COMMON ELEMENTS IN ALL ALTERNATIVES:

Monitor and manage for the following protected species:

- Federally threatened piping plover (*Charadrius melodus*);
- Federally threatened seabeach amaranth (*Amaranthus pumilus*);
- State listed species of special concern:
  common tern (*Sterna hirundo*),
  least tern (*Sterna antillarum*),
  gull-billed tern (*Sterna nilotica*),
  black skimmer (*Rynchops niger*)
- Rare species of concern to the park
  American oystercatcher (*Haematopus palliatus*)
- Federally listed sea turtles:
  threatened loggerhead (*Caretta caretta*)
  endangered green turtle (*Chelonia mydas*)
  endangered leatherback turtle (*Dermochelys coriacea*)
  endangered hawksbill turtle *(Eretmochelys imbricata)*
  endangered Kemp's ridley turtle *(Lepidochelys kempii)*

Consider management guidance from:

- Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan .U.S. Fish and Wildlife Service. 1996.
- 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. 1994.
- Recovery Plan for the Great Lakes Piping Plover *(Charadrius melodus)*. U.S. Fish and Wildlife Service. 2003.
- Recovery Plan for Seabeach Amaranth *(Amaranthus pumilus*). U.S. Fish and Wildlife Service. 1996.
- *North American Colonial Waterbird Conservation Management Plan*
- North Carolina Wildlife Resources Commission (NCWRC) in *Handbook for Sea Turtle Volunteers in North Carolina* (2002). An annual permit is issued by NCWRC under the authority of the U.S. Fish and Wildlife Service and USFWS Recovery Plans referenced.
- Recovery Plan for U.S. Population of Loggerhead Turtle *(Caretta caretta*). U.S. Fish and Wildlife Service. 1991.
- Recovery Plan for U.S. Population of Atlantic Green Turtle *(Chelonia mydas)*. U.S. Fish and Wildlife Service. 1991.
- Recovery Plan for the Leatherback Turtles in the US. Caribbean, Atlantic, and Gulf of Mexico (*Dermochelys coriacea*). U.S. Fish and Wildlife Service. 1992.
- Recovery Plan for the Hawksbill turtles in the U.S. Caribbean, Atlantic Ocean, and Gulf of Mexico *(Eretmochelys impbricata)*. U.S. Fish and Wildlife Service. 1993.
- Recovery Plan for the Kemp's Ridley Sea Turtle (*Lepidochelys kempii*). U.S. Fish and Wildlife Service. 1992.
- Synthesis of Management, Monitoring, and Protection Protocols for the Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Management and Protection Protocols for the Threatened Piping Plover (*Charadrius melodus*) on Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Management, Monitoring, and Protection Protocols for Colonially Nesting Waterbirds at Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Management, Monitoring, and Protection Protocols for American Oystercatchers at Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Management and Protection Protocols for Nesting Sea Turtles on Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Management, Monitoring, and Protection Protocols for Seabeach Amaranth at Cape Hatteras National Seashore, North Carolina. U.S. Geological Survey, Patuxent Wildlife Research Center. 2005.
- Subject matter experts, federal and state legal authorities, scientific literature, past park experience

To the extent we could in the time available, we have footnoted the alternative concepts matrix to indicate in which of the above references to look for more information on the possible management actions. The above references are or will be posted as soon as possible on the PEPC website for this project. (http://parkplanning.nps.gov/CAHA)

GLOSSARY:

PIPL refers to piping plover
AMOY refers to American oystercatcher
CWB refers to colonial waterbirds
Closure refers to an area delineated by posts with string between them (except in Alternative A, where sometimes there was no string between posts)
Decision tree refers to a set of IF / THEN statements in a flow chart (IF this happens, THEN this management action would be implemented)
Historic refers to the last 10 years' breeding seasons
Active refers to the last 3 years' breeding seasons

These conceptual alternatives have been developed using laws, policy, science, public input, and practical management experience.
They are currently conceptual only and are intended to provide talking points and stimulate public dialogue during public scoping and the development of alternatives.

Activity	Alternative A—No Action Alternative Continues 2004 Management (provides a baseline for comparison with other alternatives)	Conceptual Alternative B— Elements of A with Improved Year-round PIPL Protection and Monitoring ▪ reduces need for added monitoring by using earlier, larger closures ▪ eliminates night driving during turtle nesting (but not hatching) season to help nesting sea turtles	Conceptual Alternative C— Elements of A and B with Improved Breeding Season Protection and More Monitoring to Fine Tune Closures ▪ closures for wintering and migrating PIPL based on monitoring ▪ increased monitoring would allow use of a decision tree to make some closures more flexible	Conceptual Alternative D— Similar to A with More Monitoring and Addition of an Improved Escort System ▪ increases monitoring to allow fewer, later, smaller closures in some circumstances, and use of a decision tree to make some closures more flexible ▪ improves access through protected areas to popular recreation sites with a park-run (biologists and interpreters) escort system
Avian Pre-nesting Closures *Glossary* *PIPL = Piping plover* *AMOY = American Oystercatcher* *CWB = colonial waterbirds* *Historic = last 10 years breeding seasons* *Active = last 3 years breeding seasons*	April 1—active PIPL nesting areas (previous 3 breeding seasons) closed* Mar 25 – monitor AMOY active nesting areas to locate nests and activate closure if nest found May 01—Monitor CWB active nesting areas to locate nests and activate closure if nest found. *All closures upon Superintendent's approval	Apr 01—historic PIPL areas (previous 10 breeding seasons) closed Mar 15—active AMOY nesting areas closed (upper beach, not to shoreline) [1] May 01—active CWB nesting areas closed (upper beach, not to shoreline) Monitor potential new habitat for activity. Closures removed when areas have been abandoned.	Apr 01—active (previous 3 breeding seasons) PIPL nesting areas closed[2] Mar 15—Monitor active AMOY nesting habitat for territorial behavior or return of breeding pairs. Close when either occurs. May 01—Monitor active CWB nesting habitat for territorial behavior or return of breeding pairs. Close when either occurs. Monitor potential new habitat for activity. Closures removed when areas have been abandoned.	Apr 01—previous breeding season PIPL nesting areas closed Same as A for AMOY and CWB. Monitor potential new habitat for activity. Closures removed when areas have been abandoned.
Avian Closure—Courtship/Mating	Monitor PIPL. Monitor AMOY. Monitor CWB.	150 ft closure if PIPL exhibit courtship behavior outside of closure areas[3] 300 ft closure if AMOY exhibit territorial behavior or banded pair return to former nest site outside of existing closure 150 ft closure if CWB exhibit courtship behavior outside of existing closure areas	Same as B for PIPL. Same as B for AMOY. Same as B for CWB.	Same as B for PIPL. Same as A for AMOY. Same as A for CWB.
Avian Closure—Nesting	150 ft PIPL (ensure closed area provides no less than 150 ft buffer) 300 ft closure from the nest for AMOY 150 ft closure from the nest for CWB	150 ft PIPL (ensure closed area provides no less than 150 ft buffer)[4] Identify alternate ORV routes, where available. 450 ft closure from the nest for AMOY[5] 600 ft closure for CWB (from nests at outside edge of colony)[6]	Same as B for PIPL Same as B Same as B for AMOY 300 ft from nests at outside edge of colony (if only least terns in colony) [7] 600 ft from outside edge of colony, if other tern species or black skimmer have nests in colony[8]	Same as B for PIPL Same as B. Same as A for AMOY Same as A for CWB
Avian Closure—Nesting Adult Foraging (in ORV corridor)	For adult PIPL foraging areas existing outside of a closure, expand buffer to include adult foraging sites. None for AMOY. None for CWB.	Same as A for PIPL. Same as A for AMOY. Same as A for CWB.	Same as A for PIPL. Same as A for AMOY. Same as A for CWB.	For PIPL Same as A + institute escort system through foraging area. Same as A for AMOY Same as A For CWB.
Avian Closure—Unfledged Chicks	3000 ft on either side of PIPL nest from oceanside low water line to soundside[9] 300 ft AMOY 150 ft CWB	3000 ft on either side of PIPL brood from oceanside low water line to soundside—moves with chicks. [10] Identify alternate ORV routes, where available. 600 ft buffer around AMOY broods for 35 days after hatching.[13] 600 ft CWB from colony.[14]	600 ft on either side of PIPL brood. Initiate intense monitoring. Based on observed behavior may require expansion to 3000 ft.[11] Identify alternate ORV routes, where available. Same as B. 300 ft CWB from colony if only least terns present[15] 600 ft CWB from colony if other terns or black skimmer present[16]	600 ft on either side of PIPL brood. Initiate intense monitoring. Based on observed behavior can be reduced to no less than 300ft but may require expansion to 3000 ft.[12] Identify alternate ORV route, if available. Same as B and initiate escort system if no PIPL present. Same as C and initiate escort system if no PIPL present.

Activity	Alternative A—No Action Alternative Continues 2004 Management (provides a baseline for comparison with other alternatives)	Conceptual Alternative B— Elements of A with Improved Year-round PIPL Protection and Monitoring ▪ reduces need for added monitoring by using earlier, larger closures ▪ eliminates night driving during turtle nesting (but not hatching) season to help nesting sea turtles	Conceptual Alternative C— Elements of A and B with Improved Breeding Season Protection and More Monitoring to Fine Tune Closures ▪ closures for wintering and migrating PIPL based on monitoring ▪ increased monitoring would allow use of a decision tree to make some closures more flexible	Conceptual Alternative D— Similar to A with More Monitoring and Addition of an Improved Escort System ▪ increases monitoring to allow fewer, later, smaller closures in some circumstances, and use of a decision tree to make some closures more flexible ▪ improves access through protected areas to popular recreation sites with a park-run (biologists and interpreters) escort system
Avian Non-breeding—migrating / wintering	Symbolic fencing remains in place year round at Bodie, Hatteras, and Ocracoke Spit for migrating and wintering PIPL. Areas include soundside shoreline. Sites are reconfigured, and reduced for wintering PIPL in fall months.	Same as A + posting symbolic fencing at Cape Point including south oceanside shoreline.	Monitor areas for wintering and migrating PIPL modify according to use. Close interior areas and shoreline if PIPL using area. After October 31 (end of migration) open all shoreline at Cape Point and spits.	Interior habitats at spits and Cape Point remain closed to provide for resting and foraging. After fledging (all species) open all shoreline at Cape Point and spits.
Sea Turtle	Temporary 30 ft^2 closure around nest; 55 days into incubation, light filter fence and corridor established to shoreline. Width of closure based on type and level of use in area where nest located: ▪ vehicle-free areas, little/no pedestrian traffic – 75 ft wide; ▪ villages or other areas w/ high day use –150 ft wide; ▪ areas w/ ORV traffic – 375 ft wide.	Same as A + : If hatchling corridor would block access to spits and Cape Point attempt to identify alternate ORV detour route on duneward side of the nest.	Same as B.	Same as B.
Seabeach Amaranth	If plant/seedling found, close 10 feet from the plant until the plant dies.	Monitor areas for plant/seedlings, if found close a 30 foot area from the plant until the plant dies.[17] Survey alternate ORV corridors for seedling/plant prior to opening to vehicles.	Same as B.	Same as B.
Night Driving	Daytime rules apply at night for all species.	Prohibit night driving from 8:00 pm to 6:00 am May 15 - August 31 (turtle nesting season) to avoid causing female turtles to abort nesting attempts.[18]	Daytime rules apply at night for all species.	Daytime rules apply at night for all species.
Vehicle Escorts	None	None	None	Activate Park Implemented Escort System (PIES): Before April 1, develop and publish an Escort Plan for areas of previous year nesting. After April 1, expand Plan as/if necessary to address other nesting sites. Provide, as applicable, on spits and Cape Point. No nighttime driving for escort program 1 hour after sunset to 30 minutes after sunrise. ¾ mile would be maximum length of an escort area. If not practicable close area until fledging or conditions change to allow an escort to be used.
General Recreation (pets)	Pets must be leashed and under control of their owners at all times in all areas of the park (36 CFR Sec. 2.15 Pets). Pets are prohibited, even if on leash, from the landward side of the white posts delineating use areas for vehicles on the “flats” at the spits (Bodie, Hatteras, Ocracoke).	Pets must be leashed and under control of their owners at all times in all areas of the park (36 CFR Sec. 2.15 Pets). Any public use areas adjacent to symbolic fencing for avian species would be closed to pets within ¼ mile of the closure.[19]	Same as B. Same as B.	Same as B.
Outreach	Public notified of sea turtle closures that temporarily limit ORV traffic. A press release sent to local and regional newspapers. Local tackle shops and ORV organizations contacted when closures established or reopened.	Same as A + : Establish and update, as modifications warrant, a central map of fencing/posting/closures to be located in the 3 visitor centers, provided to the District Resource Managers, and made available on the park website. When possible, the park would provide the public with notification of closures and other restrictions prior to the closure of an area. Publish yearly monitoring results and proposed strategy for next season by March. Solicit from interested parties best means to convey species	Same as B.	Same as B.

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		management program.		

Recreation use, including ORV corridors, is provided for outside of species closures where safe and appropriate.

[1] Management, Monitoring, and Protection Protocols for American Oystercatchers at Cape Hatteras National Seashore, North Carolina, p. 15.
[2] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, p. 193.
[3] Management and Protection Protocols for the Threatened Piping Plover (*Charadrius melodus*) on Cape Hatteras National Seashore, North Carolina, p. 31.
[4] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, p. 191-192.
[5] Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina, p. 12.
[6] Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina, p. 12.
[7] Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina, p. 12.
[8] Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina, p. 12.
[9] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, Appx. G, p. 194.
[10] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, Appx. G, p. 194.
[11] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, Appx. G, p. 194.
[12] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, Appx. G, p. 194.
[13] Management, Monitoring, and Protection Protocols for American Oystercatchers at Cape Hatteras National Seashore, North Carolina, p. 16.
[14] Management, Monitoring, and Protection Protocols for Colonially Nesting Waterbirds at Cape Hatteras National Seashore, North Carolina, p. 13.
[15] Management, Monitoring, and Protection Protocols for Colonially Nesting Waterbirds at Cape Hatteras National Seashore, North Carolina, p. 13.
[16] Management, Monitoring, and Protection Protocols for Colonially Nesting Waterbirds at Cape Hatteras National Seashore, North Carolina, p. 13.
[17] Recovery Plan for Seabeach Amaranth (*Amaranthus pumilus*), p. 30; Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina, p. 12.
[18] Recovery Plan for U.S. Population of Loggerhead Turtle (*Caretta caretta*), p.p. 8, 30.
[19] Piping Plover (*Charadrius melodus*) Atlantic Coast Population Revised Recovery Plan, p. 73.