>Nesting:</u>                      Piping plover: Observe nests from a distance that does not disturb the birds, based on professional judgment, one time daily. Approach nests once per week to observe and record data.                      American oystercatcher and colonial waterbirds: Observe nests at least three times per week.                      Wilson's plover: Observe nests incidental to piping plover monitoring.</p> <hr/> <p><u>Unfledged Chicks:</u>                      Piping plover: During the first week, observe continually during daylight hours. After the first week, if the closure is reduced or remains the same size, keep continuous observation. If the closure is enlarged, observe once daily.                      American oystercatcher: Observe once daily.                      Colonial waterbirds: Observe broods at one-day to two-day intervals and record data.                      Wilson's plover: Observe broods incidental to piping plover monitoring.                      All Species: When broods are mobile, provide more frequent observation and enforcement presence. All observations end when all chicks have fledged.</p>

**TABLE 1: ALTERNATIVES ELEMENTS SUMMARY — SPECIES OBSERVATION (MODIFIED PREFERRED ALTERNATIVE)**

ACTIVITY	
	<p><u>Non breeding/wintering:</u>                      Piping plover: As provided in the USFWS Amended Biological Opinion (2007), the NPS would monitor the presence, abundance, and behavior of migrating and wintering piping plovers from August 1 – March 31 of each year. At each session, specific observations include vehicle, pedestrian, and pet tracks in posted habitat; any signs of predators, including species; specific management measures in place at the time of the observation; observed behaviors; and reactions to disturbance by pedestrians, pets, or vehicles.</p> <p>American oystercatcher, red knot, Wilson’s plover: Survey with piping plover.</p> <p>Colonial waterbirds: Winter/Non-breeding habitat not surveyed.</p>
<b>Data Collected</b>	<p>Piping plover: Use GPS to document breeding areas and nest locations.                      Record locations where territorial/courtship behavior occurs.                      Record presence and abundance of birds.</p> <p>American oystercatcher and colonial waterbirds: Use GPS to document nest and colony locations. Record presence and abundance of pre-nesting birds.</p>
Sea Turtles	
<b>Survey Time and Frequency</b>	<p>May 1 – September 15                      Conduct daily morning surveys by ATV and some ORVs for crawls and nests on all beaches before onset of heavy public ORV use. Daily surveys for nests end September 15. Periodic monitoring (e.g., every two to three days) for unknown nesting and emerging hatchlings would continue, especially in areas of high visitation, September 16 – November 15. Monitoring would also occur for post-hatchling washbacks during periods when there are large quantities of seaweed washed ashore or following severe storm events. Nest observations stop when all nests have hatched or excavation indicates that the nest was not viable.</p> <p>Once a light filter fence is installed, monitor nests daily for signs of hatchling emergence.</p>
<b>Data Collected</b>	<p>Follow the North Carolina Wildlife Resources Commission Handbook and record:</p> <ul style="list-style-type: none"> <li>-Turtle species</li> <li>-Nest vs. false crawl</li> <li>-Location (physical description and GPS location)</li> <li>-If nest needs to be relocated and, if so, why and where (new physical description and GPS location), number of eggs relocated, and time of day</li> <li>-Necessary protective measures for nest and hatchlings</li> <li>-Information regarding any post hatching nest excavation and analysis</li> </ul> <p>Examine all nests after hatching to determine productivity rates. Excavate nests at a minimum of 72 hours after hatching event. In cases where hatching events or dates were unknown, unearth nest cavities 80–90 days after the lay date.</p>

**TABLE 1: ALTERNATIVES ELEMENTS SUMMARY — SPECIES OBSERVATION (MODIFIED PREFERRED ALTERNATIVE)**

<b>ACTIVITY</b>	
<b>Seabeach Amaranth</b>	
<b>Survey Time and Frequency</b>	<p>April 1 During bird and turtle surveys, note any seedlings or plants and record location.</p> <p>August Annual survey of potential habitat (some bird closure areas may not be surveyed due to potential to disturb nesting birds).</p> <p>April – September Before opening any species closure or identifying alternate ORV corridors, survey for seedling/plants.</p> <p>End observations when all plants have died back.</p>
<b>Data Collected</b>	Record location of all individual plants or plant clusters using a GPS and note if the plant is located in an area open or closed to recreational use.
<b>Essential Vehicle Use (EVU)</b>	
<b>Bird Surveys</b>	Piping plover: During bird surveys, NPS vehicles would remain outside of established resources closures.

**TABLE 2: ALTERNATIVES ELEMENTS SUMMARY —SPECIES MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

Activity	
<b>Closures/ Buffers</b>	<p><u>Pre-Nesting:</u></p> <p>American oystercatcher: March 15 Activate closures if a territory is established or a nest located. Closures removed when areas have been abandoned for a two week period.</p> <p>Piping plover: April 1 In February or March of each year, NPS natural resource staff to conduct an annual assessment of piping plover breeding habitat to plan pre-nesting closures in recent breeding areas that are adapted to current habitat and physiographic conditions. Close recent breeding areas by posting symbolic fencing by April 1. Remove closures if no bird activity is seen by July 15 or when area has been abandoned for a 2-week period, whichever comes later.</p> <p>Colonial waterbirds: May 1 Activate closures if a territory is established or a nest located. Closures removed when areas have been abandoned for a two week period.</p> <p>All Species: Designate a 100-foot-wide ORV and pedestrian corridor. Outside of ORV corridor, prohibit pedestrian access to breeding areas beyond the symbolic fencing. Delineate the corridor with posts placed up to 100 feet above the high tide line. In areas of reduced corridor width (i.e., narrower than 100 feet), post a reduced speed limit of 10 mph .</p>
	<p><u>Courtship/Mating:</u></p> <p>Piping plover: If courtship or copulations are observed outside of existing closures on two consecutive survey days, establish or expand buffer to ensure 150-foot buffer for the observed birds.</p> <p>If additional closures are created around courtship/mating areas, adjust the ORV corridor whenever possible to allow vehicle passage. Allow management to be responsive to individual bird behavior when determining adequacy of closure size.</p> <p>American oystercatcher and colonial waterbirds: If territorial or courting birds observed outside of existing closures, based on bird behavior and suitable habitat, expand buffers to accommodate the birds. Provide ORV/pedestrian corridor above the high tide line.</p>
	<p><u>Nesting:</u></p> <p>Piping plover: Establish 150-foot buffer/closure around piping plover nests occurring outside existing closures. Expand closures, if necessary, using flexible increments dependent on observed bird behavior. When resource closures are created around nests, adjust the ORV corridor whenever possible to allow vehicle passage. Reduce the width of the ORV corridor if necessary. In areas in which the buffer zone would eliminate the ORV corridor, identify alternate ORV routes if available or provide a bypass (see “Short-term Bypass Route Criteria” on pages 56-57) if possible.</p> <p>American oystercatcher: Establish buffer/closure based on adult’s reaction to human disturbance. Closures vary in size dependent on best professional judgment. <i>(from alternative D)</i> When resource closures are created around nests, adjust the ORV corridor whenever</p>

**TABLE 2: ALTERNATIVES ELEMENTS SUMMARY —SPECIES MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

Activity	
	<p>possible to allow ORV passage. Reduce width of ORV corridor if necessary. In areas in which the buffer zone would eliminate the ORV corridor, identify alternate ORV routes if available, or provide a bypass (see “Short-term Bypass Route Criteria” on pages 56-57) if possible. Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around nests.</p> <p>Colonial waterbirds: Establish a buffer/closure of 150 feet to 300 feet around the nest or colony based on observed bird behavior, while maintaining ORV/pedestrian corridor. If the buffer and the corridor overlap each other, then staff would reduce corridor width if necessary. In areas in which the buffer zone would eliminate the ORV corridor, identify alternate ORV routes if available, or provide a bypass (see “Short-term Bypass Route Criteria” on pages 56-57) if possible. Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around nests.</p> <p>Reduce width of ORV/pedestrian corridors for American oystercatcher and colonial waterbirds would be approached as a research opportunity to gather data useful for the long-term ORV management plan/EIS to test for the distance at which vehicle disturbance to nesting American oystercatcher and colonial waterbirds occurs.</p> <p>All species:            Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around nests.            If nest is lost, buffers remain in place 2–3 weeks after nest is lost to determine if pair will re-nest, if no other species nesting in area.</p>
	<p><u>Adult Foraging:</u></p> <p>Piping plover: For adults foraging outside of a closure on two consecutive surveys, expand buffer to include foraging site. These closures would provide foraging opportunities close to breeding sites.</p> <p>Colonial waterbirds, American oystercatcher, and Wilson’s plover: No additional buffers/closures.</p>
	<p><u>Unfledged Chicks:</u></p> <p>Piping plover: Establish a minimum 600-foot buffer on either side of brood based on observation of bird behavior and terrain conditions at site. Based on observed behavior, buffer area may require expansion up to 3,000 feet if chicks are highly mobile. Based on observed behavior (i.e., mobility of the brood) and the capability to continually observe mobility and behavior, buffer zone can be reduced after the first week to no less than 300 feet, but may require expansion up to 3,000 feet if chicks are highly mobile. Buffer moves with chicks. Close bypass route at night if buffer zone, is less than 600 feet (as identified on p. 8 of the USFWS Amended Biological Opinion (2007)).</p> <p>When recreation closures are created around broods, adjust the ORV corridor whenever possible to allow vehicle passage. Reduce ORV corridor if necessary. In areas in which the buffer zone would eliminate the ORV corridor identify alternate ORV routes if available. If there are no alternate ORV routes, then if possible establish a bypass (see “Short-term Bypass Route Criteria”, pp. 56-57 of the EA). Close beach to recreation access down to the waterline, if necessary to allow chicks access to foraging areas.</p> <p>American oystercatcher: Establish 150-foot to 300-foot buffer zone when unfledged chicks are present. Adjust buffer zone as needed when chicks are mobile. Provide alternate ORV/pedestrian access route or bypass to open areas beyond the closure, if possible.</p> <p>Colonial waterbirds: Establish 150-foot to 300-foot buffer zone when unfledged chicks present. Adjust buffer zone as needed when chicks</p>

**TABLE 2: ALTERNATIVES ELEMENTS SUMMARY —SPECIES MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

<b>Activity</b>	
	<p>are mobile. Provide alternate ORV/pedestrian access route or bypass to open areas beyond the closure, if possible.</p> <p>For all species: Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around broods.</p> <p>Reopen 100-foot-wide ORV corridor in recent or current nesting areas after chicks fledge. Areas outside of corridor, including the upper beach remain available for protected species use. Re-establish 150-foot ORV corridor after August 31.</p>
<b>Non Breeding/ Wintering Closures</b>	<p>For piping plover: Suitable interior habitats at spits and at Cape Point closed year-round to all recreational users to provide for resting and foraging for all species. For example, at present, such suitable habitats include ephemeral ponds and moist flats at Cape Point, Hatteras Spit, Ocracoke, and Bodie Island Spit. Actual locations of suitable foraging and resting habitat may change periodically due to natural processes.</p>
<b>Sea Turtles</b>	
<b>Nest Closures/ Buffers</b>	<p>Establish a buffer approximately 30 feet by 30 feet with symbolic fencing and signage around nest.</p> <p>Approximately 50–55 days into incubation, closures expanded to the surf line. The width of the closure based on the type and level of use in the area of the beach where the nest was laid:</p> <ul style="list-style-type: none"> <li>a. vehicle-free areas with little or no pedestrian traffic – 75 feet wide (total width);</li> <li>b. villages or other areas with high levels of day use –150 feet wide (total width);</li> <li>c. areas with ORV traffic – 350 feet wide (total width).</li> </ul> <p>Opposite the surf line on the upper end of the closure, the closed area expanded to 50 feet where possible, but no less than 30 feet duneward from the nest. Traffic detours behind the nest area clearly marked with signs and reflective arrows.</p> <p>Where present within closure, vehicle tracks manually smoothed with rakes or a steel mat attached to an ATV, so as not to impede hatchlings attempting to reach the surf.</p> <p>Use light filtering fence behind nests nearing hatch dates to block light pollution from the villages and vehicles operating on the beach after dark.</p>
<b>Nest Relocation</b>	<p>When a nest is found, staff assesses need for nest relocation and follows relocation guidance identified in the NCWRC handbook.</p> <p>If it is determined the nest will not be relocated, it would be immediately protected with a symbolic fence measuring approximately 30 feet by 30 feet and signage.</p> <p>If a nest is threatened by a storm event, NPS would consult NCWRC to determine appropriate action.</p>
<b>Light Management</b>	<p>Establish turtle friendly lighting standards for all Seashore (NPS) structures.</p> <p>Encourage concessioners to install turtle friendly lighting.</p>
<b>Research</b>	<p>Support research efforts looking at the sex ratios of turtles.</p>

**TABLE 2: ALTERNATIVES ELEMENTS SUMMARY —SPECIES MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

<b>Activity</b>	
<b>Seabeach Amaranth (SBA)</b>	
<b>Buffers</b>	<p>April 15 – November 30</p> <p>If a plant/seedling is found outside of an existing closure, the Seashore would erect symbolic fencing with signage creating a 30-foot by 30-foot buffer around the plant. If plants are located next to each other, the area would be expanded to create one enclosure protecting several plants.</p> <p>If a SBA is found during the survey prior to reopening a bird closure to ORV and pedestrian use, the Seashore would protect the SBA as described above and reopen the areas of the bird closure where no plants exist.</p> <p>Areas reopened if no plants are present by September 1. Where plants occur, the closed areas would be reopened after the plants have died.</p>
<b>Predator Management</b>	<p>Trappers would target red and gray fox, raccoons, cats and other predators for removal.</p> <p>Piping plover: Nests surveyed to count eggs and look for predator tracks.</p> <p>As applicable, predator exclosures would be erected when nest found with eggs.</p> <p>American oystercatcher and colonial waterbirds: Nests surveyed to count eggs and look for predator tracks.</p> <p>Sea Turtle: Nests surveyed to count eggs and look for predator tracks. Predator exclosures may be placed over nests if predator tracks or nest predation is evident.</p> <p>SBA: No predator management.</p>
<b>Conservation Measures</b>	<p>Conservation measures are discretionary activities intended to minimize or avoid adverse effects of an action on listed species or critical habitat, to help implement recovery plans, or to develop information. Conservation measures outlined in the USFWS Amended Biological Opinion (2007) would be considered for implementation. The Seashore would notify the USFWS when any of these conservation measures are implemented.</p>

**TABLE 3: ALTERNATIVES ELEMENT SUMMARY—RECREATION AND OTHER SEASHORE MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

<b>Activity</b>	
<b>ORV</b>	
<b>Pre-Nesting Closures</b>	Between identified pre-nesting closures dates (see table 1), designate an ORV corridor up to 100 feet wide along oceanside and soundside shoreline in recent breeding areas. Delineate corridor with posts placed up to 100 feet above the high tide line. In areas with a reduced corridor width due to species management actions, maintain the corridor with a posted speed limit of 10 mph.
<b>ORV Corridors and Access</b>	<p>April 1 – August 31</p> <p>Piping plover: Designate approximately 100-foot wide ORV corridor above mean high tide line in breeding areas used within past three years.</p> <p>Delineate corridor with posts placed up to 100 feet above the high tide line.</p> <p>In areas of reduced corridor width (i.e., less than 100 feet), post traffic signs and 10 mph speed limit. Adjust the ORV corridor whenever possible to allow vehicle passage. If an ORV corridor is not feasible for safety reasons or insufficient area, identify alternate ORV route if possible. If there is no alternate route available, Seashore staff would consider establishing a bypass route (see “Short-term Bypass Route Criteria”, pp. 56-57). Seashore staff would allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones.</p> <p>If alternate route or bypass is not feasible, initiate an ORV closure.</p> <p>American oystercatcher and colonial waterbirds: Provide ORV/pedestrian corridor above the high tide line. In areas of reduced corridor width (i.e., less than 100 feet), post traffic signs and 10 mph speed limit. Adjust the ORV corridor whenever possible to allow vehicle passage. If an ORV corridor is not feasible for safety reasons or insufficient area, identify alternate ORV route if possible. If there is no alternate route available, Seashore staff would consider establishing a bypass route (see “Short-term Bypass Route Criteria, pp. 56-57 of the EA). Seashore staff would allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones.</p> <p>If alternate route or bypass is not feasible, initiate an ORV closure.</p> <p>Sea Turtles: May 1 – September 15</p> <p>Outside of recent bird breeding areas, ORV use would be restricted to a corridor 150 feet duneward of the mean high tide line and seaward of the toe of the dunes or vegetation line, whichever is less. A 30-foot by 30-foot buffer zone of signed, stringed fencing would be placed around each nest in any place where recreation occurs. When a nest is approximately 50 days old, where possible, ORV traffic would be routed around the nest on the duneward side, maintaining a buffer of 50 feet where possible, but no less than 30 feet. If the filter fence closure for hatchlings would block access to spits and Cape Point, identify an alternate route (e.g., existing interdunal road, NC-12). If an alternate route is not available, an attempt would be made to identify a bypass route on the duneward side of the nest.</p>
<b>Night Driving</b>	<p>No restrictions.</p> <p>The Seashore would provide periodic night time patrols to observe and enforce compliance with regulations and closures.</p>

**TABLE 3: ALTERNATIVES ELEMENT SUMMARY—RECREATION AND OTHER SEASHORE MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

<b>Activity</b>	
<b>Pedestrian</b>	
<b>Pedestrian Access Outside of Bird Closures</b>	Pedestrians allowed 24-hour access to all Seashore beaches outside of existing resource closures.
<b>Pedestrian Access in Turtle and Seabeach Amaranth Closures</b>	Pedestrians allowed 24-hour access to all Seashore beaches outside of existing resource closures.
<b>Other Recreation</b>	
<b>Boat Access</b>	<p>36 CFR 3.6 prohibits launching non-commercial, recreational boats/vessels except at designated launch sites.</p> <p>Permits may be issued for commercial fishing to allow ORV access or boat launching in pedestrian-only areas as well as in ORV areas, but not in areas closed for resource protection.</p> <p>Along sound shoreline where resource closures occur attempt to keep boats 150 feet from the habitat, the extent of the seashore jurisdiction. Erect signs, where practicable, around the perimeter of the closures to alert boaters of closures.</p>
<b>Pets</b>	<p>36 CFR 2.15, Pets: pets must be crated, caged, restrained on a leash, or otherwise physically confined at all times in all areas of the Seashore.</p> <p>Pets prohibited, even if on leash, from the landward side of the posts delineating the ORV corridor at the spits (Bodie, Hatteras, Ocracoke) and Cape Point.</p> <p>Pets prohibited within symbolic fencing around any bird closure area.</p>
<b>Other</b>	<p>Kite flying, kite boards, and ball and Frisbee tossing prohibited within or above all bird closures.</p> <p>36 CFR 2.38, Explosives: all fireworks are prohibited in the Seashore at all times.</p>
<b>Seashore Management</b>	
<b>Essential Vehicle Use</b>	<p>Essential vehicles allowed in closures subject to guidelines in Essential Vehicles section of Appendix G of the U.S. Fish and Wildlife Service Piping Plover (<i>Charadrius melodus</i>), Atlantic Coast Population, Revised Recovery Plan (USFWS 1996a, as cited in the strategy/EA).</p> <p>In the event of an emergency, the protection of human life takes precedence over all other management activities. To the extent practicable, emergency response vehicle operators would consult with trained resources management staff regarding protected species before driving into or through resource closures; however, prior consultation may not always be practical.</p> <p>Essential vehicles would avoid driving within turtle nest closures.</p>
<b>Essential Vehicles: Speed</b>	Not to exceed 10 mph, whenever possible.

**TABLE 3: ALTERNATIVES ELEMENT SUMMARY—RECREATION AND OTHER SEASHORE MANAGEMENT (MODIFIED PREFERRED ALTERNATIVE)**

<b>Activity</b>	
<b>Outreach and Compliance</b>	
	<p><u>General:</u>                      Provide information about endangered species at the visitor centers.                      Enforce proper trash disposal (pack in/pack out) and anti-wildlife feeding regulations throughout the Seashore, including proper disposal of fishing bait and filleted fish carcasses. Provide education and outreach materials regarding the impacts of trash disposal, wildlife feeding, fireworks, and pets on sensitive Seashore species.                      Solicit from interested parties how to convey information about the species management program.                      Notify the public of species management closures that would temporarily limit ORV traffic. Send a press release to local and regional newspapers and contact local tackle shops and ORV organizations when species closures established or reopened.</p> <p><u>Piping plover:</u>                      Provide periodic patrols to observe and enforce compliance with piping plover closures.</p> <p><u>Sea Turtles:</u>                      Conduct educational programs during the sea turtle hatching season where public school students could learn about sea turtles by participating in post-hatching nest examinations.                      Provide information to the public about nesting sea turtles and measures taken by the Seashore to protect nests and hatchlings.</p> <p><u>Seabeach Amaranth:</u>                      Post information about seabeach amaranth at all ORV ramp bulletin boards.                      Notify public of resource closures and openings.</p>

## AFFECTED ENVIRONMENT

### 10. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – PIPING PLOVER, WEATHER AND TIDES, PAGE 126

The following editorial change has been made:

“In one study done at the Cape Hatteras National Seashore, air temperature was not a factor limiting productivity (~~Kuklinski~~ Kuklinski et al. 1996).”

### 11. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – PIPING PLOVER, PREDATION, PAGE 126

The following text has been added for clarification:

“**Predation.** Predation is a primary factor limiting reproductive success of the piping plover (Haig 1992). Predation of eggs, chicks, and/or adults include, but is not necessarily limited to, mink, red fox, striped skunks, opossum, domestic dogs, feral and domestic cats, crows, and gulls (Haig 1992), and birds-of-prey (Murphy et al. 2003a). Ghost crabs have occasionally been implicated in the loss of nests (Watts and Bradshaw 1995) and chicks (Loegering and Fraser 1995). Anecdotal evidence indicates that ghost crabs may be more of a problem in North Carolina than at sites further north (Cohen 2005a). Predators in piping-plover habitat can also lead to piping plovers’ abandoning territories within and between breeding seasons (Cohen 2005b). Since predator trapping was initiated in 2002 through 2006, 58 red fox, 27 grey fox, 99 raccoons, 21 Virginia possums, 7 feral cats, and 1 feral dog have been removed from within the park boundaries.”

### 12. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – SEA TURTLES, PAGE 128

The following editorial changes have been made:

“...maximum of four nests during 2002 (NPS 1999; Lyons and Altman 2000; Sayles 2002; ~~Gosh~~ Goshe and Lyons 2002; Altman and Lyons 2003; Lyons 2005).”

“At Cape Hatteras National Seashore, the average number of nests between 1995 and 2005 was 71, with the lowest number of nests occurring in 1996 and 1997 and the highest number of nests occurring in 2002 (see figure 7) (M. Godfrey, unpublished data; NPS 1999; Lyons and Altman 2000; Sayles 2002; ~~Gosh~~ Goshe and Lyons 2002; Altman and Lyons 2003; Lyons 2005).”

“The first turtle nests (all turtles species included) begin to appear at Cape Hatteras in mid May, and the last nests are deposited in late August (NPS 1999; Lyons and Altman 2000; Sayles 2002; ~~Gosh~~ Goshe and Lyons 2002; Altman and Lyons 2003; Lyons 2005).”

“Of those nests, 68% were relocated for natural causes (e.g., in areas prone to flooding [below the high tide line], in an area prone to erosion, etc.), while the rest were relocated because of potential human disturbance, primarily because they were within one mile of a lighted fishing pier (NPS 1999; Lyons and Altman 2000; Sayles 2002; ~~Gosh~~ Goshe and Lyons 2002; Altman and Lyons 2003; Lyons 2005).”

### **13. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – SEA TURTLES, PAGE 131**

The following editorial change has been made:

“Storm events, including hurricanes, may destroy nests because of flooding or piling of eroded sand on the nest site. Beach erosion because of wave action may decrease the availability of suitable nesting habitats (~~Steinetz~~ Steinitz et al. 1998), which leads to a decline in the nesting rate.”

### **14. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – SEA TURTLES, PAGE 132**

The following editorial change has been made:

“The following data are from the Cape Hatteras National Seashore annual sea-turtle surveying reports, 1999 to 2004, and include all turtle species (NPS 1999; Lyons and Altman 2000; Sayles 2002; ~~Gosh~~ Goshe and Lyons 2002; Altman and Lyons 2003; Lyons 2005).”

### **15. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES – SEA TURTLES, PAGES 136–137**

The following editorial changes have been made:

“Winter and migratory habitat appear to be similar to breeding habitat though there are inadequate data in North Carolina regarding what constitutes preferred habitat in the winter and especially for birds on migration. Limited observations indicate that winter birds roost in open ground without vegetation in areas near foraging habitat (Tomkins ~~1944~~1954, Nol and Humphrey 1994).”

“**Human Activity.** Current threats to the American oystercatcher throughout its breeding and wintering range are increasing predators (which is thought to be largely linked to human activity); development of coastal areas; and human disturbance (Bent 1929, Tomkins ~~1944~~1954, Nol and Humphrey 1994).”

### **16. STATE LISTED AND SPECIAL STATUS SPECIES, TABLE 14, PAGE 139**

The following editorial changes have been made:

**TABLE 14: COLONIAL WATERBIRD NESTS AT CAPE HATTERAS NATIONAL SEASHORE  
(1977 – 2004)**

Species	1977*	1983*	1988*	1992*	1993*	1995	1997	1998	1999	2000	2001	2004	Avg
Least tern	121	508	450	454	761	342	278	173	355	184	202	212	337
Common tern	802	763	678	278	422	503	718	715	440	129	573**	376	533
Gull-billed tern	27	7	26	0	12	58	84	21	103	3	108	31	40
Forster's tern	382	63	0	0	0	31	0	0	0	0	0	0	40
Black Skimmer	286	296	144	30	226	139	454	366	306	149	193	342	244
Sooty tern					1								1
<b>Total</b>	<b>695</b> <b>1618</b>	<b>366</b> <b>1637</b>	<b>170</b> <b>1298</b>	<b>30</b> <b>762</b>	<b>239</b> <b>1422</b>	<b>228</b> <b>1073</b>	<b>538</b> <b>1534</b>	<b>387</b> <b>1275</b>	<b>409</b> <b>1204</b>	<b>152</b> <b>465</b>	<b>1076**</b>	<b>373</b> <b>961</b>	

\*Surveys conducted by J. Parnell, University of North Carolina, Wilmington

\*\*Updated from 2001 report to include nests found on Green Is at Oregon Inlet which is now included in Cape Hatteras National Seashore boundary

## 17. STATE LISTED AND SPECIAL STATUS SPECIES, PAGE 141

The following editorial change has been made:

**“Migration/winter roost habitat.** Black skimmers migrate from the Outer Banks region from September to November, forming very large concentrations on sandy spits and sandbars (Gochfeld and Burger 1994). They winter from Florida through the Caribbean and South America (Erwin 1990 1989; 2005; Gochfeld and Burger 1994).”

## 18. STATE LISTED AND SPECIAL STATUS SPECIES: PAGE 143

The following editorial changes have been made:

**“Human Activity.** All ground-nesting, colonial waterbirds are highly vulnerable to direct human activities such as ORVs, aircraft disturbances, pedestrians, photographers, wildlife managers and scientists, and even poachers (Buckley and Buckley 1976; Erwin 1990 1989; 2005).”

## 19. VISITOR USE AND EXPERIENCE, FIGURE 8, PAGE 156

The following footnote has been added to Figure 8 for clarification:

“Although not on the ORV access map distributed by the park, Ramps 45 and 57 were added to this figure to be consistent with the data from the 2003 Visitor Use Study (2003 Vogelsong).”

## 20. VISITOR USE AND EXPERIENCE: OFF-ROAD VEHICLE AND PEDESTRIAN CLOSURES, PAGE 157

The following clarification has been made to further define the study area:

“Of the 70 miles of Atlantic Ocean beaches, and inlets that front Bodie, Hatteras and Ocracoke Islands, Cape Hatteras National Seashore encompasses approximately 53 miles of shoreline and inlet and 50 miles of soundside habitats and beaches. Soundside shorelines within the Villages of Rodanthe, Waves, Salvo, Avon, Buxton, Frisco and Hatteras are not part of the Seashore boundary.”

**21. VISITOR USE AND EXPERIENCE, OFF-ROAD VEHICLE USE AND ACCESS, PAGE 160**

The following editorial correction has been made:

“**Safety closures.** Areas normally open to ORV use often close for reasons of safety. Adverse weather conditions can result in narrow beach areas or flooded conditions, among other hazards, and necessitate closures to vehicles. In November 2005, safety closures included 1.6 miles on Bodie Island, 27.7 miles on Hatteras Island, and 6.5 miles Ocracoke Island (~~Email communication 11/15/05~~ P. Stevens, NPS, pers. comm., D. Otto, The Louis Berger Group, Inc., December 21, 2005). Beaches that are often open to ORV use in the winter are also closed in the summer to protect visitors during the busy summer season in areas such as Hatteras Island villages of Rodanthe, Waves, Salvo, Avon, Frisco, and Hatteras (NPS 2004f).”

**22. SOCIOECONOMIC RESOURCES, TABLE 22, PAGE 165**

The following editorial change has been made to the table citation:

“Source: BEA ~~2004~~ 2005; \* Adjusted for inflation.”

**23. SOCIOECONOMIC RESOURCES, PUBLIC SAFETY, PAGE 166**

The following editorial changes have been made to the text and the table citation:

“A central emergency dispatch and response 911 service is available in both counties in the ROI. One emergency medical technician (EMT) is employed by Hyde County and is stationed in Swan Quarter (Hyde County ~~Gov~~ 2004). The Dare County Emergency Medical Service operates 8 ambulances and one emergency helicopter with 8 stations throughout the county. An advanced life support (ALS) equipped ambulance responds to every call (Dare County ~~Gov~~ 2004).”

**TABLE 24: POLICE RESOURCES**

Dare County <sup>1</sup>	
County Sheriffs Dept	142
Kill Devil Hills	23
Manteo	6
Nags Head	20
Hyde County <sup>2</sup>	
County Sheriff's Office	21
<b>Total ROI</b>	<b>212</b>

<sup>1</sup> Source: Capitol Impact 2004; <sup>2</sup> Source: ~~Hydecountry.org~~ Hyde County 2004

## **24. SEASHORE MANAGEMENT AND OPERATIONS, PAGE 168**

The following editorial change has been made to the citation:

“The interpretation staff time for resource-management activities totals approximately \$43,000, with an additional \$10,500 required for materials and supplies, such as printing, TV time, speakers, and so on (F. Davis, NPS, pers. comm., ~~K. Lusby~~ L. Gutman, Louis Berger Group, Inc., December 01, 2005), all of which includes the activities listed above. The total approximate cost for interpretation staff time and materials is \$53,240 per year.”

## **ENVIRONMENTAL CONSEQUENCES**

### **25. IMPAIRMENT ANALYSIS, PAGE 177:**

The following changes are a result of the 2006 update to the *NPS Management Policies*:

The *NPS Management Policies* ~~2004~~ *2006* require an analysis of potential effects to determine whether actions would have the potential to impair park resources. The fundamental purpose of the National Park system, as established by the Organic Act and reaffirmed by the Redwood National Parks Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid, or to minimize to the greatest degree practicable, adversely impacting park resources and values. However, the laws do give the National Park Service the management discretion to allow impacts on park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within a park system unit, that discretion is limited by the statutory requirement that the agency must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values.

An impact on any park resource or value may constitute an impairment, but an impact would be more likely to constitute an impairment to the extent that it has a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park; or
- identified ~~as a goal~~ in the park’s general management plan or other relevant NPS planning documents as being of significance.

### **26. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, PIPING PLOVER, PAGE 180**

The following editorial change has been made to the citation:

“Under alternative A, in addition to predator exclosures and surveying, USDA trappers would continue to remove red and gray fox that are preying on nests and chicks. Between 2002 and 2005, 49 predators (44 foxes, 3 opossums, 1 raccoon, and 1 feral cat) were trapped and removed from Bodie and Hatteras Islands (Lyons 2003; 2004; ~~pers. comm., S. Smith, LBG, December 2005~~ M. Lyons, CAHA, pers. comm., S. Smith, Louis Berger Group, Inc, October 7, 2005).”

## **27. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, PIPING PLOVER, PAGE 181**

The following editorial change has been made to the citation:

“Recreation use and the waste-stream (food, trash, fish bait, etc.) associated with recreation activities within the Seashore can attract a greater number of predators. These predators are a well-known factor in nest failure for piping plover and all ground nesting birds within Cape Hatteras National Seashore (Lyons 2003, 2004, and ~~personal communication~~ M. Lyons, CAHA, pers. comm., S. Smith, Louis Berger Group, Inc, October 7, 2005).”

## **28. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, PIPING PLOVER, PAGE 182**

The following editorial correction has been made:

“Alternative A may affect / is likely to adversely affect piping plovers, mainly due to the effects of recreational uses. Past, present, and future actions inside the Seashore and within the region, when combined with the impacts of recreation use and the surveying and management of the species expected under this alternative, would continue to result in impacts that may affect / are likely to adversely affect the piping plover. ~~Impairment to the piping plover would not occur under alternative A because none of the activities described could be said definitively to lead to a long-term jeopardy of the resource.~~ Impairment to piping plover would not occur under alternative A.”

## **29. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, PIPING PLOVER, PAGE 183**

The following editorial correction has been made:

“Under alternative B, there is more potential for disturbance from surveying than under alternative A; however, this is offset by the larger and longer duration ORV closures. Past, present, and future actions inside the Seashore and within the region, when combined with the impacts of recreation use and the surveying and management of the species expected under this alternative, would continue to result in impacts that may affect / are likely to adversely affect the piping plover. ~~Impairment to the piping plover would not occur under alternative B because none of the activities described could be said definitively to lead to a long-term jeopardy of the resource.~~ Impairment to piping plover would not occur under alternative B.”

## **30. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, SEA TURTLES, PAGE 196**

The following editorial change has been made:

“The information collected would be used to develop management techniques for consideration in the long-term ORV management planning process. Although all of the information collected would ~~by~~ be beneficial, due to the slight risk of an incidental take while studying sex ratios, sea turtle research results in may affect/likely to adversely affect determination for all species of nesting sea turtles at the Seashore. Many beachfires are associated with the presence of ORVs (~~Meekins, White personal communication~~ J. Meekins, CAHA, pers. comm., The Louis Berger Group, Inc, September 29, 2005), and under alternative D beachfires would be allowed year round. In 1998 visitors reported hatchlings crawling into their beach fire (Lyons 1998).”

### **31. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, SEA TURTLES, PAGE 196**

The following editorial change has been made:

“Measures are normally taken to smooth vehicle tracks around nests during the hatching window. This practice would continue under the proposed strategy. However, if an undocumented nest (one overseen by patrol) hatches in ORV areas, the emerging young could be trapped in ORV tracks, which can be fatal (~~FWS 1993~~ USFWS 1993a, USGS 2005).”

### **32. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, SEA TURTLES, PAGE 197**

The following editorial changes have been made to the references below:

“Under current management and the proposed alternative, daytime rules would apply for ORV driving on the beaches after dark. Night driving on the beaches during the sea turtle nesting season could have adverse impacts on turtles by disrupting the nesting process and aborting nesting attempts. The negative impacts on nesting females in the surf zone may be particularly severe (~~FWS 1993~~ USFWS 1993a, USGS 2005). Cape Hatteras and Cape Lookout National Seashores are listed in the U.S. Fish and Wildlife Service Loggerhead Recovery Plan as the only federal agencies within the nesting range allowing night time driving on beaches. Though actual vehicle counts are scant, patrol rangers have stated that there is substantial vehicle driving on the beaches at night (~~Henson, Meekins, Balance, personal communication~~ G. Henson, J. Meekins, and K Balance, CAHA, pers. comm., The Louis Berger Group, Inc, September 29, 2005). Since visibility is reduced at night, there is the potential of turtles being hit. Under normal, undisturbed conditions there is generally a one to one ratio between the number of nests and the number of false crawls in a given area (~~Mathew Godfrey, personal communication~~ M. Godfrey, NCWRC, pers. comm., S. Smith, Louis Berger Group, Inc, October 6, 2005). During the peak of turtle nesting in 2005, there were three false crawls to every nest on Hatteras Island (NPS ~~unpublished draft report~~ 2005). Most of these false crawls were found between Cape Point and the South beach which Hatteras Island patrol rangers claim has the district’s highest concentration of night time ORV use. This may infer a correlation between false crawls and areas of high ORV use. Hatchlings could also be subject to misorientation or disorientation by vehicle lights. Filter cloth, when used, is not always effective in protecting hatchlings from light sources (Lyons 2004). Nighttime vehicle use can indirectly add to the lighting problems for turtles.

Sea turtles would benefit from periodic changes in law enforcement scheduling for the purpose of surveying and to enforce compliance with regulations and closures. Night patrol rangers and visitors have been known to place make-shift fencing around nests to protect them until turtle

observers arrive in the morning (J. Meekins, CAHA, pers. comm., The Louis Berger Group, Inc, September 29, 2005) (~~Griest, personal communication~~).”

### **33. FEDERALLY LISTED SPECIAL STATUS WILDLIFE AND PLANT SPECIES, SEABEACH AMARANTH, PAGE 199**

The following editorial change has been made to the reference below:

“Seabeach amaranth is intolerant of competition from other plants, and winter ORV traffic would help prevent the widespread establishment of perennial grasses and shrubs on the overwash sand flats, which would render the habitat unsuitable for seabeach amaranth (USFWS ~~1996~~ 1996b).”

### **34. STATE LISTED AND SPECIAL STATUS SPECIES – AMERICAN OYSTERCATCHER, PAGE 211**

The following editorial change has been made to the reference below:

“In addition to this loss of habitat from human disturbance, there are documented cases of ORVs running over oystercatcher chicks (Simons et al 2004, and T. R. Simons, personal communications).”

### **35. STATE LISTED AND SPECIAL STATUS SPECIES, AMERICAN OYSTERCATCHER, PAGE 213**

The following editorial change has been made to the reference below:

“As is the case with alternative A, surveying can be beneficial to the species, but brings people and/or essential vehicles into direct, short-term contact with oystercatchers and their habitat, and these activities themselves are a known risk factor (Meyers 2005, McGowan 2004, Sabine 2005, Nol and Humphrey 1994, Meyers 2005).”

### **36. STATE LISTED AND SPECIAL STATUS SPECIES, RED KNOT, PAGE 230**

The following editorial change has been made to the reference below:

“They have been recorded on South Beach (just above the Frisco Ramp), and on both the east and west side of Ocracoke on the ocean side and on the soundside areas on Ocracoke and Bodie Island (S. Maddock, National Audubon Society, pers. comm., R. Podolsky, Louis Berger Group Inc, November 21, 2005 ~~personal communication~~).”

### **37. OTHER WILDLIFE AND WILDLIFE HABITATS, PAGE 236**

The following editorial change has been made to the reference below:

“These predators are a well-known factor in nest failure for piping plover and all ground nesting birds within Cape Hatteras National Seashore (Lyons 2003-2004 and personal communication M. Lyons, CAHA, pers. comm., S. Smith, Louis Berger Group, Inc, October 7, 2005).”

### **38. OTHER WILDLIFE AND WILDLIFE HABITATS, PAGE 239**

The text has been added for clarification:

“ORV use would have direct adverse impacts on invertebrate species within the Seashore under alternative B but it would be less than alternative A. Impacts within the intertidal zone would be negligible throughout the Seashore. Closing the spits to ORVs would provide long-term moderate benefits by protecting all invertebrate species in these areas and allowing them to recover to natural levels. Ghost crabs would be completely protected by prohibiting night driving with the impacts being long-term moderate beneficial. The wrack would be afforded greater protection than under Alternative A, though wrack placed higher on the beach than the mean high tide line would still be subject to adverse impacts. The overall impact would be long-term minor to moderate adverse. The ORV corridor would also protect the intertidal sand flats from ORV use and would provide long-term minor beneficial effects dependent upon the current level of impacts, which is not known. Impacts to invertebrates under alternative B would generally be beneficial and impairment of the resource would not occur.”

### **39. OTHER WILDLIFE AND WILDLIFE HABITATS, PAGE 241**

The following editorial change has been made to the text below:

“Removal of non-native grey and red fox from the park ~~prior~~ at the onset of breeding season would provide long-term minor beneficial impacts to other bird species, reducing the risk of predations for individual birds.

Seasonal closures and buffer establishment for piping plover and American oystercatcher migrating/wintering birds would limit ORV access and pedestrian access to some locations, providing protection to other wintering/migrating species throughout migration and winter and, thus having a long-term, minor, beneficial impacts.”

## **GLOSSARY AND REFERENCES**

### **40. GLOSSARY, PAGE 283**

The following definition has been added to the glossary:

“**Mean high tide** – the mean high tide, for purposed of the strategy/EA, is defined as the place on the beach that the high tide normally reaches. This is further defined by measuring the existing high tide line and comparing that with where the high tide would be during the full moon to determine mean high tide.”

### **41. REFERENCES, PAGES 285–312**

The following references were omitted from the strategy/EA and have been added to this section, in alphabetical order:

Benjamin, Pete – U.S. Fish and Wildlife Service  
2007 Personal communication by email to Mike Murray of the National Park Service regarding performance measures. May 2, 2007.

Capitol Impact

2004 Dare County North Carolina Government Gateway. Available on line at:  
[http://www.capitolimpact.com/gw/cntydetail.asp?state=nc&stfips=37&stname=North  
%20Carolina&fips=37055](http://www.capitolimpact.com/gw/cntydetail.asp?state=nc&stfips=37&stname=North%20Carolina&fips=37055).

Clark, Ron – Cape Hatteras National Seashore

2005 Personal communication by email to Dana Otto of the Louis Berger Group regarding  
Dune bluecurls at the Seashore. December 21, 2005.

DeMatteo, Michelle – Cape Hatteras National Seashore

2005 Personal communication by email to Dana Otto of the Louis Berger Group regarding  
the ORV escort program. November 7, 2005.

Florida Fish and Wildlife Conservation Commission (FWC)

2005 Sea Turtle Conservation Guidelines.

Godfrey, Matthew – North Carolina Wildlife Resources Commission

2005 Personal communication by email to Spence Smith of the Louis Berger Group  
regarding data on false crawls. October 6, 2005.

Henson, Gary, Joe Meekins, and Kenny Balance – Cape Hatteras National Seashore

2005 Personal communication at the Internal Scoping Meeting to the Louis Berger Group  
regarding ranger observations of night driving activities. September 29, 2007.

Lyons, Marcia – Cape Hatteras National Seashore

2005 Personal communication by email to Spence Smith of the Louis Berger Group  
regarding number of seabeach amaranth found at the Seashore in 2004. October 7,  
2005.

2005b Personal communication at internal scoping meeting with Dana Otto of the Louis  
Berger Group regarding status of the American oystercatcher. September 9, 2005.

Maddock, Sydney – National Audubon Society

2005 Personal communication by email to Richard Podolsky of the Louis Berger Group  
regarding sitings of Red Knot. November 21, 2005.

Meekins, Joe – Cape Hatteras National Seashore

2005 Personal communication at the Internal Scoping Meeting to the Louis Berger Group  
regarding night activities occurring at the Seashore. September 29, 2007.

NPS

2005 Sea Turtle Summary, draft unpublished report

Shaver, Donna – Padre Islands National Seashore, National Park Service

2005 Personal communication by phone to Emma Cecil of the National Park Service,  
Environmental Quality Division, regarding sea turtle nest removal. October 27, 2005.

Stevens, Paul – Cape Hatteras National Seashore

2005 Personal communication by fax to Dana Otto of the Louis Berger Group regarding  
safety closures at the Seashore. December 21, 2005.

Trick, Bob and Steve Harrison – Cape Hatteras National Seashore

2005 Personal communication in person during site visit to Richard Podolsky of the Louis Berger Group regarding dune creation at Cape Hatteras National Seashore. September 4, 2005.

#### **42. REFERENCES, PAGES 306**

The following editorial change has been made to the reference below:

Simons, T. R., S. Schulte, J. Cordes, Marcia Lyons, and W. Golder

2004 American Oystercatcher (*Haematopus palliatus*) research and monitoring in North Carolina. Annual report, North Carolina Cooperative Fish and Wildlife Research Unit, Department of Zoology, North Carolina State University, Raleigh, North Carolina, USA.

#### **43. REFERENCES, PAGES 308–310**

The following additions and editorial changes have been made the references below:

National Park Service (NPS)

2006a Biological Assessment of the Interim Protected Species Management Strategy, Cape Hatteras National Seashore. January 2006

2006b Piping Plover (*Chardrius melodus*) Monitoring at Cape Hatteras National Seashore 2006 Annual Report. Unpublished annual report. National Park Service. Manteo, NC. 11 pp.

North Carolina Wildlife Resources Commission (NCWRC)

2006 Handbook for sea turtle volunteers in North Carolina. North Carolina Wildlife Resources Commission, Raleigh, NC. 44 pp.

U.S. Fish and Wildlife Service (USFWS)

1988 Great Lakes and northern Great Plains piping plover recovery plan. 160 pp.

1991a Recovery Plan for U.S. Population of Loggerhead Turtle (*Caretta caretta*). U.S. Fish and Wildlife Service

1991b Recovery Plan for U.S. Population of Atlantic Green Turtle (*Chelonia mydas*). U.S. Fish and Wildlife Service.

1992a Recovery Plan for the Leatherback Turtles in the US. Caribbean, Atlantic, and Gulf of Mexico (*Dermochelys coriacea*). U.S. Fish and Wildlife Service.

1992b Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). U.S. Fish and Wildlife Service.

- 1993a Recovery Plan for the Hawksbill turtles in the U.S. Caribbean, Atlantic Ocean, and Gulf of Mexico (*Eretmochelys imbricata*). U.S. Fish and Wildlife Service.
- ~~1992 Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). U.S. Fish and Wildlife Service.~~
- 1993b Endangered and threatened wildlife and plants; determination of seabeach amaranth (*Amaranthus pumilus*) to a threatened species. Federal Register 58(65)18035-18042).
- 1994 Technical/Agency Review Draft, Revised Recover Plan for Piping Plovers, *Charadrius melodus*, Breeding on the Great Lakes and Northern Great Plains. U.S. Fish and Wildlife Service.
- 1994b Guidelines for Managing Recreational Activities in Piping Plover Breeding Habitat on the U.S. Atlantic Coast to Avoid Take Under Section 9 of the Endangered Species Act
- 1996a Piping Plover (*Charadrius melodus*) Atlantic Coast population, Revised Recovery Plan. USFWS Regional Office, Hadley, Massachusetts.
- 1996b Recovery plan for seabeach amaranth (*Amaranthus pumilus*). U.S. Fish and Wildlife Service, Southeast Region, Atlanta, GA.
- ~~1996a Piping Plover (*Charadrius melodus*) Atlantic Coast population, Revised Recovery Plan. USFWS Regional Office, Hadley, Massachusetts.~~

~~Vogelsang~~ Vogelsong, Hans

- 2003 Cape Hatteras National Seashore Visitor Use Study, August 2003. East Carolina University, Department of Recreation and Leisure Studies.

## Appendix A – February 2006 Errata

The following changes were made to the Interim Protected Species Management Strategy for Cape Hatteras National Seashore (January 2006) by an Errata posted for public review February 15, 2006 to provide for consistency, clarification, or address non-substantive editorial changes or inadvertent omission. None of these changes affected the overall impacts of the alternatives.

Location	Text Change/Clarification	Reason/Explanation
<b>Executive Summary</b>		
Page i, 3 <sup>rd</sup> P, line 2	(Director's Order 12) should read (NPS 2001).	Clarification. NPS 2001 is Director's Order 12 and Handbook. The quotation on line 1 is from the Handbook not the Director's Order as it now appears.
Page ii, 2 <sup>nd</sup> P, line 3 Background	(USFWS 1996) should read (USFWS 1996b).	Inadvertent omission.
Page ii, 3 <sup>rd</sup> P, line 4 Background	Guidelines should read Policies.	Editorial.
Page v, 2 <sup>nd</sup> P, line 9	(NPS 2004a) should read (NPS 2004b).	Editorial.
Page vi, 4 <sup>th</sup> P, line 4 Alternative D	Alternative C should read Alternative D.	Editorial.
Page viii, Table A, Summary of Impacts, Alternative A	Change last sentence to "Impairment to the piping plover would not occur under alternative A."	Clarified from the environmental consequences in Chapter 4.
Page viii, Table A, Summary of Impacts, Alternative B	Change last sentence to "Impairment to the piping plover would not occur under Alternative B."	Clarified from the environmental consequences in Chapter 4.
Page xi, Table A, line 13, Summary of Impacts, Alternatives B and C	Change "for" to "from".	Editorial.
Page xiii, Table A, line 15, Summary of Impacts, Alternative D	Change "for" to "from".	Editorial.
Page xiv, Table A, line 5, Summary of Impacts, Alternative A.	Change "fall and winter" to "spring, fall, and winter".	Clarification. Page 147 of the EA states that red knot use the Seashore in the winter and during spring and fall migration.
Page xiv, Table A, line 3, Summary of Impacts, Alternative D.	Change "fall and winter" to "spring, fall, and winter".	Clarification. Page 147 of the EA states that red knot use the Seashore in the winter and during spring and fall migration.
Page xiv, Table A, line 19, Summary of Impacts, Alternative B.	Change "adverse" to "beneficial"	Clarification. Change to be consistent with impact analysis.
Page xiv, Table A, line 20, Summary of Impacts, Alternative C	Insert "to" between "impacts" and "the ghost crab population."	Editorial.
Page xvi, Table A, last line Visitor Use, Summary of Impacts, Alternative D	Add the sentence, "Cumulative impacts would be long-term, moderate, and adverse to ORV users and long-term, moderate, beneficial for other park users."	Inadvertent omission.
Page xvii, Table A, last line Socioeconomic Resources, Summary of Impacts, Alternative A	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission.
Page xvii, Table A, last line Socioeconomic Resources, Summary of Impacts, Alternative B	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission.

Location	Text Change/Clarification	Reason/Explanation
Page xvii, Table A, last line Socioeconomic Resources, Summary of Impacts, Alternative C	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission.
Page xvii, Table A, line 11 Socioeconomic Resources, Alternative D	Delete "the". Sentence should read "...those communities relative to all three..."	Editorial.
Page xvii, Table A, last line Socioeconomic Resources, Summary of Impacts, Alternative D	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission.
Page xvii, Table A, line 11 Seashore Management and Operations, Alternative A	\$388,870 should read \$398,716.	Clarification.
Page xvii, Table A, line 15 Seashore Management and Operations, Alternative B	\$310,258 should read \$310,168.	Clarification.
Page xvii, Table A, line 15, and page xviii, line 2 Seashore Management and Operations, Alternative D	\$277,255 should read \$277,265. \$288,255 should read \$288,265.	Clarification.
<b>Chapter 1 Purpose of and Need for Action</b>		
Page 1, Objectives in Taking Action, line 2	(Director's Order 12) should read (NPS 2001).	NPS 2001 is Director's Order 12 and Handbook. The quotation on line 1 is from the Handbook not the Director's Order as it now appears.
Page 7, 3 <sup>rd</sup> P, line 4	"2001 NPS Management Guidelines" should read "NPS <i>Management Policies 2006</i> "	Editorial.
Page 8, 2 <sup>nd</sup> P, last line	Change "...wintering habitat during spring and fall migrations." to "...wintering habitat and during spring and fall migrations."	Clarification.
Page 9, 2 <sup>nd</sup> P, line 1	Great Lake should read Great Lakes.	Editorial.
Page 9, 3 <sup>rd</sup> P, line 5	North Carolina Wildlife Commission should read North Carolina Wildlife Resources Commission.	Editorial.
Page 11, 4 <sup>th</sup> P, line 2	(Rabon et al. 2003) should read (Rabon et al 2004).	Editorial.
Page 11, 7 <sup>th</sup> P, line 3	Change (NPS 2005e) to (NPS 2005f).	Editorial.
Page 15, 6 <sup>th</sup> bullet	"or" should read "for".	Editorial.
Page 16, 4 <sup>th</sup> P, line 4	Change "The <i>Southeastern Shorebird Conservation Plan</i> also listed the American oystercatcher as a "Species of High Concern" (USFWS 2004e)." to "The <i>Southeastern Coastal Plains – Caribbean Regional Shorebird Plan</i> (Hunter et al. 2003) states that species in highest need of conservation ("extremely high") include American oystercatcher, and the <i>U.S. Shorebird Conservation Plan</i> (USFWS 2004e) lists the American oystercatcher as a species of "high concern".	Clarification.
Page 16, 6 <sup>th</sup> P, line 6-7	Change the sentence beginning "Both species..." to "The <i>Southeastern Coastal Plains – Caribbean Regional Shorebird Plan</i> (Hunter et al. 2003) states that species in highest need of conservation include red knot ("extremely high") and Wilson's plover ("high"). The <i>U.S. Shorebird Conservation Plan</i> (USFWS 2004e) lists the red knot as "highly imperiled"	Clarification.

Location	Text Change/Clarification	Reason/Explanation
	and the Wilson's plover as a species of "high concern".	
Page 16, last P, line 3	"for" should read "by".	Editorial.
Page 18, 3 <sup>rd</sup> P line 4-5	Revise sentence to read "At the Seashore ORVs may be either 4-wheel drive vehicles such as sport utility vehicles or, in the case of essential vehicles only, may include all-terrain vehicles."	Clarification. ATVs are not permitted on the beach unless used for park operations. ATVs are not street legal in the state of North Carolina.
Page 19, 2 <sup>nd</sup> P, line 5	"vehicle emergence" should read "vehicle immersion".	Editorial.
Page 20, last P, line 4	(2004) should read (Franklin 2004).	Clarification. This reference is in the References section under Franklin not North Carolina.
Page 25	Code of Federal Regulations, Title 36, Section 2.15: should read Section 2.15(2). Replace paragraph with: Pets shall be crated, caged, restrained on a leash which shall not exceed six feet in length, or otherwise physically confined at all times.	Clarification.
Page 28, 2 <sup>nd</sup> P, line 2	Replace NEPA with National Environmental Policy Act (NEPA).	Editorial.
Page 28, 4 <sup>th</sup> P, line 7	Delete "Director's Order includes" at the beginning of the line.	Editorial. Repeat phrasing.
Page 31, 3 <sup>rd</sup> P, line 3-4	Change sentence to read "These goals include that 100% of identified park populations of threatened and endangered species have stable populations."	Clarification. Revised to provide Seashore's program goal. Originally provided NPS's goal.
Page 33, 2 <sup>nd</sup> P, line 1	70% populations should read 70% of populations.	Editorial.
Page 33, 4 <sup>th</sup> P line 4-5	Change "this order adopts the 1978 Draft Interim ORV Management Plan except for the portions that refer to permitting." to read "this order adopts the 1978 Draft Interim ORV Management Plan in large part except for the portions that refer to permitting."	Clarification
Page 34, 6 <sup>th</sup> P line 9	Change "feed" to "feeding".	Editorial.
Page 34, 6 <sup>th</sup> P, last line	Change "has submitted a Biological Assessment for their review and comment." to "has submitted a Biological Assessment for their review."	Clarification. The NPS will be receiving a Biological Opinion from the U.S. Fish and Wildlife Service.
<b>Chapter 2 Alternatives</b>		
Page 47, Table 6, Law Enforcement	\$59,182 should read \$69,182	
Page 47, Table 6, Total Annual Costs	\$388,367 should read \$398,716	Clarification.
Page 49 item b. line 3	Change "plover" to "oystercatcher".	Clarification.
Page 53, 6 <sup>th</sup> P, line 3-4	Change "Boats would be prohibited within the entire extent of the Seashore's jurisdiction, 150 feet from the shoreline." to "Boats would be prohibited within the entire extent of the Seashore's jurisdiction, 150 feet from the shoreline, adjacent to these bird closures."	Clarification.
Page 53, 7 <sup>th</sup> P, line 2	Add to the end of sentence: "beginning 55 days into incubation."	Clarification.
Page 53, last paragraph, line 1	Should read ocean mean high tide line.	Clarification.
Page 54, Table 7, Law Enforcement	\$195,901 should read \$195,841.	Clarification.
Page 54, Table 7, Total Costs	\$719,944 should read \$719,884.	Clarification.
Page 54, 3 <sup>rd</sup> P, last line	Change "item 12" to "item 14".	Clarification.
Page 55, 3 <sup>rd</sup> P, last 2 lines	Should read "...piping plover and Wilson's plover, a 600-foot buffer would be established for colonial waterbirds, and a 450-foot buffer would be established for American oystercatcher."	Inadvertent omission, paragraph needs to read consistent with Table 1.

Location	Text Change/Clarification	Reason/Explanation
Page 55, 4 <sup>th</sup> P, line 5	"colony" should read "colonies".	Editorial.
Page 55, last P, line 2	Delete "to" so the line reads "A 150-foot buffer would be established around interior and soundside spit habitat during the spring and...".	Editorial.
Page 57, 1 <sup>st</sup> P, item d., line 2	Add the following sentence: "Bird bypasses are not provided for in Alternative C, but are provided for in Alternative D.	Clarification. Bird nesting bypasses are only provided for in alternative D.
Page 57, last P, line 7	"...alternative B" should read "...alternative C".	Clarification. Discussion concerns alternative C.
Page 58, Table 8, Law Enforcement	\$159,041 should read \$159,014.	Clarification.
Page 58, Table 8, Total Costs	\$683,084 should read \$683,057.	Clarification.
Page 59, 2 <sup>nd</sup> P, line 9	Should read "...in April each year for piping plover, colonial waterbirds, and Wilson's plover, and March for American oystercatcher."	Clarification.
Page 60, 2 <sup>nd</sup> to last P, line 2	Change "...vulnerability to frequent erosion..." to "...vulnerability to erosion...".	Clarification.
Page 60, 2 <sup>nd</sup> to last P, line 3	Should read "Cape Point" not "points".	Clarification.
Page 61, P after 1 <sup>st</sup> set of bullets, line 2	Line should read "...implemented to address the following issues relative to sea turtles."	Editorial.
Page 61, 6 <sup>th</sup> bullet on page	Move to page 60 under the description of funds being sought for research on piping plover.	Clarification. This bullet deals with plover/shorebirds and not sea turtles.
Page 61, 9 <sup>th</sup> bullet, line 2	Line should read "...nesting season for all species of sea turtles."	Editorial.
Page 63, Table 9, Natural Resources Management	\$277,255 should read \$277,265. \$500,604 should read \$500,614.	Clarification.
Page 63, Table 9, Total Annual Costs	\$288,255 should read \$288,265. \$676,971 should read \$686,981.	Clarification
Page 68, last P, line 2	"essential" should read "essentially".	Editorial.
Page 70, line 5	(NPS 2004a, 2004c) should read (U.S. Council on Environmental Quality 1981; NPS 2004c).	Clarification.
Page 71, Table 1, Alternative A, Survey Time and Frequency PRE-nesting Closure Area, CWB	For CWB last 2 lines should read "...new habitat for CWB 3 times per week".	Inadvertent omission.
Page 85, Table 2, Sea Turtles Nest Closures/Buffers	Change 50 to 55 under all alternatives.	Substantive correction, changed to reflect actual days assess in Environmental Consequences section and what was detailed under the alternatives description.
Page 87, Table 2, Light Management, Alternative A	Remove the "+" sign after None.	Editorial.
Page 90, Table 2, alternative A, Cost	\$388,367 should read \$398,716.	Clarification.
Page 90, Table 2, alternative B, Cost	\$719,944 should read \$719,844.	Clarification.
Page 90, Table 2, alternative C, Cost	\$683,084 should read \$683,057.	Clarification.
Page 90, Table 2, alternative D, Cost	\$676,971 should read \$686,981.	
Page 91, Table 3, Alternative D, lines 5-6	Strike "(excluding southwest side of Cape Point)".	Clarification. This change is needed for consistency with the detailed descriptions of Alternative D in the Strategy/EA describing the location of the 100-foot

Location	Text Change/Clarification	Reason/Explanation
		corridor.
Page 93, Table 3, ORV Corridors and Access, Alternative B	Add the following: SBA: April 15 to November 30 ORV access would be restricted to a corridor within 75 feet of the mean high tide line in areas where historic seabeach amaranth populations existed or where new suitable habitat has been created.	Clarification, inadvertent omission. Explanation was needed regarding ORV access and seabeach amaranth populations and habitat.
Page 93, Table 3, line 4, ORV Corridors and Access, Alternative D	"...establishing a bypass route (see bypass criteria in Table 3)." should read "...establishing a bypass route (see bypass criteria in alternative C, page 56)."	Clarification. The wrong cross reference was provided.
Page 93, Table 3, ORV Corridors and Access, Alternative D	Add following line: SBA: April 15 to November 30 ORV access would be restricted to a corridor within 150 feet of the mean high tide line in areas where historic seabeach amaranth populations existed or where new suitable habitat has been created.	Clarification, inadvertent omission. Explanation was needed regarding ORV access and seabeach amaranth populations and habitat.
Page 97, Table 3, Pedestrian Access in Turtle and Seabeach Amaranth Closures, Alternative B	Add following line: April 15 to November 30 Pedestrian access would be restricted to a corridor within 75 feet of the mean high tide line in areas where historic seabeach amaranth populations existed or where new suitable habitat has been created.	Clarification. Further explanation was needed regarding ORV access and seabeach amaranth populations and habitat.
Page 97, Table 3, Pedestrian Access in Turtle and Seabeach Amaranth Closures, Alternative D	Add following line: April 15 to November 30 Pedestrian access would be restricted to a corridor within 150 feet of the mean high tide line in areas where historic seabeach amaranth populations existed or where new suitable habitat has been created.	Clarification. Further explanation was needed regarding ORV access and seabeach amaranth populations and habitat.
Page 115, Table 5, Alternative D: Access/Research Component Focused (Preferred Alternative), last line under Visitor Use	Add the sentence, "Cumulative impacts would be long-term, moderate, and adverse to ORV users and long-term, moderate, beneficial for other park users."	Inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 117, Table 5, Alternative B: Undisturbed Area Focus, last line under Socioeconomic Resources	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 117, Table 5, Alternative C: Tailored Management Focus, last line under Socioeconomic Resources	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 117, Table 5, Alternative D: Access/Research Component Focused (Preferred Alternative), last line under Socioeconomic Resources	Add the sentence, "Cumulative impacts would be long-term, minor adverse."	Inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 118, Table 5, line 5 Seashore Management and Operations, Alternative A	\$388,870 should read \$398,716.	Clarification.

Location	Text Change/Clarification	Reason/Explanation
Page 118, Table 5, line 10 Seashore Management and Operations, Alternative B	\$310,258 should read \$310,168.	Clarification.
Page 118, Table 5, line 9 Seashore Management and Operations, Alternative D	\$277,255 should read \$277,265. \$288,255 should read \$288,265.	Clarification.
<b>Chapter 3 Affected Environment</b>		
Page 119, 4 <sup>th</sup> P, line 6	(USFWS 2004) should read (USFWS 2004b).	Clarification.
Page 121, 1st P, last line	(Haig, Nicholls and Baldassarre 1990) should read (Nicholls and Baldassarre 1990).	Clarification.
Page 122, last bullet	(NPS unpublished data 2004) should read (Lyons 2003).	Clarification.
Page 126, 5 <sup>th</sup> P, line 5	(Loegering 1995) should read (Loegering and Fraser 1995).	Clarification.
Page 127, last P, lines 3 and 6	(Gosh and Lyons 2002) should read (Goshe and Lyons 2002).	Clarification.
Page 130, 4 <sup>th</sup> P, last line	(NMFS and USFWS 199b) should read (NMFS and USFWS 1991b).	Inadvertent omission.
Page 131, last P, line 3	Change "strand turtles" to "stranded turtles".	Editorial.
Page 133, Table 12	Delete one of the two entries for 1996.	Editorial.
Page 134, 1 <sup>st</sup> P, line 4	(Blazich 2005) should read (Blazich et al. 2005).	Clarification.
Page 135, 5 <sup>th</sup> P, line 9	Change "Distance to nearest other American oystercatcher nest..." to "Distance to the nearest other American oystercatcher nest...".	Clarification.
Page 138, last P, line 7	(NCWRC database, fide D. Allen) should read (NPS 2006).	Clarification.
Page 139, 2 <sup>nd</sup> P, last line	(Erwin 1994, 2005) should read (Erwin et al. 2001: Erwin 2005).	Clarification.
Page 140, 4 <sup>th</sup> P, line 4	Change (Erwin 1990, 2005) to (Erwin 2005).	Clarification.
Page 145, 5 <sup>th</sup> P, line 2	Insert a comma between "beachgoers" and "like" and delete the comma after "piping plover" so that the sentence reads "Because Wilson's plovers commonly nest on beaches with wide berms, which are also favored by beachgoers, like piping plover Wilson's plovers are subject to ...".	Editorial.
Page 145, 6 <sup>th</sup> P, line 5	"seaborne" should read "seaboard".	Editorial.
Page 146, 2nd P, line 4	Change "taxus" to "taxa".	Editorial.
Page 147, 3rd P, line 4	(Vooren et al 1990) should read (Vooren and Chirada 1990).	Clarification.
Page 147, 3 <sup>rd</sup> P, line 10	Put a period between "knot" and "At".	Editorial.
Page 147, 4 <sup>th</sup> P, line 2	(Myers et al. 1978) should read (Myers et al. 1987).	Clarification.
Page 149, 2nd P, line 10	Ruppert and Fox (1988) should be spelled Rupert and Fox (1988).	Editorial.
Page 151, 1 <sup>st</sup> P, line 2 and 3 <sup>rd</sup> P, last line	(NPS 2005) should read (NPS 2005a).	Clarification.
Page 151, 2 <sup>nd</sup> P, line 4	Delete "collection" so the sentence starts "Data was	Editorial.

Location	Text Change/Clarification	Reason/Explanation
	collected over the course of a year...".	
Page 153, last P, last line	(NPS, pers. comm., ...) should read (Staff, Cape Hatteras National Seashore, pers. comm., ...).	Clarification. Comment made during a teleconference with multiple individuals on the line.
Page 154, 2 <sup>nd</sup> P, line 3	(OBPA 2005) should read (OBPA 2004).	Clarification.
Page 155, 1 <sup>st</sup> P, line 6 and Table 17.	(NPS 2004a) should read (NPS 2004d).	Clarification.
Page 157, 1 <sup>st</sup> P, line 3	Change "daily figures" to "daily figure".	Editorial.
Page 159, 4 <sup>th</sup> P, line 4	(NPS 2005c) should read (NPS 2005e).	Clarification.
Page 160, 2 <sup>nd</sup> P, last line	(NPS 2004) should read (NPS 2004f).	Clarification.
Page 160, last P, line 3	Delete the second comma so that the sentence starts "Similarly, only 11.9%..."	Editorial.
Page 161, 2 <sup>nd</sup> P, line 4	Change the sentence that begins "Located within these counties..." so that it reads "Located within these counties are towns and villages that would likely be most affected by the proposed actions, including several villages on Hatteras Island (Hatteras, Frisco, Avon, Buxton, Salvo, Waves, and Rodanthe) and Ocracoke Village on Ocracoke Island."	Clarification.
Page 161, 4 <sup>th</sup> P, last line	(2000 Census) should read (U.S. Census Bureau, U.S. Census 2000).	Editorial.
Page 162, 1 <sup>st</sup> P, line 5	(2003 County Business Patterns) should read (U.S. Census Bureau, 2003 County Business Patterns for Buxton and Hyde Counties).	Clarification.
Page 162, 2 <sup>nd</sup> P, line 4, Employment	"...classified as professional as does..." should read "...classified as professional than does..."	Editorial.
Page 163, 3 <sup>rd</sup> P, line 2, Tourism	Delete "the major".	Editorial.
Page 164, 5 <sup>th</sup> P, lines 1-2	"On average, visitors spend \$511 per day and \$1,868 per visit." should read "On average, visitors spend \$1,868 per visit."	Clarification.
Page 164 6 <sup>th</sup> P, line 2	Insert "to" between "relative and "the" so that the sentence starts "Whereas the per capita income of Dare County has increased relative to the national per capita income"...	Editorial.
Page 164, last P, last sentence	Delete "the growth".	Clarification.
Page 168, 2 <sup>nd</sup> P, last line	Cross reference to table 3 should be to tables 6,7,8 and 9.	Editorial.
Page 168, last P, line 6	\$59,182 should read \$69,182.	Clarification.
Page 169, 4 <sup>th</sup> P, last line	(NPS 2005) should read (NPS 2005b).	Clarification.
<b>Chapter 4: Environmental Consequences</b>		
Page 183, 2 <sup>nd</sup> P, line 14-15	"Nevertheless, because pedestrians are not allowed to bring pets into these areas, direct impacts..." should read "Nevertheless, because pedestrians are not allowed to bring pets within ¼ mile of the closures, direct impacts..."	Clarification.
Page 187, 2 <sup>nd</sup> P, line 8	(Dolan 1986) should read (Dolan and Hayden 1987)	Clarification.
Page 189, 2 <sup>nd</sup> P, line 3	Change 10 mph to 5 mph.	Clarification. Revised to reflect alternative.
Page 190, 4 <sup>th</sup> P, line 2	Add "After 55 days, this closure would be expanded to the surf line, with varying width based on use in the area."	Clarification.
Page 191, 1 <sup>st</sup> P	Add "Overall, recreation may affect / is likely to	Clarification.

Location	Text Change/Clarification	Reason/Explanation
	adversely affect sea turtles.”	
Page 193, 2 <sup>nd</sup> paragraph, line 2	Change May to March.	Clarification.
Page 193, last paragraph, line 6	Change Fifty to Fifty-five.	Clarification.
Page 194, top of page	Add “Overall, recreation may affect / is likely to adversely affect sea turtles.”	Clarification.
Page 195, 2 <sup>nd</sup> P, line 1	Should read “...from beachfires, except from May 15 – August 31, when they are prohibited.”	Clarification.
Page 195, 3 <sup>rd</sup> P, line 5	Change Fifty to Fifty-five.	Clarification.
Page 195, 4 <sup>th</sup> P, last line	Add “Overall, recreation may affect / is likely to adversely affect sea turtles.”	Clarification.
Page 196, 1 <sup>st</sup> P, lines 1-3	Reword to say: “Surveying activities for sea turtles under alternative D would be the same as under alternative A, except monitoring would begin May 15. Daily morning surveys would offer benefits to sea turtles during the nesting season from May 15 to August 31.”	Substantive correction.
Page 196, 4 <sup>th</sup> P, line 1 and line 2	Change alternative B to “... all other alternatives” and “Similar to alternative B...” to “Similar to alternative C...”.	Clarification.
Page 197, 3 <sup>rd</sup> P, line 1	Change “...proposed alternative...” to “...alternative D...”.	Clarification.
Page 198 last P, last line	(NPS 2000) should read (NPS 2000b).	Clarification.
Page 199, 5 <sup>th</sup> P, line 1 and 2	Change to “...150 feet duneward of the mean high tide or seaward of a line 20 feet east of the toe...”.	Clarification.
Page 200 2 <sup>nd</sup> P, line 7	(USFWS 1996) should read (USFWS 1996b).	Clarification.
Page 200 2 <sup>nd</sup> P, line 8	Insert a slash mark (/) between “and or” so that the line reads “However, some undetected seedlings/plants could still be trampled by pedestrians and/or their pets”	Editorial.
Page 201 1 <sup>st</sup> P, line 4	Delete “N”.	Editorial.
Page 202, Recreation	Recreation heading – should be moved down one paragraph.	Editorial
Page 202, Last P, line 4	Delete “Impacts under alternative B would be the same as under alternative A.”	Clarification. This is not the case and is stated so in the conclusion.
Page 203, 5 <sup>th</sup> P, line 4	Change alternative B to alternative C.	Editorial.
Page 203 last P, line 1	Delete the “a” between “provide” and “more”.	Editorial.
Page 203, last P, last line	“morality” should read “mortality”.	Editorial.
Page 205 2 <sup>nd</sup> P, last line	Insert “during” between “seeds” and “species” so the line reads “burying seeds during species surveying may affect/is likely to adversely affect seabeach amaranth.”	Editorial.
Page 206 2 <sup>nd</sup> P, line7	(USFWS 1996) should read (USFWS 1996b).	Clarification.
Page 206 2 <sup>nd</sup> and 3rd P	These paragraphs dealing with removal of webworms and beach vitex and with essential vehicles and trampling from trapping activities belong on the preceding page under species management rather than on p. 206 under recreation.	Editorial.
Page 206 4 <sup>th</sup> P, line 1	Delete the heading “Recreation”. This is a continuation of the Recreation section from the preceding page.	Editorial.
Page 208 1st P, last line	Delete the “j”	Editorial.

Location	Text Change/Clarification	Reason/Explanation
Page 209, 1 <sup>st</sup> P, line 3	Delete the numeral "1"	Editorial.
Page 212 2 <sup>nd</sup> P, last line	Change "to Cape Hatteras National Seashore." to "Cape Hatteras National Seashore's American oystercatchers."	Editorial.
Page 212, 4 <sup>th</sup> P, just before Conclusion heading	Add the following sentence: "Adding in the impacts of Alternative A, especially the major adverse effects of recreation, cumulative impacts under Alternative A would be moderate to major and adverse."	Clarification.
Page 213, 1 <sup>st</sup> P, lines 5 and 6	Delete one Meyers 2005 citation.	Editorial.
Page 214, 4 <sup>th</sup> P, line 5	"for" should be "from" and read "...from recreation".	Clarification.
Page 214, 5 <sup>th</sup> P, lines 4 and 9	One Meyers 2005 citation needs to be deleted.	Editorial.
Page 215, Top P, line 3	Needs a period after "...perimeter". Start new sentence with "Similar..."	Editorial.
Page 215, 2 <sup>nd</sup> P, line 7	Revise to read "...buffer size around nests is reduced to..."	Clarification.
Page 215, last P	Delete the starting phrase that repeats the first sentence.	Editorial.
Page 215, last P, line 4	Change "alternative B" to "alternative C" so the sentence reads "Adding in the long-term, moderate, adverse impacts to the oystercatcher from recreation use at the Seashore under alternative C, cumulative impacts under alternative C would be long-term, minor to moderate, and adverse."	Clarification.
Page 216, 2 <sup>nd</sup> P, line 7 and lines 15-16	Delete one Meyers 2005 citation.	Editorial.
Page 217, last P, last line	"for" should read "from" so that it reads "...from recreation".	Editorial.
Page 222, 2 <sup>nd</sup> P, lines 4-6	Revise sentence to read "Under alternative C, frequent disturbances related to pedestrians could be expected to result in negative impacts to colonial waterbird reproduction."	Clarification.
Page 222, 3 <sup>rd</sup> P, line 1	Change the second "alternative B" to "alternative C" so that the sentence reads "Similar to alternative B, substantially more outreach is proposed under alternative C than under A, which..."	Clarification.
Page 223, 4 <sup>th</sup> P, last line	Change "alternative C" to "alternative D" so that the line reads "impact of recreation under alternative D would be long-term, minor, and adverse."	Clarification.
Page 226, 3 <sup>rd</sup> P, last line	Change "alternative A" to "alternative B" so that the line reads "impacts under alternative B would be long-term, minor, and adverse."	Clarification.
Page 228, 6 <sup>th</sup> P, line 4	"for" should read "from" so that it reads "...from recreation".	Editorial.
Page 229, 7 <sup>th</sup> P, Cumulative Impacts	Replace paragraph with the following: "Cumulative impacts from other actions taking place in the study area would be the same as identified for American oystercatcher under alternative A—long-term, minor, and adverse. Adding in the long-term, minor, adverse impacts to the red knot at the Seashore under alternative A, cumulative impacts under alternative A would remain long-term minor, and adverse."	Clarification.
Page 230, 9 <sup>th</sup> P, line 1	Change "alternative to B" to "alternative C" so that the sentence reads "Red knots are not managed under alternative C at Cape Hatteras National Seashore."	Clarification.
Page 231, 9 <sup>th</sup> P, line 1	Change "alternative B" to "alternative D" so that the	Clarification.

Location	Text Change/Clarification	Reason/Explanation
	sentence reads "Substantially more outreach is proposed under alternative D than under A..."	
Page 232, 3 <sup>rd</sup> P, line 2	(NPS 2002) should read (NPS 2000).	Editorial.
Page 237, Last P, line 4	"Adding in the long-term, minor to moderate adverse impacts..." should read "Adding in the long-term, minor beneficial impacts..."	Clarification.
Page 242 1 <sup>st</sup> P, line 1	(NPS 2000c) should read (NPS 2006).	Editorial. Update to NPS <i>Management Policies 2006</i> .
Page 242, 3 <sup>rd</sup> P, last line	(NPS 2000c) should read (NPS 2006).	Editorial. Update to NPS <i>Management Policies 2006</i> .
Page 243, 2 <sup>nd</sup> P, line 4	Strike the first "annually" to read "The percent of ORV use that might be impacted annually as a result of..."	Editorial.
Page 243, 6 <sup>th</sup> P, line 3	(Cohen 2005) should read (Cohen 2005a).	Editorial.
Page 245, 5 <sup>th</sup> P, line 2-3	(NPS Public Use Statistics Office 2005) should read (NPS Public Use Statistics Office 2005a).	Editorial.
Page 250, 5 <sup>th</sup> P, first line	"The availability of alternate routes via interdunal roads..." should read "The availability of alternate routes via existing interdunal roads..."	Clarification.
Page 251, 4 <sup>th</sup> P, line 7	"...for both operating and park ORVs..." should read "...for both operating and parked ORVs..."	Clarification.
Page 252, 5 <sup>th</sup> P, line 6	At the end of the paragraph add the sentence, "Cumulative impacts would be long-term, moderate, and adverse to ORV users and long-term, moderate, beneficial for other park users."	Clarification, inadvertent omission.
Page 254, 3 <sup>rd</sup> P, line 1	EIS should read EA.	Clarification.
Page 254, 3 <sup>rd</sup> P, lines 5-6	Change to read "including several villages on Hatteras Island (Hatteras, Frisco, Avon, Buxton, Salvo, Waves and Rodanthe) and Ocracoke Village on Ocracoke Island."	Clarification.
Page 255, last P, line 7	Cape should read County.	Clarification.
Line 256, 5 <sup>th</sup> P, last line	Note should read not.	Editorial.
Line 257, Last P, last line	Add "Cumulative impacts would be long-term, minor adverse."	Clarification, inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 258, 3 <sup>rd</sup> P, last line	Add "Cumulative impacts would be long-term, minor adverse."	Clarification, inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 258, 4 <sup>th</sup> P, line 4	Close should read closed.	Editorial.
Page 258, 6 <sup>th</sup> P, last line	Add "Cumulative impacts would be long-term, minor adverse."	Clarification, inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 259, 3 <sup>rd</sup> P, line 4	"...those communities relative to the all three..." should read "...those communities relative to all three..."	Editorial.
Page 259, 4 <sup>th</sup> P, last line	Add "Cumulative impacts would be long-term, minor adverse."	Clarification, inadvertent omission. Summary of cumulative impacts from temporal and level/intensity perspectives added.
Page 262, Table 27	Law Enforcement Materials should read \$69,182 and Total should read \$122,130.	Clarification.
Page 262, Table 27	Total Annual Cost = \$398,716 (not \$388,367).	Clarification.
Page 262, 1 <sup>st</sup> P, line 5	\$53,240 should read \$53,237.	Clarification.
Page 262, 3 <sup>rd</sup> P, line 4	"...approximately \$223,500" should read "...\$223,349".	Clarification.
Page 263, 2 <sup>nd</sup> P, line 1	\$112,130 should read \$122,130.	Clarification.
Page 264, 1 <sup>st</sup> P, line 2	\$388,870 should read \$398,716.	Clarification.

Location	Text Change/Clarification	Reason/Explanation
Page 264, Table 28, Law Enforcement, Assumption, line 3	"seasons" should read "seasonal personnel".	Clarification.
Page 264, Table 28, Law Enforcement, Total Annual Cost	\$195,901 should read \$195,841.	Clarification.
Page 264, Table 28, Total Annual Cost	\$719,944 should read "\$719,884.	Clarification.
Page 266, 3 <sup>rd</sup> P, line 3	\$195,014 should read \$195,841.	Clarification.
Page 267, 1 <sup>st</sup> P, first line	\$310,258 should read \$310,168.	Clarification.
Page 267, Table 29, Law Enforcement	\$159,041 should read \$159,014.	Clarification.
Page 267, Table 29, Total Annual Cost	\$683,084 should read \$683,057.	Clarification.
Page 270, Table 30, Natural Resource Management	\$277,255 should read \$277,265. \$500,604 should read \$500,614.	Clarification.
Page 270, Table 30, Interpretation	\$11,000 should read \$11,000.	Clarification.
Page 270, Table 30, Law Enforcement	\$112,130 should read \$122,120.	Clarification.
Page 270, Table 30, Total Annual Cost	\$288,255 should read \$288,265. \$676,971 should read \$676,981.	Clarification.
Page 270, last P, line 9	Strike "f, or a total of \$21,500, "	Clarification. Number represented the total cost of supplies that included existing requirements (alternative A) and additional requirements (alternative D). Deletion clarifies this sentence.
Page 271, 4 <sup>th</sup> P, line 6	\$277,255 should read \$277,265.	Clarification.
Page 271, 4 <sup>th</sup> P, line 7	\$500,604 should read \$500,614.	Clarification.
Page 271, 5 <sup>th</sup> P, line 6	\$277,255 should read \$277,265.	Clarification.
Page 272, 2 <sup>nd</sup> P, line 1	"fulfill" should read "fill" so that the phrase reads "The Seashore would use currently available funding to fill all law enforcement commissions...".	Editorial.
Page 272, 6 <sup>th</sup> P, line 5	\$277,255 should read \$277,265. \$288,255 should read \$288,265.	Clarification.
Page 275, 2 <sup>nd</sup> P, line 1	"To the keep the..." should read "To keep the..."	Editorial.
Page 276, 2 <sup>nd</sup> P, line 3	Strike "(see appendix B)."	Editorial.
Page 276, State Representatives	Strike Richard Burr, Senator and Walter B. Jones, 3rd District Representative and replace with Timothy L. Spear, 2nd District Representative.	Clarification. Senator Burr and Representative Jones are correctly listed in the section above under Congressional Delegates.
Page 278, list at top of page	Strike "The American Sportfishing Association."	Clarification. Listed on previous page.
Pages 282, 283 and 284	The citation to (FWC 2002) should be (FWC 2005).	Editorial.
Page 283, 1 <sup>st</sup> P, line 1	Under the definition for Dune, strike the "a" at the end of the line so that the definition reads "A mound or ridge of sand or other loose sediment formed by the wind along the sea coast."	Editorial.
Page 284 in the 3 <sup>rd</sup> P under Take (as it applies to the Endangered Species Act)	Replace the definition of "Harm" with the following: Harm is further defined by the U.S. Fish and Wildlife Service as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or	Clarification. The definition as written incorrectly implies that "harm" includes habitat modification only if it results in death to listed species, whereas "harm" as defined in 50 CFR § 17.3 also includes injury.

Location	Text Change/Clarification	Reason/Explanation
	injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR § 17.3)."	
Appendix A	Replace Alternative D Map of Cape Point with Map attached to this Errata.	Clarification. This change is needed for consistency with the detailed descriptions of Alternative D in the Strategy/EA describing the location of the 100-foot corridor.