CAHA 2nd Alternatives Development IDT Meeting
Off-Road Vehicle Management Plan/EIS
March 20-21, 2008

Draft Participant List (03/10/08)

PARK
Management:
Mike Murray
Darrell Echols
Cyndy Holda
Steve Thompson

Resources:
Thayer Broili
Meghan Carfioli
Britta Muiznieks
Abra Zobel

Facilities:
John Wescott

Interpretation:
Mary Doll
Marcia Lyons

Law Enforcement:
Norah Martinez
Jon Anglin
Kenny Ballance
John McCutcheon
Paul Stevens

EQD
Sandy Hamilton

LOUIS BERGER GROUP
Dana Otto
Lori Gutman
Doug Wetmore

Breakout Group B: Carrying Capacity (Facilitator: Sandy Hamilton)
- Jon Anglin
- Kenny Ballance
- Thayer Broili
- Steve Thompson

Breakout Group C: Scheduled Access (Facilitator: Doug Wetmore)
- Cyndy Holda
- Britta Muiznieks
- Paul Stevens

Breakout Group D: Minimized Management Intensity (Facilitator: Lori Fox)
- Darrell Echols
- Marcia Lyons
- John McCutcheon
- Abra Zobel

Breakout Group E: Maximized Management Intensity (Facilitator: Dana Otto)
- Mary Doll
- Meghan Carfioli
- Norah Martinez
- John Wescott

ALTERNATIVES DEVELOPMENT BREAKOUT GROUPS

Alternatives will be developed based on the first alternatives development meeting and the results of public input from both public scoping and the alternative options workbooks. Through a series of breakout sessions, the IDT will take alternative elements and package them into an initial range of alternatives. Four action alternatives are proposed:

Action Alt B: Defined Carrying Capacity	Action Alt C: Scheduled ORV Access	Action Alt D: Minimized Management Intensity	Action Alt E: Maximized Management Intensity
DEFINE VISITOR USE AREAS AND ORV CARRYING CAPACITY.	DEFINE SEASONAL MANAGEMENT APPROACH.	DEFINE MANAGEMENT MEASURES REDUCING THE NEED FOR STAFFING RESOURCES.	DEFINE MANAGEMENT MEASURES REQUIRING ON-THE-GROUND STAFF RESOURCES.

For an alternative to be considered reasonable and included in the range of reasonable alternatives for full impact analysis in the plan/EIS, it must meet the purpose, need, and objectives to a large degree.

PURPOSE OF ACTION

"Purpose" is an overarching statement of what the plan must do to be considered a success. The purpose of this plan is to develop regulations and procedures that manage ORV use/access in the Seashore to:

- Protect and preserve natural and cultural resources and natural processes.
- Provide a variety of appropriate visitor use experiences while minimizing conflicts among various users.
- Promote the safety of all visitors.

NEED FOR ACTION

"Need" is an overarching statement of why action is required. An ORV management plan is needed to:

- Bring the Seashore in compliance with Executive Orders 11644 and 11989 respecting ORV use, and with NPS laws, regulations (36 CFR 4.10), and policies to minimize impacts to Seashore resources and values.
- Address the lack of an approved plan, which has led over time to inconsistent management of ORV use, user conflicts, and safety concerns.
- Provide for protected species management in relation to ORV use upon expiration of the *Cape Hatteras National Seashore Interim Protected Species Management Strategy/EA* and associated Biological Opinion and Amendment.

OBJECTIVES

Objectives are "what must be achieved to a large degree for the action to be considered a success" (NPS Director's Order 12 and Handbook: Conservation Planning, Environmental Impact Analysis,

PROPOSED ALTERNATIVE B—CARRYING CAPACITY ALTERNATIVE

Alternative B will focus on meeting objectives by establishing a carrying capacity for the seashore.

FOCUS: Establish an ORV carrying capacity that includes managing ORV as one use and one means of access to the seashore, not necessarily the dominant one, to ensure management of seashore visitors and seashore resources that acknowledges and addresses both the direct effects of ORV and the indirect effects (e.g., bringing more people and their associated impacts into resource sensitive areas that would be accessed by fewer visitors if ORV were not allowed, such as spits and Cape Point).

The following highlights potential elements to consider or questions to ask yourself as you develop this alternative:

- What is the purpose(s) of a carrying capacity (safety, visitor experience, resource protection, other)?
    - How would you determine a carrying capacity? Indicators/standards?
    - Would the carrying capacity be directed to specific areas of the park and/or specific uses and/or specific times (season, week-ends, weeks)?
    - How would you implement and enforce a carrying capacity?
    - How could carrying capacity be linked to behavior regarding closure violations?
- Would you consider permits? Reservations for a popular area/season/week-end? Gated access?
- What criteria would be established to define areas where ORV routes are designated under this alternative?
    - In defining areas where ORV routes are designated, would you provide geographic balance with passive recreation areas where ORV routes would not be designated? If so, how?
- Would you consider expanding parking areas? Where?
- Would you provide alternative transportation under this alternative?
- Would you have closures for:
    - Safety (Of vehicle drivers/passengers)?
    - Pedestrians, sunbathers, swimmers, campers, etc.
    - Resource protection
- How would pets be addressed under this alternative?

PROPOSED ALTERNATIVE C—SCHEDULED ORV ACCESS ALTERNATIVE

Alternative C will focus on meeting objectives by establishing seasonal use restrictions.

FOCUS: Establish ORV routes and/or visitor use areas to be changed seasonally. Use areas and potential closures may vary by focus (i.e., "season" is different between high tourism and breeding/nesting season for PIPL).

The following highlights potential elements to consider or questions to ask yourself as you develop this alternative:

- What criteria would be established to define areas where ORV routes are designated under this alternative?
- Would ORV routes be open year round or seasonally?
- Would ORV routes operate 24 hours/day or 12 hours/day year round or seasonally?
- If seasonally, what would be the criteria for closing?
    - Safety (Of vehicle drivers/passengers)?
    - Pedestrians, sunbathers, swimmers, campers, etc.
    - Resource protection
- On what areas of the Seashore (both sound and ocean side) would ORVs be permitted to operate?
- In defining areas where ORV routes are designated, would you provide geographic balance with passive recreation areas where ORV routes would not be designated? If so, how?
- Would you consider permits? Reservations for a popular area/season/week-end? Permits during the defined season only?
- Would you change existing park regulations on a seasonal or geographic basis (e.g., pets on Seashore)?
- Would you provide alternative transportation under this alternative?
- How would pets be addressed under this alternative?
- How would beach fires be addressed under this alternative?
- What type of outreach activities would be undertaken related to species protection? ORV access and public notification?

PROPOSED ALTERNATIVE D—MINIMIZED MANAGEMENT INTENSITY ALTERNATIVE

Alternative D will focus on meeting objectives by minimizing on-the-ground staffing needs.

FOCUS: Establish ORV routes and use areas, and designate non-ORV areas, to provide the public and Seashore a consistent management approach while reducing the need for staff resources on the beach. This alternative should reduce the need for on-the-ground resources to manage Seashore visitors and Seashore resources.

The following highlights potential elements to consider or questions to ask yourself as you develop this alternative:

- How could this alternative change species protection (including the establishment of closures, buffer areas, etc.) from the current condition?
- Would species protection vary seasonally?
- Would closures be full closures?
- How would closures/use areas differ between ORV and pedestrian use?
- What criteria would be established to define areas where ORV routes are designated under this alternative?
- On what areas of the Seashore (both sound and ocean side) would ORVs be permitted to operate?
- In defining areas where ORV routes are designated, would you provide geographic balance with passive recreation areas where ORV routes would not be designated? If so, how?
- How would this alternative address night-driving on the beach?
- Would you consider permits?
- Would you establish a carrying capacity?
- Would you provide alternative transportation under this alternative?
- How would pets be addressed under this alternative?
- How would beach fires be addressed under this alternative?
- What would be the consequences to those who break the laws related to closures and/or ORV operation?
- How could local interest groups and other citizens be involved in outreach efforts under this alternative?

PROPOSED ALTERNATIVE E—MAXIMIZED MANAGEMENT INTENSITY ALTERNATIVE

Alternative E will focus on meeting objectives by minimizing on-the-ground staffing needs.

FOCUS: Establish ORV routes and use areas, and designate non-ORV areas, to provide the public and Seashore a consistent management approach through active, flexible management. This alternative will require intensive park management of resources and visitor access.

The following highlights potential elements to consider or questions to ask yourself as you develop this alternative:

- How could this alternative change species protection (including the establishment of closures, buffer areas, etc.) from the current condition?
- Would species protection vary seasonally?
- Would closures be full closures?
- How would closures/use areas differ between ORV and pedestrian use?
- What criteria would be established to define areas where ORV routes are designated under this alternative?
- On what areas of the Seashore (both sound and ocean side) would ORVs be permitted to operate?
- In defining areas where ORV routes are designated, would you provide geographic balance with passive recreation areas where ORV routes would not be designated? If so, how?
- Would you consider permits?
- Would you establish a carrying capacity?
- Would you provide alternative transportation under this alternative?
- How would pets be addressed under this alternative?
- How would beach fires be addressed under this alternative?
- What would be the consequences to those who break the laws related to closures and/or ORV operation?
- How could local interest groups and other citizens be involved in outreach efforts under this alternative?
- What type of outreach would be undertaken related to ORV access and notifying the public of closures? Species protection?

TABLE 2: ALTERNATIVES ELEMENTS SUMMARY—SPECIES MANAGEMENT[3]

Applicable to the following bird species: Piping plover (PIPL), American Oystercatcher (AMOY), colonial waterbirds (CWB), Wilson's Plover (WIPL), and red knot (REKN)

Activity	Alternative B: Undisturbed Area Focus
Closures/Buffers	**Pre-Nesting:** **PIPL**: Year-round Close historic breeding areas by posting symbolic fencing including all potential nesting, roosting, and foraging habitat and Bodie Island Spit, Cape Point, South Beach, Hatteras Spit, North Ocracoke, South Ocracoke. *(See attached maps.)* **AMOY**: March 15 Close recent breeding areas (upper beach, not to shoreline) by posting symbolic fencing including Bodie Island flats, Cape Point, South Beach, Hatteras Inlet, and Ocracoke Island (ramp 59 - ramp 72). **CWB**: April 15 - September 30 Close historic breeding areas by posting symbolic fencing including all potential breeding, roosting, and foraging habitat at Bodie Island Spit, Green Island, Cape Point, South Beach, Hatteras Spit, and North (inlet area) and South Ocracoke. **WIPL**: April 1 Close recent breeding areas using symbolic fencing. **All species**: A pedestrian corridor would be maintained outside of symbolically fenced areas. Closures established for species other than PIPL removed if no bird activity is seen in the area during the observations period, by July 15 or until area abandoned for two weeks, whichever is later.
	Courtship/Mating: **PIPL**: If courtship and/or copulations observed outside of existing closures, post and symbolically fence the area of activity and associated suitable habitat, establishing a 150 foot buffer. **CWB/WIPL**: If courtship and/or copulations observed outside of existing closures during two consecutive survey days, post with symbolic fencing, establishing a 150 foot buffer excluding all recreation activity (only persons engaged in observations, management, or research activities would enter posted areas). Closures would shoreline. **AMOY**: If courtship and/or copulations observed outside of existing closures on two consecutive survey days, or if banding data exists that indicates return of a breeding pair to a former nest site, nesting area would be posted by symbolic fencing, establishing a 300 foot buffer unless staff observations indicate that the buffer needs to be larger due to bird behavior (not to exceed 600 feet). **All species**: PIPL pre-nesting closures at Bodie Island Spit, Cape Point, South Beach, Hatteras Spit, North Ocracoke, South Ocracoke remain year round. Pedestrian corridor maintained outside of symbolically fenced area.
	Nesting: **PIPL**: If nest occurs outside of an existing closure, provide 150 feet buffer/closure. Revaluate buffers/ closures and expand in 150 ft increments in cases where observations indicates the standard closure zones are deemed inadequate to protect incubating adults and/or unfledged chicks from harm or

	disturbance. If the lay-date of the last egg is known, expand the closure area at day 26 to at least 600 feet around nests in anticipation of hatching. Within one week of the expected hatch date, prohibit ORV in PIPL habitat within 3000 ft of the nest. Reduce buffer zone back to 150 ft 1 week after nest is lost if renesting attempts are not observed. Such modifications should be made only with the consent of the USFWS and NCWRC, on a case by case basis. **AMOY:** 35 days after nesting observed, establish a 600 foot buffer around the nest. Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around nests and chicks. **CWB:** When nests observed with eggs establish a 600 foot buffer from nests at outside edge of colony. If/when recreation closures are created around nests outside of existing PIPL closures, adjust the ORV corridor whenever possible to allow vehicle passage. Allow observations to be responsive to individuality in bird behavior when determining adequate size of closure zones around nests and chicks **WIPL**: Establish 150 foot buffer/ closure around nest. Expand by 150 foot increments if flushing is observed. **All species:** If nest is lost, buffers remain in place 2-3 weeks after nest is lost to determine if pair will renest, if no other species nesting in area.
	Adult Foraging: **PIPL/WIPL:** For foraging areas occurring outside of a closure, expand buffer to include foraging site, extending closure to soundside and inlet shoreline. **CWB/AMOY:** No additional buffers/ closures.
	Unfledged Chicks: **PIPL:** Within 1 week of the expected hatch date of a nest, prohibit ORV in all plover habitat within 3000 ft of the nest. After hatch, the closed area should be 3000 ft on either side of the brood's center of activity. Maintain this protection until all chicks have fledged or are 35 days of age. 3000 ft buffer on either side of PIPL brood from oceanside low water line to soundside—Buffer moves with chicks (if outside of existing closures). **AMOY**: 600 ft buffer around broods for 35 days after hatching. Buffer moves with chicks. After hatching, and based on intensive observations of adult and nestling foraging behavior, the area between nest sites and foraging sites would be closed to recreation. AMOY chicks are considered fledged at 35 days of age. **CWB:** After hatching, and based on intensive observations of adult and nestling foraging behavior, establish a 600 ft buffer from colony during foraging. CWB chicks are considered fledged at 35 days of age. **WIPL:** 600 ft buffer around broods for 35 days after hatching. Buffer moves with chicks.
Non Breeding/ Wintering Closures	**PIPL:** Historic PIPL breeding areas closed to ORV access 24 h/day, year-round, see prenesting closures. *(See attached maps.)* **AMOY:** Active winter habitat posted with a 300 ft buffer. **CWB/WIPL:** Observe PIPL closure areas. **REKN:** Winter habitat not posted.

See attached maps from Appendix A of the Interim Protected Species Management Strategy/Environmental Assessment

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[1] Sections of Interim Protected Species Management Strategy/Environmental Assessment applicable to birds, pp. 52-53

[2] Interim Protected Species Management Strategy/Environmental Assessment, p. 70

[3] Sections of Interim Protected Species Management Strategy/Environmental Assessment applicable to birds, pp. 78-84

AR-CAHA

Agenda
Second Alternatives Development Meeting
Cape Hatteras National Seashore
ORV Management Plan/EIS
March 20 – 21, 2008

1236

-----Thursday March 20, 2008 -----

1. Welcome and Introductions, Update on Reg-Neg / Litigation Status (Park)
   Any Questions on Meeting Purpose and Objectives? (EQD) 8:30 – 8:50 AM

The purpose of the meeting is to develop a range of alternatives and set a framework for impact analysis for the ORV Plan/EIS. Objectives of this meeting are to:

- *Clarify and finalize the no action alternative;*
- *Determine elements common to all alternatives and all action alternatives;*
- *Develop a range of action alternatives for the Cape Hatteras National Seashore ORV Plan/EIS;*
- *Develop further the list of alternatives considered but not carried forward and the reason they were not carried forward; and*
- *Discuss the draft methodology and thresholds for impact analysis.*

2. Results of Public Comment (Berger) 8:50 – 9:10 AM

Discuss the results of public comment from the alternative option workbooks focusing on general themes. Specific alternative elements suggested will be addressed in later agenda items.

READ-AHEAD: (1) Summary of Public Comment from the Alternative Option Workbooks.

3. Methodology for Developing Alternatives (Berger) 9:10 – 9:30 AM

Alternatives will be developed based on the first alternatives development meeting and the results of public input from both public scoping and the alternative options workbooks. Through a series of breakout sessions, the IDT will develop alternative elements and package them into an initial range of alternatives. The IDT will discuss how adaptive management could be addressed in all alternatives. The methods and tools for doing this will be discussed and clarification of some project definitions will occur.

READ-AHEADS: (1) Alternative Development Worksheet (2) NPS (including Cape Hatteras) ORV Management Measures (for reference); (3) ORV Management Measures in Other Non-NPS Jurisdictions (for reference); (4) Primary and Secondary Alternative Elements; and (5) Preliminary Alternatives Considered But Not Carried Forward (from previous meeting and suggestions for new alternative elements not carried forward).

4. Finalize Description of Alternative A – No Action Alternative (EQD) 9:30 – 10:00 AM

READ-AHEAD: (1) No Action Alternative Description.

---- BREAK -----

10:00 – 10:15 AM

5. Elements Common to All Alternatives (Berger) 10:15 – 10:45 AM

Review lists of proposed elements common to all alternatives and common to all action alternatives. Lists will be used during breakout sessions.

READ-AHEADS: (1) Draft List of Elements Common to All Alternatives; and (2) Draft List of Elements Common to All Action Alternatives.

6. Action Alternatives Breakout Session 1 — 10:45 AM – 12:00 PM

Four breakout groups will each develop an alternative according to provided themes. During this session, breakout groups will focus on developing management approaches related to the primary alternative elements (see Primary and Secondary Alternative Elements List and Alternative Development Worksheet).

12:00 – 12:45 PM

---- LUNCH ----

12:45 – 1:15 PM

7. Continue Breakout Session 1

8. Breakout Groups Present

Each breakout group will present its alternative; the IDT will discuss and make any changes.

Alternative B Group (Carrying Capacity) — 1:15 – 1:45 PM

Alternative C Group (Scheduled ORV Access) — 1:45 – 2:15 PM

Alternative D Group (Minimized Management Intensity) — 2:15 – 2:45 PM

Alternative E Group (Maximized Management Intensity) — 2:45 – 3:15 PM

9. Action Alternatives Breakout Session 2 — 3:15 – 5:00 PM

IDT members will reconvene into four working groups to develop secondary alternative elements according to the alternative themes provided. During this session breakout groups will focus on developing management approaches related to the secondary alternative elements (see Primary and Secondary Alternative Elements List and Alternative Development Worksheets/Matrices).

5:00 PM

ADJOURN

-----Friday March 21, 2008 -----

10. Continue Action Alternatives Breakout Session 2	8:30 – 9:00 AM
11. Breakout Groups Present	

Each breakout group will present its alternative; the IDT will discuss and make any changes.

Alternative B Group (Carrying Capacity)	9:00 – 9:45 AM
Alternative C Group (Scheduled ORV Access)	9:45– 10:30 AM
---- BREAK -----	**10:30 – 10:45 AM**
Alternative D Group (Minimized Management Intensity)	10:45 – 11:30 AM
Alternative E Group (Maximized Management Intensity)	11:30 AM – 12:15 PM
---- LUNCH ----	**12:15 – 1:00 PM**
12. Alternatives Considered but Not Carried Forward	1:00 – 1:45 PM

READ-AHEADS: (1) Preliminary Alternatives Considered But Not Carried Forward (from previous meeting and suggestions for new alternative elements not carried forward)

13. Discussion of Regulatory Framework, Methodologies, and Thresholds	1:45 – 2:30PM

Group discussion on the draft regulatory framework, methodologies, and thresholds for the ORV plan/EIS. The group will review and comment on the regulatory framework and thresholds. Input for methodologies will be obtained, but these will evolve depending on the range of alternatives.

READ-AHEADS: (1) Regulatory Framework, Methodologies, and Thresholds

---- BREAK -----	**2:30 – 2:45 PM**
14. Continue Discussion of Regulatory Framework, Methodologies, and Thresholds	2:45 – 4:30 PM
15. Project Tasks and Schedule	4:30 – 5:00 PM
ADJOURN	**5:00 PM**

Cape Hatteras National Seashore Alternatives Development
Primary, Secondary, and Common to All (to be used with the Agenda)
March 20 and 21, 2008

Elements common to all alternatives (see agenda item #5) – Lists of actions that will be common to all alternatives or common to all action[1] alternatives being developed for the meeting. A description of each of these elements will be provided at the meeting. During the meeting, the interdisciplinary team (IDT) will review these lists to add, delete, or modify elements.

Speed limit
Education and outreach
Vehicle requirements (AWD/4WD, street legal, tire pressure)
Driver requirements (license, registration, education component)
Equipment requirements (shovel, jack, pressure gauge)
Accessibility for disabled
Commercial fishing requirements (access) [Note: this could be common to all or differ by alternative – TBD by the IDT]
Nomenclature for closed areas (i.e. safety closure, resource closure, etc)
Right-of-way rules
Predator management (covered by the planned Predator Management Plan)

[1] Includes all action alternatives excluding that alternative developed by the Negotiated Rulemaking team.

Primary Issues (see agenda items #8 & #12) – These issues are primary issues or themes identified by the Seashore during alternatives development and the public through public scoping and the alternatives option workbook. The framework for the alternatives discussed in the agenda was developed based on these themes. The discussion for alternatives B, C1, C2, D1, and D2 is intended to address these primary issues.

Carrying Capacity
Permits
Species protection (e.g., nesting closures for prenesting and/or breeding, buffer zones, seasonal or permanent closure areas)
Enforcement (more rangers, focus on resource closures, raise fines)
Use areas (ORV and Passive recreation)
Education and outreach (those not common to all alternatives)
Accessibility for disabled

Secondary Issues (see agenda item #15) – These were issues identified by the Seashore and the public that would likely be addressed in all alternatives, but to varying degrees. The intention is for the IDT to discuss these elements and the range of options for these elements. Once a range has been developed, the options in that range can be matched with the alternatives discussed earlier in the meeting.

Parking
Alternative transportation
Signage improvements
Ramp maintenance
Facilities improvements (restrooms)
Drainage improvements
Waste management (dumpsters, fish grinders)
Commercial fishing requirements (access) [Note: If not common to all]
Road improvements (pull outs)
Allowed activities: Fires, fireworks, pets, kites, kiteboarding, etc

1236 CAHA

DRIVER AND VEHICLE AND EQUIPMENT REQUIREMENTS		
Driver Requirements	**Vehicle Requirements**	**Equipment Requirements**
Most localities allowing ORV use on the beach require the operator of any vehicle on the beach have a current and valid motor vehicle operator's license issued by the state of his or her residence. Delaware State Parks and the City of Daytona Beach Shores do not state that a driver's license is required. Delaware State Parks requires that the driver carry a copy of the permit while driving on the beach. Most localities in Virginia, Delaware, Maryland, Rhode Island, and South Carolina prohibit public beach driving. Most localities in Georgia follow the state regulations for beach driving, requiring the driver: 1. be involved in educational activities, 2. be a legal resident of the island in question, 3. be involved in beach maintenance or security activities, 4. be an "owner of real property" on the island in question.	Nags Head and Kill Devil Hills require vehicles be 4-wheel-drive and properly registered, and licensed. Delaware State Parks requires the vehicle have 4 wheels and a minimum ground clearance of 7". **Norton Point Beach, MA:** • Vehicles must be in four-wheel drive and must display a current Norton Point Beach sticker on front and rear bumpers. Tires shall be maintained at a maximum of 15 pounds per square inch. • Four-wheel drive motor vehicles may be allowed to drive the marked trails on Norton Point Beach providing they have purchased and properly displayed a current special permit from the County. Drivers must also have a copy of the current Special Vehicular Access Regulations which comes with the permit. • Vehicles designed or modified for use over unimproved terrain such as "recreational vehicles, off-road vehicles (ORV), or "all terrain vehicles" (ATV) are prohibited on all County beaches (except for official use by governmental and enforcing agencies).	Most localities do not have specifications for required equipment. • Delaware State Parks require surf fishing vehicles to be equipped with a shovel, jack, tow rope or chain, board or similar support for the jack and a low-pressure tire gauge • Norton Point Beach, MA. All vehicles must carry the following: Beach regulations; Spare tire; A rope, strap, chain or cable of sufficient strength and length to tow your vehicle; Jack and a board to go under the jack (a jack in loose sand is useless); Heavy duty shovel; Tire pressure gauge registering 10 psi or less. • Duxbury Beach, MA: All vehicles must carry a copy of the Duxbury Beach Rules and Regulations pamphlet. Tires that are properly pressurized for beach conditions. Vehicles must also carry a shovel, tow rope, tow strap or chain, spare tire, jack, and 18" square plywood support pad

OPERATING REQUIREMENTS			
Rights-of-Way	**Speed Limit**	**Areas of Operation**	**Route Designation**
Most localities do not specify particular rights-of-way in their ordinances. Exceptions: • Nags Head and the Town of Duck give the right-of-way to pedestrians, swimmers, and bathers • Norton Point Beach, MA: In places the designated trails are wide enough for only one vehicle; use designated pull off areas to allow oncoming traffic to pass. • Duxbury Beach, MA: Vehicles driving off the beach shall have the right of way	Speed limits range from 10-25 mph, depending on beach conditions and/or seasonal wildlife closures. Norton Point Beach, MA: Speed limit of 5 miles per hour near nesting shorebirds (as posted).	When permitted, driving is allowed on all areas of the beach between October 1 and April 30th. Commercial fishermen may drive on beaches throughout the year. (Typical for Outer Banks beaches that allow some form of beach driving) Examples of some specific operation areas: • Daytona Beach Shores, FL designated beach traffic lanes of combined 30-foot width. Lanes equipped with traffic control signs. The traffic lanes are moved and modified as to size as reasonably necessary to accommodate tidal conditions, conditions of soft sand or weather or other similar natural conditions that affect the placement of traffic lanes and parking. • The State of Georgia only allows driving on "wet sand beach", which is defined as the area below the high tide line that is covered with water when the tide is high during an average high tide. The wet sand beach does not include the area where the dry sand is covered with water during a spring or otherwise exceptionally high tide.	Most mid-Atlantic localities do not designate particular routes for beach driving. Examples of localities that designate routes: • Daytona Beach Shores, FL has designated beach traffic lanes • Delaware State Parks designates areas for surf fishing vehicle use on beaches under its jurisdiction. These areas shall be marked with symbol signs indicating 24-hour access, limited access and no access. • Norton Point Beach, MA: Four-wheel drive motor vehicles may be allowed to drive the marked trails on Norton Point Beach providing they have purchased and properly displayed a current special permit from the County. Drivers must also have a copy of the current Special Vehicular Access Regulations which comes with the permit. • Duxbury Beach, MA: Driving must be confined to designated routes and never in the water, on or over dunes, vegetated, or marsh grass areas. Vehicles shall travel in established tracks.

ENFORCEMENT AND OTHER REQUIREMENTS		
Prohibited Vehicle Operations[1]	**Permits (Yes/No)**	**Penalty for Violations**
All local governments surveyed have some type of regulation prohibiting driving on sand dunes. However, some exceptions are provided for commercial fishermen or local government employees involved in beach restoration or emergency situations. • The City of Daytona Beach Shores, FL restricts driving outside established beach traffic lanes. The city may prohibit or restrict access to vehicular traffic along the Atlantic Ocean beach, as the public health, safety and welfare may make reasonably necessary. • Norton Point Beach, MA: Vehicles designed or modified for use over unimproved terrain such as "recreational vehicles, off-road vehicles (ORV), or "all terrain vehicles" (ATV) are prohibited on all County beaches (except for official use by governmental and enforcing agencies). • Duxbury Beach, MA: Vehicles are not allowed in pedestrian, mud flat / shellfish, or wildlife areas. No vehicle shall travel or park within 10 feet of a sand fence on the ocean side of the beach. All other vehicles are prohibited, including motorcycles, minibikes, minicars, snowmobiles, paraglides, ATV's and ATC's (except when necessary for official use). No airplanes or helicopters are permitted to land on Duxbury Beach except in an emergency.	Many local governments do not require permits to drive on the beach. Exceptions: • Nags Head ($25 permit) • Daytona Beach Shores (toll required to use beach traffic lanes): Fee is $2.00 per vehicle on any holiday, Saturday or Sunday, and $1.00 per vehicle on any weekday. Seasonal toll permit available for $15. • Delaware State Parks : Permits are available for a fee of sixty-five dollars ($65.00) for in state residents, fifty-five dollars ($55.00) for in state senior citizens, one hundred thirty dollars ($130.00) for non residents, and one hundred and ten dollars ($110.00) for out of state senior citizens. Two year permits may be purchased at a discounted rate. • New Jersey Beaches (when allowed) – most NJ local governments that allow beach driving require permits from the Chief of Police or other local government official (Long Beach charges $50 for annual permit). Several NJ local governments only issue permits for surf fishing. Fees are based on the local fee schedule. • Rhode Island requires permits for barrier beaches - $50 annual in-state, $100 annual for non-residents • Georgia requires 5-year authorization from the Shore Protection Committee.	Many local Outer Banks governments do not indicate specific fee amounts for violations. Most violations appear to be fairly small civil penalties. For example, the penalty for violating the Kill Devil Hills beach driving regulations is $25. • Delaware State Parks can assess $5000 in fines and/or revocation of beach driving permit (surf-fishers). • Georgia – revocation of beach-driving authorization. • Daytona Beach Shores - $500 maximum fine and/or up to 60 days in jail. • Norton Point Beach, MA - $50 fine

[1] See Areas of Operation under Operating Requirements Table also.

0020728

DRIVER AND VEHICLE AND EQUIPMENT REQUIREMENTS–National Park Service Units			
Park	**Driver Requirements**	**Vehicle Requirements**	**Equipment Requirements**
Cape Hatteras National Seashore (based on the IPSMS/EA and 1978 Interim Plan)	Current driver's license	Valid vehicle registration, insurance 4-wheel drive vehicles only Must lower tire pressure to 20 psi or less Any law applicable to vehicle use on a paved road in the State of North Carolina also applies to ORV use, including the use of seatbelts	Recommended: ▪ shovel ▪ tire pressure gauge ▪ spare tire ▪ jack and jack support (at least 12" x 12" of non-bending steel, 5/8" plywood, or 2" hardwood), ▪ tow rope (at least 18' long with a load strength of 5,000 lbs or more) ▪ fire extinguisher, flashlight, and first aid kit
Cape Lookout National Seashore (based on the IPSMP/EA and 2007 Superintendents Compendium)	Current driver's license, must meet all requirements under North Carolina traffic law for driving on highways	Valid state inspection sticker Recommended: ▪ 4-wheel drive vehicles ▪ Lower tire pressure to 15-20 psi	Recommended: ▪ shovel ▪ tire pressure gauge ▪ spare tire ▪ air pump ▪ jack with base support board ▪ extra boards for traction ▪ tow rope ▪ fire extinguisher, first aid kit, and water
Assateague Island National Seashore	All drivers must possess a valid state driver's license	4-Wheel Drive: Max. vehicle length = 26 feet Max. vehicle width = 8 feet Min. vehicle ground clearance = 7 inches Gross vehicle weight rating may not exceed = 10,000 pounds Max. number of wheels per axel = 2 Max. number of axles = 2 2-Wheel Drive (in addition to above): Min. width of tire tread contact on sand = 8 inches each wheel (tires with regular snow/mud grip tread not acceptable) Superintendent may issue a single trip permit for a vehicle of greater weight or length when such use is not inconsistent with the purposes of the regulations All vehicles must bear valid state license plates, be properly insured and be registered to operate on public highways	Required Equipment: Over sand vehicle operators in designated zone must carry and be able to display upon request: ▪ A shovel with a blade at least 6" square and a handle at least 18" long. ▪ A vehicle jack sufficient to lift one wheel clear of the sand. ▪ A jack support that is at least 12" x 12" of non-bending steel, 5/8" plywood or 1½" hardwood. ▪ A tire gauge with a minimum reading of 15 pounds or less. ▪ A tow rope or tow strap, chain or cable with a minimum pulling strength of 6,000 pounds and at least 10 feet long. • ½" minimum diameter for nylon or Dacron ropes • ¾" minimum diameter for all other ropes • ¼" minimum diameter for carbon steel cable • 5/16" minimum diameter for chain links
Big Cypress National Preserve	Valid state operator's license or learner's permit and accompanied by a licensed driver 18 years or older	ATV 3 and 4 wheelers: ▪ Front tires minimum of 7 inch tread face, rear tires minimum 9 inch tread face ▪ Working white headlight ▪ Working red tail light ▪ Muffler ▪ Vin number ▪ Proof of title (State law requirement) Street Legal 4X4 Requirements: Tires with a minimum 9 inch tread face, working white headlights, working red tail lights, VIN number, muffler, weight, registration/insurance Vehicle requirements differ for airboats and swamp buggies Wheeled vehicles must have three or more tires	During dry periods, spark arrestor that meets Standard 5100-1a of the Forest Service may be required From one-half hour after sunset to one-half hour before sunrise, vehicles must display at least one forward-facing white headlight and one red lighted taillight

DRIVER AND VEHICLE AND EQUIPMENT REQUIREMENTS–National Park Service Units

<table>
<tr><th>Park</th><th>Driver Requirements</th><th>Vehicle Requirements</th><th>Equipment Requirements</th></tr>
<tr><td>Cape Cod National Seashore</td><td>Valid state operator's license
View an educational orientation program each season
Abide by all Seashore and off-road regulations
Drivers responsible for filling all ruts or holes if vehicle gets stuck in sand and must remove all debris used to extricate the vehicle</td><td>Valid state registration, inspection sticker, insurance
▪ Tires: All 5 tires, including the spare tire, must meet or exceed the standards outlined below. These standards are minimum acceptable tire standards.
<table><tr><th>Rim Diameter</th><th>Width</th><th>Profile</th><th>Example</th></tr><tr><td>19”</td><td>265</td><td>50 or ></td><td>P265 / 50 R19</td></tr><tr><td>18”</td><td>255</td><td>55 or ></td><td>P255 / 55 R18</td></tr><tr><td>17”</td><td>245</td><td>60 or ></td><td>P245 / 60 R17</td></tr><tr><td>16”</td><td>235</td><td>65 or ></td><td>P235 / 65 R16</td></tr><tr><td>15"</td><td>225</td><td>70 or ></td><td>P225 / 70 R15</td></tr><tr><td>14"</td><td>195</td><td>70 or ></td><td>P195 / 70 R14</td></tr><tr><td>13"</td><td>185</td><td>70 or ></td><td>P185 / 70 R13</td></tr></table>12 psi tire pressure is recommended and beginning tire pressure should not exceed 15 p.s.i.
Rental vehicles are prohibited</td><td>4-wheel/all wheel or self-contained recreational vehicles must have tires, including spare tire, meeting standards stated in park's oversand brochure
Vehicles will be inspected for required accessory equipment:
▪ Shovel: Heavy-duty shovel equal to a military folding shovel
▪ Towing Device: Any of the following which are at least 14 feet long: Tow Strap: 11/2"; Rope: 3/4"; Chain 5/16"; Cable 1/4"
▪ Jack: Standard size (e.g., vehicle manufacturer's jack)
▪ Jack Support Board: Wood: 10" x 12" x 11/2" or Plywood: 10" x 12" x 3/4"
▪ Tire Pressure Gauge: Must register to 5 psi or lower
▪ Self contained vehicles and pick-up truck campers must also have a fire extinguisher and permanently mounted holding tanks.
▪ Spare Tire: Must meet tire standards outlined below.
RV and pick-up truck campers must also have a fire extinguisher and permanently mounted holding tanks.</td></tr>
<tr><td>Fire Island National Seashore</td><td>Valid permit or other authorization for operation on the island, issued by the local government agency within whose jurisdiction the travel is to be performed
Watch a 5-minute driving orientation video to be advised of the “rules of the road” and other safety and resource protection information</td><td>Capable of four-wheel drive operation
Rated gross vehicle weight not in excess of 10,000 pound
Conform to all applicable state laws regarding licensing, registration, inspection, insurance, and required equipment</td><td>None stated in regulation, website says vehicles must be properly equipped</td></tr>
<tr><td>Padre Island National Seashore</td><td>Valid operator's license or learner's permit with an adult who has a valid operator's license</td><td>Valid license plates and valid state vehicle inspection certificate
Operable horn, windshield wiper or wipers, brake lights, and a rearview mirror
Beaches are considered by the State of Texas to be Texas public highways. The State of Texas requires all vehicles operating on public highways to meet state licensing, inspection and insurance requirements, as well as all other requirements for motor vehicles operating on state highways. ATV, dune buggies, sand rails and golf carts are non-highway vehicles.</td><td>Recommended:
Drinking water, extra gasoline, tools to dig yourself out if you get stuck (shovel with a long handle, a car jack, a tow rope or chin, and a few wooden planks or carpet), a bucket, cellular phone</td></tr>
</table>

OPERATING REQUIREMENTS–National Park Service Units				
Park	**Rights-of-Way**	**Speed Limit**	**Areas of Operation**	**Route Designation**
Cape Hatteras National Seashore (based on the IPSMS/EA and 1978 Interim Plan)	Pedestrians have right-of-way.	25 mph, except in areas of reduced ORV corridor width (i.e. narrower than 100 feet), then 10 mph (IPSMS FONSI p. 10).	Between April 1 and August 31 each year, a 100-foot-wide ORV corridor designated, where possible, above the mean high tide line in piping plover breeding areas. During other times of the year ORV and pedestrian access restricted to a corridor 150 feet duneward of the ocean mean high tide. Sea Turtle Areas: Outside of recent bird breeding areas, ORV use 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 is placed around each nest in any place where recreation occurs. When a nest is approximately 50 days old, where possible, ORV traffic 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 will 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 will be made to identify a bypass route on the duneward side of the nest.	Drive only on marked ORV routes and comply with posted restrictions. Do not drive on or between the dunes unless marked as an ORV route. Driving or parking on vegetation is prohibited. Under the IPSMS/EA, an approximately 100-foot corridor is designated above the mean high tide line in piping plover breeding areas used within the past three years, corridor is adjusted as necessary to allow vehicle passage. In areas with sea turtles, outside of recent bird breeding areas, ORV used will be restricted to a corridor of 150 feet duneward of the mean high tide line and seaward of the toe of the dunes of the vegetation line, whichever is less.
Cape Lookout National Seashore (based on the IPSMP/EA and 2007 Superintendents Compendium)	All vehicles operated on park road, parking areas, and routes designated for off-road use must meet North Carolina traffic laws at all times, whether in motion or parked, as if operating on North Carolina highways.	25 mph on the beach and designated routes. Speed limited reduces to 15 mph upon approaching within 100 feet of any person, vehicle, campsite, other structure or while traveling within a lease area or while carrying passengers in a mode of conveyance towed behind the motor vehicle specifically designed for carrying passengers while being towed.	The Seashore has specifically designated routes/areas open to ORV and OHV use including the ocean side beach of North Core Banks (NCB) and South Core Banks (SCB) from the primary dune line to the waterline, marked routes and crossover routes or "ramps", the interior "back" route, and designated parking areas. Locations marked by the National Park Service as bird nesting areas are closed to all recreational use, including the entry of any unauthorized vehicle, person, or pet. Sections of beach marked by the National Park Service as turtle nesting areas are closed to all unauthorized vehicular entry.	Until an ORV Plan is completed, and special regulations are promulgated for ORV Routes, ORV Routes will be designated under 36 CFR 1.5.
Assateague Island National Seashore	When two vehicles approach from opposite directions in same track, both operators shall reduce speed and operator with the ocean on right shall pull out of the track and allow other vehicle to pass. ORVs shall be operated only in established tracks on designated portions of the park area and no such vehicles shall be operated on any portion of a dune except at posted crossings nor shall such vehicles be driven so as to cut circles or otherwise needlessly deface the sand.	25 mph except when within 100 feet of any person not in a motor vehicle, then 15 mph.	Oversand vehicle travel permitted south of Assateague State Park, daily throughout the year at any time, on a designated oversand route bayward of the primary dune and on designated portions of a beach seaward of the primary dune. Some geographical areas where vehicle travel is prohibited are designated. During an emergency, the Superintendent may close the park, or suspend for such period as s/he shall deem advisable, any or all of the regulations in the interest of public safety.	Oversand vehicles shall not be parked as to interfere with the flow of traffic on designated routes. Vehicles may not park overnight seaward of the primary dune unless one member of the party is actively engaged in fishing at all times. Towed travel trailers used as self-contained vehicles may not be parked on a beach seaward of the primary dunes.

OPERATING REQUIREMENTS–National Park Service Units				
Park	**Rights-of-Way**	**Speed Limit**	**Areas of Operation**	**Route Designation**
Big Cypress National Preserve	Vehicles must use designated access points and follow trail designations in each zone.	15 mph	Geographic restrictions designate areas where ORV allowed to operate (area south and west of Loop Road and north of Tamiami Trail). Exceptions in areas closed to ORV use for reasonable access by legal residents or to provide access by authorized oil and gas companies.	Superintendent may temporarily or permanently close or restrict the use of any areas and routes by the posting of appropriate signs, or marking on a map, which shall be available for public inspection. Factors considered in closing areas include other visitor uses, safety, wildlife management, noise, erosion, geography, vegetation, resource protection, and other management considerations.
Cape Cod National Seashore	When two vehicles meet on the beach, vehicle with water on the right has right-of-way.	15 mph unless otherwise posted and 5 mph through self-contained camping areas and posted shorebird nesting areas.	The Off-Road Corridor includes the beach route from Race Point Lighthouse in Provincetown to Head of the Meadow Beach in Truro. Coast Guard Beach to Longnook Beach in Truro is open for night fishing only. See designated off-road routes and definitions on the maps and diagrams. Travel may be restricted at the discretion of park rangers because of changing beach conditions and shorebird nesting activity.	All ORV traffic is limited to the backshore area of the beach, a marked corridor defined by a 10 foot offset from the spring high tide line to the berm crest at the normal high tide line. Foreshore and foredune areas are off limits EXCEPT travel in the foreshore area when passing a beach cut that has eliminated the legal off-road vehicle corridor. Driving through inner dune routes, posted shorebird nesting areas and lifeguard-protected beaches is prohibited. The ORV corridor is open from April 15 to November 15. Portions may be closed to driving because of changing beach conditions and/or shorebird nesting activity.
Fire Island National Seashore	When two vehicles approach, both operators shall reduce speed and operator with the water to left shall yield right of way by turning out of the track to the right.	20 mph and 5 mph when approaching or passing within 100 feet of any person not in a motor vehicle or when passing through or over any dune crossings.	With a Sportman's Vehicle Permit, may drive on the beach along the Atlantic Ocean on the south sore of Fire Island, west of the Wilderness Visitor Center and east of Long Cove, between the water's edge and 20 feet seaward of the beach grass. Vehicles may not cross dunes, damage vegetation, or enter the designated wilderness area. Permits may be used between September 15 and December 31. However, the beach may be closed to driving at any time due to high water or other adverse conditions on the beach.	In providing for access to the island, there shall be maximum reliance on those means of transportation other than private motor vehicles and which have the minimum feasible impact on seashore lands, which include a waterborne conveyance licensed for hire.
Padre Island National Seashore	When two vehicles meet, operator of vehicle in southbound traffic shall yield right-of-way by turning out of the track to right.	25 mph where driving is permitted on the beach.	Legislation details specific routes to be used for ORV operation. Boundaries are marked by geographic locations and the channel. 4.5 miles are closed to vehicles (Malaquite Beach), 6 miles are open to both two-wheel and four-wheel drive vehicles, and 55 miles are open only to four-wheel drive vehicles.	Not explicitly stated. Suggested that vehicles keep in tracks of those who have been there before and it is prohibited from driving into areas of vegetation.

ENFORCEMENT AND OTHER REQUIREMENTS–National Park Service Units				
Park	**Prohibited Vehicle Operations[1]**	**Permits (Yes/No)**	**Permit Details (If Applicable)**	**Penalty for Violations**
Cape Hatteras National Seashore (based on the IPSMS/EA and 1978 Interim Plan)	Do not drive on or between the dunes unless marked as an ORV route. Driving or parking on vegetation is prohibited. Use only designated beach access ramps and sound-side access roads to enter designated ORV routes. Reckless driving, i.e. cutting circles or defacing the beach, prohibited. Avoid driving or parking on the wrack line.	No	Not applicable	Yes
Cape Lookout National Seashore (based on the IPSMP/EA and 2007 Superintendents Compendium)	The following actions are prohibited: ▪ Driving over dunes, vegetation, sand flats, and soundside of the island. ▪ Loading or unloading vehicles(s) from or onto a concession dock, or within a concession assigned area, except for concession operations, except for NPS authorized operations. ▪ Driving a vehicle in a manner that needlessly ruts the sand. ▪ Operating a motorcycle, tracked motor vehicle or any motor vehicle with less than 3 wheels anywhere on the Seashore. ▪ Failing to fill to the original level any hole caused by excavating a vehicle from the sand. ▪ Camping from a vehicle (i.e. in a tent) or in a recreational vehicle while the vehicle is parked on or next to the backroad, except in marked designated sites. ▪ Blocking the beach or any designated route by any means (such as with a vehicle, camping gear, fishing equipment, etc.) in such a manner that prevents safe, legal flow of vehicular traffic, at all tides, is prohibited. In particular, at least 20 feet of beach between the primary dune line and ocean must be left open to vehicular traffic.	No	Not applicable	Yes

[1] See Areas of Operation under Operating Requirements Table also.

ENFORCEMENT AND OTHER REQUIREMENTS–National Park Service Units				
Park	**Prohibited Vehicle Operations[1]**	**Permits (Yes/No)**	**Permit Details (If Applicable)**	**Penalty for Violations**
Assateague Island National Seashore	No permit issued for vehicles not equipped to travel over sand and that do not conform to applicable state laws having to do with licensing, registering, inspecting, and insuring of such vehicles. Passengers shall not ride in any position outside of a moving oversand vehicle and such vehicles shall not be used to tow a person on any recreational device over the sand or in the air or water.	Yes $70 annual	No vehicle, other than authorized emergency vehicles, shall operate on the beach or designated oversand route except under an oversand vehicle permit issued by Superintendent. All vehicles using the oversand vehicle zone must display a valid oversand vehicle Permit. Oversand vehicle permits are issued for individual vehicles in the name of the registered owner. Sale or transfer of the vehicle voids the permit. A replacement permit may be issued for the new vehicle only if enough of the original permit, to include serial numbers and month sticker, is returned for exchange. Permits destroyed in a vehicle accident may be replaced only if an official accident report is brought in for documentation. A receipt for purchase is not sufficient for permit replacement. The permit must be permanently affixed to the driver's side of the front bumper. The permit may be affixed to a Plexiglas or metal plate that is permanently bolted to the vehicle's left-front bumper or front license plate in such a way that it is not readily removable. All previous permits must be removed or covered completely by the new permit. Cleaning and drying the area on the front bumper before applying the permit is recommended for best adherence. Due to poor adhesion on textured plastic bumpers, a plate permanently bolted to bumper is recommended. Lost permits are not refundable or replaceable!	Yes

ENFORCEMENT AND OTHER REQUIREMENTS–National Park Service Units				
Park	**Prohibited Vehicle Operations[1]**	**Permits (Yes/No)**	**Permit Details (If Applicable)**	**Penalty for Violations**
Big Cypress National Preserve	Vehicles shall not be operated in a manner causing, or likely to cause, significant damage to or disturbance of soil, wildlife habitat, improvements, cultural, or vegetative resources. Cutting, grading, filling, or ditching to establish new trails or to improve old trails is prohibited, except under written permit where necessary in the exploration for, extraction, or removal of oil and gas. Any device used to push aside, shear off, or otherwise damage vegetation is prohibited. Tire chains, bar grips, and other devices affixed to tires are prohibited. Areas closed to motorized use include: ▪ A one-mile wide buffer zone parallel to U.S. Highway 41 (Tamiami Trail) is closed to ORV use except on designated trails to cross the zone from designated access points. ▪ Zone 4 Cape Sable Seaside Sparrow Protection Area. ▪ Loop Unit, Deep Lake Unit, Copeland Prairie areas, Zone 1, Addition Lands and all prairies. ▪ The preserve is closed to ORV use between the hours of 10 p.m. and 5 a.m. ▪ 11-mile road and the Florida National Scenic Trail are closed to motorized travel, vehicles may cross at designated points. ▪ Any zone may close temporarily due to environmental and emergency conditions. This is especially true of Zone 4, which may be closed due to hydrologic conditions. ▪ An annual 60-day seasonal closure to all ORV use throughout the preserve, has generally been starting in June, but the dates may vary.	Yes $50 annual	Following permits are required: inspection permit (free upon vehicle meeting specifications) ORV operator's license (free after taking orientation course) ORV permit on vehicle ($50, must be renewed annually) backcountry use permit (free) Note: owners of private property within preserve boundaries are issued a free special use permit that allows reasonable access to and from their property. [The BICY Final Recreational ORV Mgmt Plan Supplemental EIS had a limit of 2,000 permits annually, but this information does not appear on the Park's website.]	A person convicted of violating a provision of the regulations within the preserve can be punished by a fine or imprisonment, or both as provided by law, and can be adjudged to pay all costs of the proceedings (36 CFR 1.3) ORV operators who do not comply with preserve rules or permit requirements can also have their permits suspended or revoked, can be required to pay restitution for injury caused to the resources, can be subject to seizure of their vehicle and other property used during the offense, and can be banned from applying for an ORV permit for a specified period.
Cape Cod National Seashore	Riding on fenders, tailgate, roof, or any exterior portion of a vehicle not designed to carry passengers prohibited. Parking permitted only on legal off-road vehicle corridor. Parking overnight is restricted to registered self-contained vehicles camping in designated camping areas.	Yes $150 annual $ 50 7-day permit for ORV $225 annual self-contained vehicle $ 75 7-day self-contained vehicle	Maximum of 150 permits per day 400 7-day permits active at any one time (200 of the 400 are available through the Advanced Sale System) 3,000 annual permits available	Yes

ENFORCEMENT AND OTHER REQUIREMENTS–National Park Service Units				
Park	**Prohibited Vehicle Operations[1]**	**Permits (Yes/No)**	**Permit Details (If Applicable)**	**Penalty for Violations**
Fire Island National Seashore	See areas of operation, Operating Requirements Table.	Yes—not required for vehicles operated by a duly constituted law enforcement agency having jurisdiction within the Seashore. Permits include a permit fee and application fee as follows: Recreational driving $50 (includes permit and application fee) Resident (year-round or part-time) $95 permit fee, $50 initial application fee and $10 renewal Contractor/Business $750 annual, $300 monthly, $75 weekly permit fee; $50 application fee Essential Service $750 per vehicle permit fee; $50 per company application fee Public Utility $750 per vehicle permit fee; $50 per company application fee Municipal Employees $95 permit fee, $50 application fee with $10 renewal fee Not transferable to another motor vehicle or new owner. Permits may contain limitations or conditions as Superintendent deems necessary for resource protection, public safety, or visitor enjoyment including restrictions on locations where vehicles can travel, time, dates, or frequency of travel.	The following may apply for a permit: year-round residents persons who held part-time permits prior to January 1, 1978 those providing services essential to public facilities and the occupancy of island residents those who desire motor vehicle access to the Seashore to engage in fishing or hunting owners of estates in real property on the island who demonstrate a need for temporary access holders of reserved rights of use and occupancy Criteria for consideration of a permit are provided. No permits issued for the convenience of travel. Limits provided on the number of permits allowed for various use types. A limited number of permits are issues in each category and driving times are restricted by category (Final Consensus Agreement of the Negotiated Rulemaking Committee suggests limits to number of permits, and driving restrictions for each permit type.)	Superintendent may suspend or revoke permit of a motor vehicle for violations and a fine may occur.
Padre Island National Seashore	No ground effect or aircushion vehicles (hovercraft); vehicles propelled by wind (sail cars); towing of persons behind vehicle in any way; and riding on any position outside the vehicle allowed.	No	Not applicable	Yes

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ALTERNATIVE A: NO-ACTION ALTERNATIVE, CONTINUATION OF CURRENT MANAGEMENT

Regulations from the Council on Environmental Quality 40 CFR 1502.14(d) require that the alternatives analysis in an EIS must "include the alternative of no action." The no action alternative "sets a baseline of existing impacts continued into the future against which to compare impacts of action alternatives" (NPS Director's Order 12, Section 2.7). Under the no action alternative, management of off-road vehicle use and access at the Seashore would be a continuation of current management. Current management is based on the 2006 interim protected species management strategy/EA and the Superintendent's Compendium 2006, as well as elements from the 1978 draft interim ORV management plan.

VEHICLE AND OPERATOR REQUIREMENTS

Off-road vehicle and operator requirements are outlined in "Elements Common to All Alternatives". No additional requirements specific to the no action alternative are currently implemented.

CLOSURES—NON-RESOURCE RELATED

ORV use is allowed throughout the Seashore, as shown in figures 1 - 7 (insert access maps); however, portions of the beach may be closed to ORV use due to non-resource related concerns such as high seasonal pedestrian use, administrative purposes, or safety. These closures (both year-round and seasonal) are established in the Superintendent's Compendium and summarized in table X-1.

TABLE X-1. NON-RESOURCE RELATED ORV ACCESS RESTRICTIONS AND CLOSURES AT CAPE HATTERAS NATIONAL SEASHORE

Restriction	Management Action
"Seasonal Pedestrian Use" Closures	
Year-round	Beach in front of Buxton, Frisco, and south of Avon closed to ORV access.
Seasonal	May 15 – September 15: Beach in front of villages and lifeguarded beach at Buxton closed to ORV access. May 15 – September 15: Ocracoke Campground closed to ORVs.
Administrative Closures	
Year-round	The area in front of Cape Hatteras Lighthouse closed as defined in the 1978 draft interim ORV management plan. Buxton Woods closed to ORVs.
Safety Closures	
Year-round	Ocracoke Island—1.5 miles north of Ramp 67 to 1 mile south of Ramp 59. Bodie Island—Ramp 1 to Ramp 2.
Seasonal / Temporary	Established as needed to address safety conditions such as debris on the beach or narrow beaches. Narrow beaches are reopened as the beach widens. September 16 – May 14: Beach in front of Hatteras Village closed for safety related to narrow beaches.

CLOSURES—RESOURCE RELATED

Some portions of the beach may be temporarily closed to ORV use for use by certain wildlife and plant species, such as protected birds and sea turtles. To provide for both species protection and recreational access, adaptive management is used. Dependent on the results of surveying conducted by Seashore resource staff (see Appendix A: Species Surveying) in accordance with the *Interim Protected Species Management Strategy/Environmental Assessment* and associated Biological Opinion, these closure

boundaries may shrink or expand given the specific behavior or requirements of the protected wildlife. If this behavior indicates that the shoreline needs to be temporarily closed, alternative ORV routes or bypasses may be established to maintain access. Table X-2 provides the resource management actions currently applied to maintain ORV and pedestrian access when park staff establish a resource-related closure.

TABLE X-2. RESOURCE RELATED ORV ACCESS RESTRICTIONS AND CLOSURES AT CAPE HATTERAS NATIONAL SEASHORE

Restriction	Management Action
Year-round Resource Closures	Suitable interior habitats are closed to all recreational access at the spits and at Cape Point year-round to provide for resting and foraging for all species. For example, 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 due to natural processes.
Corridors and Access BIRD SPECIES	**Beginning of closure in spring to August 31** A 100-foot ORV corridor is established above the high tide line to provide access around posted resource protection areas when available. In areas of reduced corridor width (i.e., narrower than 100 feet), a reduced speed limit of 10 mph is posted. The ORV corridor is adjusted whenever possible to allow vehicle passage. If an ORV corridor is not feasible for safety reasons or insufficient area, an alternate ORV route is identified if possible. If there is no alternate route available, Seashore staff consider establishing a bypass route using the following criteria: • The bypass area is 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 is done by hand (no machinery is used). • The bypass takes advantage of natural terrain (e.g., blowouts) to minimize ground altering disturbance to the natural areas and avoid impacts to wetlands. • The bypass is 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. • Natural area disturbance to accommodate avoidance of turtle or bird nesting does not exceed 6,000 square feet. • Minimal vegetation impact is allowed. o Federal or state-listed plants or plants of special concern (e.g., seabeach amaranth, dune blue curls) are not compromised. o Vegetation in altered areas is expected to recover within the following growing season or can be restored. o Any vegetation removal is performed with hand tools (no machinery is used). o Bypass routes do not infringe upon or fragment an adjacent resource/safety closure or disturb or impact any cultural resource (i.e., shipwrecks). A 150-foot ORV corridor is established between August 31 and April 1 around suitable interior habitats closed to recreational access (year-round resource closures referenced above).
Closures BIRD SPECIES	Seashore staff survey bird behavior when determining adequate size of closure zones around nests and broods. If a nest is lost, buffers remain in place 2–3 weeks to determine if the pair will re-nest, if no other species are nesting in the area. A 100-foot-wide ORV corridor is reopened in recent or current nesting areas after the chicks fledge. Areas outside of the corridor, including the upper beach remain available for protected species use. For broods, the Seashore considers individuality in bird behavior when determining adequate size of closure zones. **Piping plover: April 1.** In February or March of each year, NPS natural resource staff conduct an annual assessment of piping plover breeding habitat to plan pre-nesting closures in recent breeding areas. Recent breeding areas are closed by posting symbolic fencing by April 1. Closures are removed if no bird activity is seen by July 15 or when the area is abandoned for a 2-week period, whichever comes later. If courtship or copulations are observed outside of existing closures on two consecutive survey days, a buffer is established or expanded to ensure a 150-foot buffer for the observed birds. A 150-foot buffer/closure is established around piping plover nests occurring outside existing

Restriction	Management Action
	closures. Closures are expanded, if necessary, using flexible increments dependent on observed bird behavior. For adults foraging outside of a closure on two consecutive surveys, the resource closure can be expanded to include the foraging site. These closures are intended to provide foraging opportunities close to breeding sites. A minimum 600-foot buffer is established on either side of a brood based on observation of bird behavior and terrain conditions at site. Based on observed behavior, the buffer area may be expanded 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, the 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. The buffer moves with the chicks. If there is a bypass route, it is closed at night if the buffer zone is less than 600 feet. **American oystercatcher: March 15.** Closures are activated if a territory is established or a nest located. Closures are removed when areas are abandoned for a 2-week period. If territorial or courting birds are observed outside of existing closures, based on bird behavior and suitable habitat, buffers are expanded to accommodate the birds. Buffer/closure areas are based on adults' reactions to human disturbance. Closures can vary in size dependent on best professional judgment. When resource closures are created around nests, the ORV corridor is adjusted whenever possible to allow ORV passage. The ORV corridor width is reduced if necessary. A 150-foot to 300-foot buffer is established around unfledged chicks and adjusted as needed when chicks are mobile. **Colonial waterbirds: May 1.** Closures are activated if a territory is established or a nest located. Closures are removed when areas are abandoned for a 2-week period. A buffer/closure of 150 feet to 300 feet is established around the nest or colony based on observed bird behavior, while maintaining an ORV/pedestrian corridor. If the buffer and the corridor overlap, staff can reduce the corridor width if necessary. A 150-foot to 300-foot buffer zones is established when unfledged chicks are present and adjusted as needed when chicks are mobile. An alternate ORV/pedestrian access route or bypass is provided to open areas beyond the closure, if possible.
Corridors and Access SEA TURTLES	**May 1 – September 15** Outside of recent bird breeding areas, ORV use is 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 30X30-foot buffer zone of signed, stringed fencing is placed around each nest any place where recreation occurs. When a nest is approximately 50 days old, where possible, ORV traffic is routed around the nest on the duneward side, maintaining a buffer of 50 feet where possible, but no less than 30 feet. Closures are expanded to the surf line. 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: a. vehicle-free areas with little or no pedestrian traffic – 75 feet wide (total width); b. villages or other areas with high levels of day use –150 feet wide (total width); c. areas with ORV traffic – 350 feet wide (total width). If the filter fence closure for hatchlings blocks access to spits and Cape Point, an alternate route or bypass route on the duneward side of the nest may be considered.
Corridors and Access SEABEACH AMARANTH	**April 15 – November 30** If a plant/seedling is found outside of an existing resource closure, symbolic fencing is put up with signage creating a 30X30-foot buffer around the plant. If plants are located next to each other, the area is expanded to create one enclosure protecting several plants. If a plant is found during the survey prior to reopening a bird closure to ORV and pedestrian use, the plant is protected as described above and the areas of the bird closure reopened where no plants exist. Areas are reopened if no plants are present by September 1. Where plants occur, the closed areas are reopened after the plants die.

ORV ACCESS

ORV users may access the seashore via a system of ramps located off NC-12. This vehicular beach and soundside access ramp system provides controlled entry and exit to beach and soundside areas. Ramps are numbered, maintained, and identified on the Seashore's ORV route maps as official vehicle routes for access. Park staff maintain ramps and access routes.

ORVs can access the beach and sound any time of the day or night. Currently, no restrictions on night driving are in effect. The Seashore provides periodic night time patrols to observe and enforce compliance with regulations and closures.

ORV PERMITS

ORV access and/or operation within Cape Hatteras National Seashore does not require a permit. Commercial fishing is allowed only by permitted individuals. Commercial fishing permit holders are allowed to enter safety closures, but not resource or administrative closures, with an ORV. Two designated commercial fishing areas exist on the soundside of Ocracoke Island.

ENFORCEMENT

Cape Hatteras National Seashore is divided into three Ranger Districts: Bodie Island, Hatteras Island, and Ocracoke. Each District is managed by a District Ranger and three law enforcement personnel. Each District is managed in shifts, with at least one ranger on duty from 7:00 am to 11:00 pm. Holiday and/or special event weekends require all staff on duty from 6:00 am to approximately 2:00 am (Stevens, CAHA, 2008).

Law enforcement is responsible for ensuring visitors to the Seashore comply with the regulations governing the Seashore as outlined in the Superintendent's Compendium. Enforcement of violations can range from a warning to a mandatory court appearance in the federal District Court in Elizabeth City (Stevens, CAHA, 2008).

PEDESTRIAN USE AND ACCESS AT THE SEASHORE

Recreational uses at the Seashore include swimming, fishing, shelling, birding, visiting lighthouses, camping, kayaking and canoeing, and windsurfing. All pedestrians are subject to the same resource related closures as noted in table X-2, above, including areas closed seasonally due to protected bird, turtle, or seabeach amaranth presence, and certain interior habitats that are closed year-round to protect key resting and foraging habitat. The following provides a brief description of areas and access afforded those users that may not have an off-road vehicle.

VISITOR CENTERS

The Bodie Island, Hatteras Island, and Ocracoke Island Visitor Centers are open 9 a.m. to 6 p.m. daily during summer months and 9 a.m. to 5 p.m. daily September through May (closed Christmas). Beach parking is provided at Hatteras Island Visitor Center.

CAMPGROUNDS

The park has four campgrounds (see elements common to all alternatives). Although camping on the beach is prohibited (Superintendent's Compendium Section 2.10(a)), visitors accessing the beach by ORV are allowed to stay on the beach overnight as long as someone associated with the vehicle is actively fishing.

SWIM BEACHES

Several lifeguarded beaches are provided during summer months near Frisco on Cape Hatteras Island, Coquina Beach on Bodie Island, and at Ocracoke Island north of the village. These beaches are accessed on foot using boardwalks from the parking areas to the beach.

PARKING LOTS

Visitors wishing to park and walk to the Seashore beach use parking lots located throughout the Seashore. Parking is currently provided in 64 park-maintained parking lots throughout the Seashore, totaling 2,470 spaces. Each parking lot ranges from 6 to 150 spaces, with most ranging between 10 and 25 spaces. The Seashore parking lots are shown in figures 1 – 7.

SPECIES PROTECTION AND MANAGEMENT

Species surveying and management varies according to species. Details related to the specific surveying methodology currently employed at the Seashore are provided under "Elements Common to All Alternatives". Species management actions undertaken by the park in relation to ORV and pedestrian access are outline in Table X-2 above. Other species management action currently employed at the Seashore include:

- Sea Turtle Management
    - Nest Relocation: When a nest is found, staff assess the need for nest relocation and follows relocation guidance identified in the NCWRC handbook (2006). If it is determined a nest will not be relocated, it is immediately protected with a symbolic fence measuring approximately 30 feet by 30 feet and signage. If a nest is threatened by a storm event, NPS consults with the NCWRC to determine appropriate action.
    - Light Management: The Seashore has established turtle friendly lighting standards for all Seashore structures and encourages concessioners to install turtle friendly lighting.
    - Research: The Seashore currently supports research efforts looking at turtle sex ratios.
- Predator Management
    - Trappers target red and gray fox, raccoons, cats and other predators for removal.
    - Piping plover: Nests surveyed to count eggs and look for predator tracks. As applicable, predator exclosures are erected when nest found with eggs.
    - American oystercatcher and colonial waterbirds: Nests surveyed to count eggs and look for predator tracks.
    - 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.

EDUCATION AND OUTREACH

General education and outreach at the Seashore is guided by the *Cape Hatteras National Seashore Long-Range Interpretive Plan* (NPS 2007). This plan details interpretive themes at the Seashore to be considered in interpretive and education programs. As outlined in elements common to all alternatives, the Seashore alerts visitors to existing ORV access issues at the Seashore through weekly access updates March through November, when the majority of resource closures take place. These access updates are posted on the Seashore's website, and emailed to the Seashore's ORV mailing list. Notification of resource closures that temporarily limit ORV traffic is also issued in a press release to the local and regional newspapers and provided to local tackle shops. No additional provisions for education and outreach are provided beyond those identified in the elements common to all alternatives section.

OTHER PARK OPERATIONS

Waste collection and disposal

RV dump stations are located near Oregon Inlet, Cape Point, and Ocracoke Campgrounds and are available while NPS campgrounds are open. Dump stations are closed for use at the end of the NPS camping season. Small dumpsters are provided at each ramp and are maintained by a contractor. Trash disposal is not provided on the beaches. Visitors are asked to remove any trash or litter from the beach, including bait, fish parts, and dead fish.

Fish Cleaning Stations

Fish cleaning stations are provided at Buxton and Ocracoke.

COST OF IMPLEMENTATION

The costs associated with ORV management under the no action alternative would primarily result from interpretation, law enforcement, species monitoring, and associated equipment needs (table X-3). Under alternative A, the amount of staff required would remain at current levels.

TABLE X-3: STAFFING AND COSTS

Action	Assumption	Costs
Law Enforcement	Chief Ranger, Law Enforcement Specialist stationed at headquarters. Law Enforcement personnel dispersed as follows: ▪ Bodie Island: 1 District Ranger, 3 FT Rangers ▪ Hatteras Island: 1 District Ranger, 3 FT Rangers ▪ Ocracoke Island: 1 District Ranger, 3 FT Rangers	Staff: Materials: Total:
Resource Management	Chief of Resources and 1 FT wildlife biologist; 3 temporary biotechs, 1 temporary geographer, and 14 seasonal biotechs.	Staff: Materials: Total:
Interpretation	Chief of Interpretation, District Interpreter for the Seashore, and the Hatteras Island Subdistrict Interpreter. Seasonal staff are distributed throughout the Seashore as follows: ▪ Bodie Island: 1 seasonal Park Ranger from early April through Columbus Day and 2 seasonal Park Rangers from mid-May through Labor Day. ▪ Hatteras Island: 13 seasonal Park Rangers from early April through Columbus Day and 2 seasonal Park Guides from Columbus Day through early April. ▪ Ocracoke Island: 1 seasonal Park Ranger from early April through Columbus Day and 2 seasonal Park Rangers from mid-May through Labor Day (Doll, CAHA, 2008).	Staff: Materials: Total:
Maintenance		Staff: Materials: Total:
OTHER??		
	TOTAL ANNUAL COST	

REFERENCES

National Park Service (NPS)

2001 *Directors Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making.*

2006 *Cape Hatteras National Seashore, Superintendent's Compendium.*

2007 *Cape Hatteras National Seashore Long-Range Interpretive Plan.*

North Carolina Wildlife Resources Commission (NCWRC)

2006 Handbook for Sea Turtle Volunteers in North Carolina.

PERSONAL COMMUNICATIONS

2008 Mary Doll, Chief of Interpretation, Cape Hatteras National Seashore with Lori Fox of The Louis Berger Group Inc. by email regarding the current level of interpretation staff working throughout the Seashore. February 13, 2008.

2008 Paul Stevens, Law Enforcement Specialist, Cape Hatteras National Seashore with Dana Otto of The Louis Berger Group Inc. by phone regarding enforcement patrols and actions throughout the Seashore. March 14, 2008.

Cape Hatteras National Seashore Off-Road Vehicle (ORV) Management Plan/EIS
Alternatives Development Meeting #2
March 2008

Elements common to ALL alternatives (including the no-action alternative)[1]

Operator/vehicle requirements

- **Vehicle Requirements**. All vehicles operating in area of the Seashore must:
  - Meet all requirements to operate legally on state highways where the vehicle is registered, including all vehicle equipment, licenses and registration.
  - Have a valid vehicle registration, insurance, and license plate.
- **Operator Requirements**. Any person operating a vehicle in any area of the Seashore must:
  - Observe any law applicable to vehicle use on a paved road in the State of North Carolina.
  - Hold a current driver's license (Superintendent's Compendium Section 4.2(a)).
  - Use seatbelts.
- **Operator and Passenger Requirements**. Any person operating a vehicle and/or passenger in a vehicle operating in any area of the Seashore must comply with the following:
  - Open containers of any type of alcoholic beverage are prohibited in vehicles.
  - ORV drivers and/or passengers are prohibited from sitting on the tailgate or roof or hanging outside of moving vehicles. Those in truck beds must be seated on the floor with the tailgate closed; children in truck beds must be accompanied by an adult.

National Park Service regulations

Title 36: Parks, Forests, and Public Properties of the U.S. Code of Federal Regulations (CFR) regulation are applicable in all national parks, including Cape Hatteras National Seashore. The regulations summarized in appendix X include those in Title 36 applicable to the operation of off-road vehicles in the Seashore and those applicable to individuals recreating at the Seashore. Of particular note are the provisions of 36 CFR 1.5, which states that the superintendent may: impose public use limits, or close all or a portion of a park area to all public use or to a specific use or activity, designate areas for a specific use or activity, or impose conditions or restrictions on a use or activity, and establish a permit, registration, or reservation system.

Superintendent's Compendium

The provisions detailed in the Superintendent's Compendium (2006) for the Seashore provide Seashore-specific regulations imposed under the discretionary authority of the Superintendent of the Outer Banks Group. The Compendium is provided as appendix Y. The major provisions related to ORV use are included in the description of the no-action alternative or are addressed in the subsections below.

[1] This does not include the consensus alternative under development by the Negotiated Rulemaking Committee.

Areas of vehicle operation

Visitors accessing the Seashore by ORV must drive only on marked ORV routes, comply with posted restrictions, and adhere to the following:

- Driving or parking on vegetation is prohibited.
- Driving on or between the dunes unless marked as an ORV route is prohibited.
- Operating a vehicle of any type within any type of closure, safety or resource purposes, is prohibited.
- Use only designated beach access ramps and soundside access roads to enter designated ORV routes. Reckless driving, i.e. cutting circles or defacing the beach, is prohibited.
- Observe pedestrian right-of-way.

Areas of passive recreation

Bathhouses and/or designated swimming beaches are available near Frisco on Cape Hatteras Island, Coquina Beach on Bodie Island, and at Ocracoke Island north of the village.

Protected species management

- In general, because of the dynamic nature of the Seashore beaches and inlets, protected species 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).
- Areas with symbolic fencing (string between posts) are closed to recreational access.
- Data collection includes documenting breeding and nest locations using a geographic positioning system (GPS) and incorporating data into a geographic information system (GIS). The Seashore has submitted a request for funding to update the GIS and develop standardized protocols for collecting data for the GIS.
- Weekly minimum frequencies are 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. Surveying methodology is provided as appendix Z.
- Essential use vehicles may 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, as cited in the interim protected species management strategy/EA). Due to the soft sand conditions of the Seashore, the maximum speed of essential use vehicles does not exceed 10 miles per hour.

Accessibility for disabled

The Seashore provides access to disabled visitors as follows:

- Beach access points and boardwalks compliant with the American with Disabilities Act (ADA) requirements at [add].
- Beach access through the issuance of special use permits for areas in front of the villages to allow ORVs to transport disabled visitors to the beach and then return the vehicle back to the street.
- Beach wheelchairs that can be checked out at each Ranger District. The Seashore owns three beach wheelchairs available at each ranger district on a first come/first serve basis.

Infrastructure

The Bodie Island, Hatteras Island, and Ocracoke Island Visitor Centers are open 9 a.m. to 6 p.m. daily during summer months and from 9 a.m. to 5 p.m. daily September through May (closed Christmas).

The park has four campgrounds. National Park Service campgrounds at Oregon Inlet, Frisco, and Ocracoke are generally open Easter weekend through Columbus Day. The Cape Point Campground is generally open Memorial Day through Labor Day.

Fishing piers are located near Frisco and at Avon and Rodanthe on Cape Hatteras Island, and a marina is located at Oregon Inlet on Bodie Island.

Education and outreach

Education and outreach conducted by the Seashore common to all alternatives include efforts to:

- Promote visitor safety in the Seashore's newspaper and Seashore site bulletins.
- Provide educational materials regarding trash disposal, endangered species, wildlife feeding, fireworks, pets, and driving requirements at the visitor centers and at other NPS facilities at the Seashore.
- Notify the public of species management closures through press releases, email updates, and on the Seashore's website.
- Provide signage at ORV access ramps and routes. Signs at ramps include applicable ORV regulations.
- Provide signage in the Seashore so beach closures and Seashore resource information is readily available and presented in a clear manner to the public.
- 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.
- Post information about seabeach amaranth at all ORV ramp bulletin boards.
- Publish annual protected species reports regarding the previous breeding season on the Seashore website.

Staffing

Education and outreach conducted by the Seashore include the following:

- Staff used for field observations, education, and outreach will be trained by qualified NPS staff and will meet the following minimum qualifications:
    - Completion of an instruction course conducted by a qualified staff biologist. Training will occur at the beginning of the season (March/April) and again in April/May.
    - Returning staff may not need the full training.
- Temporary/seasonal staff are hired using the following procedure:
    - Temporary/seasonal staff are 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 are 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).

- Recruiting may begin as early as October of the preceding year.
- Set times for training and set start dates for seasonal staff are established.
- All the training information is available for transmittal to all new staff during training.

APPENDIX X – 36 CFR provisions

- **36 CFR 1.5, Closures and public use limits:**

  (a) Consistent with applicable legislation and federal administrative policies, and based upon a determination that such action is necessary for the maintenance of public health and safety, protection of environmental or scenic values, protection of natural or cultural resources, aid to scientific research, implementation of management responsibilities, equitable allocation and use of facilities, or the avoidance of conflict among visitor use activities, the superintendent may:

  (1) Establish, for all or a portion of a park area, a reasonable schedule of visiting hours, impose public use limits, or close all or a portion of a park area to all public use or to a specific use or activity.

  (2) Designate areas for a specific use or activity, or impose conditions or restrictions on a use or activity.

  (3) Terminate a restriction, limit, closure, designation, condition, or visiting hour restriction imposed under paragraph (a)(1) or (2) of this section.

  (b) Except in emergency situations, a closure, designation, use or activity restriction or condition, or the termination or relaxation of such, which is of a nature, magnitude and duration that will result in a significant alteration in the public use pattern of the park area; adversely affect the park's natural, aesthetic, scenic or cultural values; require a long-term or significant modification in the resource management objectives of the unit; or is of a highly controversial nature, shall be published as rulemaking in the Federal Register.

  (c) Except in emergency situations, prior to implementing or terminating a restriction, condition, public use limit or closure, the superintendent shall prepare a written determination justifying the action. That determination shall set forth the reason(s) the restriction, condition, public use limit or closure authorized by paragraph (a) has been established, and an explanation of why less restrictive measures will not suffice; or in the case of a termination of a restriction, condition, public use limit or closure previously established under paragraph (a), a determination as to why the restriction is no longer necessary and a finding that the termination will not adversely impact park resources. This determination shall be available to the public upon request.

  (d) To implement a public use limit, the superintendent may establish a permit, registration, or reservation system. Permits shall be issued in accordance with the criteria and procedures of §1.6 of this chapter.

  (e) Except in emergency situations, the public will be informed of closures, designations, and use or activity restrictions or conditions, visiting hours, public use limits, public use limit procedures, and the termination or relaxation of such, in accordance with §1.7 of this chapter.

  (f) Violating a closure, designation, use or activity restriction or condition, schedule of visiting hours, or public use limit is prohibited.

- **36 CFR 2.10, Camping and food storage:**

  Camping is permitted only in designated campgrounds..

- **36 CFR 2.13, Fires:**

  (a) The following are prohibited:

  (1) Lighting or maintaining a fire, except in designated areas or receptacles and under conditions that may be established by the superintendent.

  (2) Using stoves or lanterns in violation of established restrictions.

(3) Lighting, tending, or using a fire, stove or lantern in a manner that threatens, causes damage to, or results in the burning of property, real property or park resources, or creates a public safety hazard.

(4) Leaving a fire unattended.

(5) Throwing or discarding lighted or smoldering material in a manner that threatens, causes damage to, or results in the burning of property or park resources, or creates a public safety hazard.

(b) Fires shall be extinguished upon termination of use and in accordance with such conditions as may be established by the superintendent. Violation of these conditions is prohibited.

(c) During periods of high fire danger, the superintendent may close all or a portion of a park area to the lighting or maintaining of a fire.

(d) The regulations contained in this section apply, regardless of land ownership, on all lands and waters within a park area that are under the legislative jurisdiction of the United States.

- **36 CFR 2.15, Pets:**

(a) The following are prohibited:

(1) Possessing a pet in a public building, public transportation vehicle, or location designated as a swimming beach, or any structure or area closed to the possession of pets by the superintendent. This subparagraph shall not apply to guide dogs accompanying visually impaired persons or hearing ear dogs accompanying hearing-impaired persons.

(2) Failing to crate, cage, restrain on a leash which shall not exceed six feet in length, or otherwise physically confine a pet at all times.

(3) Leaving a pet unattended and tied to an object, except in designated areas or under conditions which may be established by the superintendent.

(4) Allowing a pet to make noise that is unreasonable considering location, time of day or night, impact on park users, and other relevant factors, or that frightens wildlife by barking, howling, or making other noise.

(5) Failing to comply with pet excrement disposal conditions which may be established by the superintendent.

(b) In park areas where hunting is allowed, dogs may be used in support of these activities in accordance with applicable Federal and State laws and in accordance with conditions which may be established by the superintendent.

(c) Pets or feral animals that are running-at-large and observed by an authorized person in the act of killing, injuring or molesting humans, livestock, or wildlife may be destroyed if necessary for public safety or protection of wildlife, livestock, or other park resources.

(d) Pets running-at-large may be impounded, and the owner may be charged reasonable fees for kennel or boarding costs, feed, veterinarian fees, transportation costs, and disposal. An impounded pet may be put up for adoption or otherwise disposed of after being held for 72 hours from the time the owner was notified of capture or 72 hours from the time of capture if the owner is unknown.

(e) Pets may be kept by residents of park areas consistent with the provisions of this section and in accordance with conditions which may be established by the superintendent. Violation of these conditions is prohibited.

(f) This section does not apply to dogs used by authorized Federal, State and local law enforcement officers in the performance of their official duties.

- **36 CFR 2.38, Explosives:**

  a) Using, possessing, storing, or transporting explosives, blasting agents or explosive materials is prohibited, except pursuant to the terms and conditions of a permit. When permitted, the use, possession, storage and transportation shall be in accordance with applicable Federal and State laws.

  (b) Using or possessing fireworks and firecrackers is prohibited, except pursuant to the terms and conditions of a permit or in designated areas under such conditions as the superintendent may establish, and in accordance with applicable State law.

  (c) Violation of the conditions established by the superintendent or of the terms and conditions of a permit issued in accordance with this section is prohibited and may result in the suspension or revocation of the permit.

- **36 CFR 2.35, Alcoholic beverages and controlled substances:**

  (a) Alcoholic beverages.

  (1) The use and possession of alcoholic beverages within park areas is allowed in accordance with the provisions of Section 2.35, which prohibits:

  (2)(i) The sale or gift of an alcoholic beverage to a person under 21 years of age.

  (2)(ii) The possession of an alcoholic beverage by a person under 21 years of age.

  (3)(i) The superintendent may close all or a portion of a public use area or public facility within a park area to the consumption of alcoholic beverages and/or to the possession of a bottle, can or other receptacle containing an alcoholic beverage that is open, or that has been opened, or whose seal is broken or the contents of which have been partially removed. Provided however, that such a closure may only be implemented following a determination made by the superintendent that:

  (A) The consumption of an alcoholic beverage or the possession of an open container of an alcoholic beverage would be inappropriate considering other uses of the location and the purpose for which it is maintained or established; or

  (B) Incidents of aberrant behavior related to the consumption of alcoholic beverages are of such magnitude that the diligent application of the authorities in this section and sections 1.5 and 2.34, over a reasonable time period, does not alleviate the problem.

  (ii) A closure imposed by the superintendent does not apply to an open container of an alcoholic beverage that is stored in compliance with the provisions of section 4.14.

  (iii) Violating a closure imposed pursuant to this section is prohibited.

- **36 CFR 3.6, Prohibited operations:** 36 CFR 3.6 prohibits launching or recovering a vessel, except at a launch site designated by the superintendent.

- **36 CFR 4.10, Travel on park roads and designated routes**: Operating a motor vehicle is prohibited except on park roads, in parking areas, and on routes and areas designated for off-road motor vehicle use.

APPENDIX Y – Superintendent's Compendium (2006)

APPENDIX Z: Protected Species Surveying Methodology

ACTIVITY	
Birds	
Survey Time and Frequency PRE-Nesting	**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. 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. **American oystercatcher**: March 15 – June 15 survey recent breeding areas two times per week. **Colonial waterbirds**: May 1 – June 15 survey recent breeding areas two times per week. **Wilson's plover** – survey during piping plover surveys.
Survey Time and Frequency Life Stages	Courtship/Mating: 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.
	Nesting: **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.
	Unfledged Chicks: **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- 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.
	Non breeding/wintering: **Piping plover:** 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. **American oystercatcher, red knot, Wilson's plover:** Survey with piping plover. **Colonial waterbirds**: Winter/Non-breeding habitat not surveyed.
Data Collected	**Piping plover**: Use GPS to document breeding areas and nest locations. Record locations where territorial/courtship behavior occurs. Record presence and abundance of birds. **American oystercatcher and colonial waterbirds**: Use GPS to document nest and colony

ACTIVITY	
	locations. Record presence and abundance of pre-nesting birds.
Sea Turtles	
Survey Time and Frequency	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 continues, especially in areas of high visitation, September 16 – November 15. Monitoring also occurs 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. Once a light filter fence is installed, monitor nests daily for signs of hatchling emergence.
Data Collected	Follow the North Carolina Wildlife Resources Commission Handbook and record: -Turtle species -Nest vs. false crawl -Location (physical description and GPS location) -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 -Necessary protective measures for nest and hatchlings -Information regarding any post hatching nest excavation and analysis 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.
Seabeach Amaranth	
Survey Time and Frequency	April 1 During bird and turtle surveys, note any seedlings or plants and record location. August Annual survey of potential habitat (some bird closure areas may not be surveyed due to potential to disturb nesting birds). April – September Before opening any species closure or identifying alternate ORV corridors, survey for seedling/plants. End observations when all plants have died back.
Data Collected	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.

Cape Hatteras National Seashore ORV Management Plan/EIS
Alternatives Development Meeting #2
March 2008

Elements common to all ACTION alternatives[1]. Suggestions for elements common to all ACTION alternatives (in addition to those common to all alternatives), to be discussed by the IDT. Under some elements, public comments are provided for the IDT to consider.

Operator/vehicle requirements

- Speed limits: 25 mph (unless otherwise posted) on park beaches for public and private vehicles. Speed limit in front of villages during off season (September 16 through May 14) on park beaches posted at 10 mph. [*Note: Reg-Neg committee agreed to 25 mph in general, but did not agree to the speed limit in "excepted" areas such as in front of villages or around closures.*]

- Recommend vehicle operators "air down" their tires to 20 psi, or other appropriate level.

- Vehicles must be equipped with a jack, jack support, shovel, and low pressure tire gauge.

Areas of vehicle operation

- Right of way: *IDT formalize right of way designation.*

- Closure nomenclature: *IDT develop and define consistent names for designations of closures (e.g., seasonal closure, safety closure, resource closure) [Note: Names of closure areas currently under discussion by the reg-neg committee].*

Education and outreach

- Distribute educational information at local real estate rental agencies and hotels/motels (*public*).

- Work with local organizations and businesses to ensure wider distribution of ORV and resource protection information.

- Encourage the Visitors Bureau and local tackle shops to link their websites to the Seashore's website to ensure different segments of the visiting public have up-to-date information on beach closures and, if an ORV permitting system is developed, ORV permitting information.

- Develop a user-friendly ORV educational program (e.g., video, DVD, or on-line) that could be self-administered at a variety of outlets such as tackle shops, welcome centers, and NPS offices.

[1] This does not include the consensus alternative under development by the Negotiated Rulemaking Committee.

Cape Hatteras National Seashore Off-Road Vehicle Management Plan/EIS Methodology, Assumptions, and Thresholds

Air Quality

(if this remains as a topic)

Lori talking to LB air quality staff about running the prelim emissions screen tool

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Guiding Regulations and Policies

The primary regulation related to air quality is the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments. In compliance with the act, the U.S. Environmental Protection Agency (EPA) has promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO_2), particles with a diameter less than or equal to a nominal 10 micrometers (PM_{10}), particles with a diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb). Under the NAAQS, primary and secondary standards are designated for each pollutant. Primary standards are designed to protect sensitive populations within the public, such as children and the elderly, from adverse health effects due to exposure to the pollutant. Secondary standards are designed to protect the environment, both natural and manmade, from known adverse effects from a pollutant.

Areas that do not meet NAAQS are called non-attainment areas, indicating that the pollutant has reached levels determined to have adverse effects on human health. When a state is in non-attainment for a pollutant, the state must create a state implementation plan that regulates how the state plans to reach attainment. Cape Hatteras National Seashore and its surroundings are in attainment for all criteria pollutants.

Airsheds are classified as Class I or Class II airsheds under the CAA. Class I areas are afforded the greatest degree of air quality protection. Very little deterioration of air quality is allowed in these areas, and the Seashore has an affirmative responsibility to protect visibility and all other Class I area air quality related values from the adverse effects of air pollution. Class II areas include all national park system areas not designated as Class I, and the CAA allows only moderate air quality deterioration in these areas. In no case, however, may pollution concentrations violate any of the NAAQS. A park may be designated

as a class I or II area. Cape Hatteras National Seashore has been designated a Class II airshed (NPS 2006c), allowing moderate air quality deterioration without violation of NAAQS.

Under the National Park Service (NPS) *Management Policies 2006* (NPS 2006a, sec. 4.7.1), the NPS will:

> seek to perpetuate the best possible air quality in parks to (1) preserve natural resources and systems; (2) preserve cultural resources; and (3) sustain visitor enjoyment, human health, and scenic vistas.

The NPS *Management Policies 2006* (NPS 2006a, sec. 4.7.1) further state that the NPS will assume an aggressive role in promoting and pursuing measures to protect air quality related values from the adverse impacts of air pollution. In cases of doubt about the impacts of existing or potential air pollution on park resources, the NPS "will err on the side of protecting air quality and related values for future generations."

The NPS Organic Act of 1916 and the NPS *Management Policies 2006* apply equally to all areas of the national park system, regardless of CAA designations. Therefore, the NPS will protect resources at both Class I and Class II designated units. Furthermore, the NPS Organic Act and NPS *Management Policies 2006* provide additional protection beyond that afforded by the CAA's national ambient air quality standards since specific park air quality-related values can be adversely affected at levels below the national standards or by pollutants for which no standard exists.

Section 20-128.2 of the State of North Carolina Code addresses motor vehicle emission standards. This code states,

> The rules and regulations promulgated pursuant to G.S. 143-215.107(a)(6) shall be implemented when the Environmental Management Commission certifies to the Commissioner of Motor Vehicles that the ambient air quality in an area will be improved by the implementation of a motor vehicle inspection/maintenance program within a specified county or group of counties, as necessary to effect attainment or preclude violations of the National Ambient Air Quality Standards for carbon monoxide or ozone; provided the Environmental Management Commission may prescribe different vehicle emission limits for different areas as may be necessary and appropriate to meet the stated purposes of this section.

Vehicles operating at Cape Hatteras National Seashore must be capable of operating on North Carolina state roadways, and thus must comply with all North Carolina emission standards.

In 1997, the CEQ released the document, *Guidance Regarding Consideration of Global Climatic Change in Environmental Documents Pursuant to the National Environmental Policy Act* (CEQ 1997). This document states that federal agencies should consider how federal actions could influence the emissions and sinks of greenhouse gases, and how climate change could potentially influence such actions. To accomplish this, federal agencies are directed to review whether and to what extent thier activities contribute, directly or indirectly, to the emission of greenhouse gases and thus to global climate change, with an emphasis on long-range federal programs. To accomplish this analysis, agencies are asked to continuously review new available scientific literature, because research on this topic is evolving. Through this guidance, CEQ states that agencies need to identify those projects and programs that are most sensitive to climate change effects such as higher temperatures, more severe storms, drier or wetter weather conditions, and sea level rise (CEQ 1997).

Executive Order 13423 (Strengthening Federal Environmental, Energy, and Transportation Management), issued on January 24, 2007, by President George W. Bush, requires federal agencies to "conduct their environmental, transportation, and energy-related activities under the law in support of their respective missions in an environmentally, economically and fiscally sound, integrated, continuously improving, efficient, and sustainable manner." It includes requirements for the reduction of greenhouse gases and other energy and water conservation measures. The order requires agencies to reduce greenhouse gas emissions by 3% annually through the end of fiscal year 2015, or 30% by the end of fiscal year 2015, relative to the baseline of the agency's energy use in fiscal year 2003[1]. Emission include those from visitors' vehicles in the park unit. The Seashore greenhouse gas emissions for 2003 were estimated at XXXX by using the NPS CLIP tool for estimating emissions.

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Department of Interior Secretarial Order 3226, issued on January 19, 2001, directs that climate change impacts are taken into account in connection with departmental planning and decision-making.

Assumptions, Methodology, and Intensity Thresholds

The analysis of air quality impacts described in this section considered potential changes from baseline conditions, including consideration of federal and state ambient air quality standards and regulatory thresholds, the effects on attainment status, the effects on airshed designation, and relative levels of

[1] The federal government fiscal year runs from October 1 to September 30.

emissions from other sources of greenhouse gases. This section addresses the impacts of the alternatives on climate change, while impacts from climate change are addressed under each resource topic as a cumulative impact. Impacts to air quality, including contributions to climate change, were qualitatively assessed using current air quality information obtained through a review of the literature and information on typical emissions from off-road vehicles (ORVs), guidance and regulations, professional judgment, discussions with NPS staff, and experience with comparable actions in similar environments.

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the General Conformity Rule). Cape Hatteras National Seashore is located within an area designated by the EPA as in attainment for all criteria pollutants; therefore, a General Conformity Rule applicability analysis is not warranted. To provide a basis for comparison for what would be considered a major impact, projects in a non-attainment zone are allowed to emit 25 to 100 tons per year of any given pollutant, depending on the severity of non-attainment, and still be in conformity.

The thresholds for the intensity of an impact on air quality or climate change are defined as follows:

Negligible: Impacts would result in a change to local air quality, but the change would be so slight that it would not be of any measurable or perceptible consequence. These changes would not cause violations of ambient air quality standards, would not affect the attainment status of the airshed, and would be consistent with the airshed designation at the Seashore. Contributions of greenhouse gas emissions to global climate change would be barely detectable. There would be no detectable effect on the Seashore's ability to meet the greenhouse gas emissions reduction goal under EO 13423.

Minor: Impacts would result in a detectable change to local air quality, but the change would be small and of little consequence. These changes would not cause violations of ambient air quality standards, would not affect the attainment status of the airshed, and would be consistent with the airshed designation at the Seashore. Contributions of greenhouse gas emissions to global climate change would be slight but detectable, but the Seashore could readily meet its obligations under EO 13423. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: Impacts would result in a change to local air quality that would be readily detectable. Without mitigation, impacts could cause violations of ambient air quality standards, could affect the attainment status of the airshed, and could be inconsistent with the airshed designation at the Seashore. Contributions of greenhouse gas emissions to global climate change would be readily apparent or detectable, and it would be uncertain if the Seashore could meet its obligations under EO 13423. Mitigation measures would be extensive and likely successful.

Major: Impacts would result in a change or changes to regional air quality that would be severe. These changes would cause violations of ambient air quality standards, would affect the attainment status of the airshed, and would be inconsistent with the airshed designation at the Seashore. Contributions of greenhouse gas emissions to global climate change would be substantial, and the Seashore would be unable to meet its obligations under EO 13423. Extensive mitigation measures would be needed to offset any adverse effects, and their success would not be guaranteed.

Area of Analysis

The study area for air quality is all of Cape Hatteras National Seashore and the surrounding airsheds; the area for climate change effects includes the global atmosphere.

Soundscapes

Guiding Regulations and Policies

The NPS intends to preserve the natural soundscapes and quiet areas found within parks (NPS 2000b). NPS *Management Policies 2006* describe the soundscape as "all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. Natural sounds occur within and beyond the range of sounds that humans can perceive, and they can be transmitted through air, water, or solid materials. The National Park Service will preserve, to the greatest extent possible, the natural soundscapes of parks" (NPS *Management Policies 2006* [NPS 2006a, sec. 4.9]).

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Some natural sounds in the natural soundscape are also part of the biological or other physical resource components of the park. Impacts from sound to biological resources is addressed under Wildlife and Wildlife Habitat; Rare, Unique, Threatened and Endangered Species; and Special Status and State-listed Species.

Following the NPS *Management Policies 2006*, the Service will restore to the natural condition wherever possible those park soundscapes that have become degraded by unnatural sounds (noise), and will protect natural soundscapes from unacceptable impacts. Using appropriate management planning, superintendents will identify the levels and types of unnatural sound that constitute acceptable impacts on park natural soundscapes. The frequencies, magnitudes, and durations of acceptable levels of unnatural sound will vary throughout a park, being generally greater in developed areas. In and adjacent to parks, the Service will monitor human activities that generate noise that adversely affects park soundscapes, including noise caused by mechanical or electronic devices. The Service will take action to prevent or minimize all noise that through frequency, magnitude, or duration adversely affects the natural

soundscape or other park resources or values, or that exceeds levels that have been identified through monitoring as being acceptable to or appropriate for visitor uses at the sites being monitored (NPS *Management Policies 2006* [NPS 2006a, sec. 4.9]). Human-generated noise sources throughout the Seashore include noise from vehicles, radios, generators, talking, and general recreating.

The NPS *Management Polices 2006* are considered in the context of the Seashore's enabling legislation, which states:

> Except for certain portions of the area, deemed to be especially adaptable for recreational uses, particularly swimming, boating, sailing, fishing, and other recreational activities of similar nature, which shall be developed for such uses as needed, the said areas shall be permanently reserved as a primitive wilderness and no development of the project or plan for the convenience of visitors shall be undertaken which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing in this area.

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The purpose of the Seashore to be reserved as a primitive wilderness includes consideration of the soundscape, to ensure that noise levels at the Seashore do not compromise this experience.

With the exception of Nags Head, the villages adjacent to Cape Hatteras National Seashore are unincorporated and do not have sound ordinances. Therefore the county ordinances were considered by the Seashore in this analysis.

Chapter 27 of the Dare County Code of Ordinances provides for noise control in the county, stating that every person is entitled to have noise levels maintained which are not detrimental to life, health, and enjoyment of property, and that unusually excessive and unreasonable noise within the county affects and is a menace to the public health, safety, and welfare and the comfort of the people of the county. Prohibited acts under this ordinance that are applicable to this ORV plan/EIS include:

- *Electronic devices or musical instruments*. Operating, playing, or permitting the operation or playing of any radio, television, phonograph, drum, musical instrument, sound amplifier, or similar device which produces, reproduces, or amplifies sound in such a manner as to create a noise disturbance across a real property boundary or within a noise sensitive zone; to create a noise disturbance at 50 feet from the device, when operated in or on a motor vehicle on a public right-of-way or public space, or in a motorboat or other vessel that operates on public waters; or

to create a noise disturbance to any person other than the operator of the device, when operated by any passenger on a common carrier.

- *Motor vehicles, motorcycles and motorboats*. No person shall operate a motor vehicle, motorcycle, or motorboat that causes noise disturbance across a real property boundary, within a noise sensitive zone or on a public right-of-way, public space, or public waterway as a result of a defective or modified exhaust system; any unreasonably rapid acceleration, deceleration, engine revving or tire squealing; or overloading or ill-repair that causes unusually excessive grating, grinding, rattling or other noise.

- *Horns and signaling devices of motor vehicles and motorcycles*. The sounding of any horn or signaling device on any automobile, motorcycle, or other vehicle on any street or public place of the county, except as a danger warning; the creation by means of any such signaling device of any unreasonably loud or harsh sound; the sounding of any such device for an unreasonable period of time; the use of any horn, whistle, or other device operated by engine exhaust; and the use of any such signaling device when traffic is for any reason held up. Authorized emergency vehicles may use warning sounds.

- *Engine exhausts*. The discharge into the open air within the county of the exhaust of any steam engine, gasoline engine, stationary internal combustion engine, or other kind or type of engine, motorboat, or motor vehicle, except through a muffler or other device that will effectively prevent loud or explosive noises therefrom.

The noise ordinance in Hyde County prohibits noises that are unreasonably loud or disturbing. Prohibited activities related to ORV use at the Seashore include, but are not limited to:

- The sounding of any horn or signal device on any automobile, motorcycle, bus, or other vehicle, except as a danger signal, so as to create any unreasonable loud or harsh sound, or the sounding of such device for an unreasonable period of time, or the use of any gong or siren upon any vehicle, other than police, fire, or other emergency vehicle.

- The playing of any radio, phonograph, television, loudspeaker, amplifier, musical instrument, or similar mechanical apparatus in such a manner or with such volume as to annoy or disturb the quiet, comfort, or repose of any reasonable person in any dwelling, hotel, or other type of residence.

- The playing of any vehicle mounted equipment in such a manner that it may create a noise disturbance at 50 feet from such device when operated on a public right-of-way, public space, or public waters.

- The use of any automobile, motorcycle, or other vehicle so out of repair, so loaded, or in such manner as to create loud or grating, grinding, rattling, or other noise.

- The discharge into the open air of the exhaust of any steam engine, stationary internal combustion engine, motor vehicle, or motor boat engine, except through a muffler or other device that will effectively prevent loud or explosive noises therefrom.

Assumptions, Methodology, and Intensity Thresholds

Soundscapes were analyzed by comparing the natural ambient sound levels, or background sound levels without human introduced noise, to the noise levels that would occur under each alternative.

The NPS soundscapes team collected data on the natural ambient sound levels at Cape Hatteras National Seashore. Data collection occurred during Spring 2008 [Insert exact dates when known] and consisted of [insert collection method when known].

After background data were collected, the NPS soundscapes team modeled the expected noise levels under each alternative, including the no-action alternative. Inputs into the model included areas and routes open to ORV use, level of ORV use [insert more when known]. Based on these models, the data were compared and measured against five indictors [insert when known]. These indicators were used to determine the thresholds for evaluating potential impacts to soundscapes at the Seashore.

[Discussing this with Frank Turina, NPS Soundscapes, he feels that when the analysis is done, the thresholds can change from qualitative to quantitative. However, he said there is not one set of standard thresholds they use and that they would be developed specifically for Cape Hatteras National Seashore once data collection is finalized.]

The following thresholds have been developed to assess the impacts on the natural soundscape for each of the alternatives.

Negligible: Natural sounds would prevail; noise generated by the use of ORV would be infrequent or absent, mostly not measurable or detectable.

Minor: Natural sounds would be predominant in areas where management objectives call for natural processes to dominate. In areas where noise generated is consistent with Seashore purpose and objectives, associated noise could be heard frequently throughout the day at moderate levels, or infrequently at higher levels, and natural sounds could be heard occasionally.

Moderate: In areas where management objectives call for natural processes to dominate, natural sounds would predominate, but noise generated could occasionally be present at low to moderate levels. In areas where noise generated by these activities is consistent with park purpose and objectives, noise would predominate during daylight hours and would not be overly disruptive to noise-sensitive visitor activities in the area; in such areas, natural sounds could still be heard occasionally.

Major: In areas where management objectives call for natural processes to dominate, natural sounds would be impacted by human noise sources frequently or for extended periods of time at moderate intensity levels (but no more than occasionally at high levels), and in a minority of the area. In areas where noise generated would be consistent with park purpose, natural sounds would be impacted most of the day by noise at low to moderate intensity levels, or more than occasionally at high levels; noise would disrupt conversation for long periods of time and/or make enjoyment of other activities in the area difficult; natural sounds would rarely be heard during the day.

Duration:

Short-term effects would be those noise events that are intermittent and only occur, on average, once a month.

Long-term effects would be any noise event that occurs frequently and more often than once a month, on average.

Study Area

When considering potential impacts from noise, the study area is all of Cape Hatteras National Seashore and lands adjacent to the Seashore.

Water Quality/Marine and Estuarine Resources

Issues related to water quality include the impact of submerged vehicles and the potential for leaking automobile fluids; and activities that create ruts on the beach that create pathways on the beach from the roadway to the water. These pathways allow for sheetflow to be diverted, along with any contaminants it may carry, and directed toward the ocean or sound, resulting in possible impacts to the resource from these contaminants. Observations by Seashore staff estimate that, on average, about two vehicles a year become submerged in the ocean. Further observations indicate that, although tire ruts are created around highly used ramps, these ruts do not create gullies that direct surface runoff into the ocean (NPS, Martinez, pers. comm. 2008). Because of the small number of submerged vehicles and the volume of water in the ocean to dilute any potential leaks from these vehicles, any impacts would be negligible and localized, and this topic was dismissed from detailed analysis.

Need to confirm with Dave Vana-Miller NPS Water Resources Division – L. Fox spoke with Mr. Vana-Miller on 2/11/08. Dave Vana-Miller directed me to Gary Rosenlieb (Chief of Water Operations), left message for him as of COB 2/13/08, have not received a call back. Gary called back. L. Fox called back to Gary (720-225-3518) 2/22/08 and left message.

Wetlands and Floodplains

Guiding Regulations and Policies

Impacts on wetlands and floodplains are addressed under two federal executive orders: Executive Order 11990, Protection of Wetlands, and Executive Order 11988, Floodplain Management. NPS Director's Order #77-1 establishes policies, requirements, and standards for implementing Executive Order 11990 for wetlands, while NPS Director's Order #77-2 applies to all NPS-proposed actions that could adversely affect the natural resources and functions of floodplains, including coastal floodplains, or increase flood risks.

According to Director's Order #77-1 and the accompanying Procedural Manual #77-1, direct or indirect adverse impacts on wetlands should be avoided, or where impacts cannot be avoided, degradation or loss must be minimized by every practicable effort. The Order adopts a "no net loss of wetlands" policy and states that the NPS will use the Cowardin classification system as the standard for defining wetlands for purposes of compliance with Executive Order 11990, which means that non-vegetated shorelines and mudflats are included in the wetlands classification. Any NPS activities that involve the discharge of dredged or fill materials into wetlands or "other waters of the United States" must also comply with the Clean Water Act and Section 404 regulations (33 CFR 1344) and Section 10 of the Rivers and Harbors Act (33 CFR 403), which probibits the unauthorized obstruction or alteration of navigable waters of the United States.

If adverse impacts to wetlands would occur from a proposed project, a Statement of Findings is prepared, unless the actions are excepted for various reasons provided in Procedural Manual #77-1, section 4.2(A). Exceptions include actions designed for restoring wetlands and water dependent actions that have minor impacts. As described more fully in the impact analysis, the rebuilding or expansion of any parking areas or access roads under any alternative would be limited to developed or non-wetland areas, thereby avoiding impacts to wetlands. Indirect impacts may include minor effects from runoff to nearby wetlands. Impacts related to the management or improvement of access for ORVs would not require a Statement of Findings as long as new areas are not opened up for ORV use in wetland areas (NPS Green and Noon, pers. comm. 2008), although impacts related to this use are addressed in this section of the EIS. For these

reasons, a Statement of Findings for wetlands was not required for this project. [Text to be reivsed depending on how the alterantives are shaped and the amount of parking expansion, new routes, etc., if a SOF is needed].

Director's Order # 77-2 states that when it is not practicable to locate or relocate development or inappropriate human activities to a site outside of and not affecting the floodplain, the NPS will prepare and approve a Statement of Findings, in accordance with procedures described in Procedural Manual #77-2: Floodplain Management, and take all reasonable actions to minimize the impact to the natural resources of floodplains. Because the study area is located entirely within a floodplain, and the proposed construction of additional hard-surface parking and access in the floodplain (see alternative XX), the NPS prepared a Statement of Findings in accordance with procedures described in Procedural Manual #77-2 (see appendix x for the Statement of Findings). [Text to be reivsed depending on how the alternatives are shaped and the amount of parking expansion, new routes, etc., if a SOF is not needed].

NPS *Management Policies 2006* also specifically address wetlands and floodplains in Sections 4.6.5, and 4.6.4, respectively. Section 4.6.5 refers to compliance with Executive Order 11990 and states that, when practicable, the NPS will not simply protect, but will seek to enhance wetland values. For any proposed new development or other activities that could adversely impact wetlands, the NPS will first avoid impacts, then minimize impacts, and then compensate for impacts on at least a one-to-one basis. Section 4.6.4 states that the NPS will protect, preserve, and restore the natural resource function of floodplains, avoid the long- and short-term environmental effects associated with the occupancy and modification of floodplains, and avoid floodplain development that could cause adverse impacts or flood risks. A Statement of Findings is needed if there is no pracitical alternative to locate the development outside a floodplain (NPS 2006a).

Assumptions, Methodology, and Intensity Thresholds

To assess the magnitude of impacts to Seashore wetlands and floodplains under the various alternatives, wetland types and floodplain boundaries were defined, identified, and mapped, based on the sources described in "Chapter 3: Affected Environment." Actions under each alternative were considered and impacts were assessed by examining the types of uses and impacts that could occur in or near various wetlands or in floodplains, examining the area that could be directly or indirectly affected by the proposed development of parking and access, and assessing impacts to wetland and floodplain functions and values using best professional judgment, input from NPS staff and EIS team members, and a review of relevant literature.

Impact Thresholds

WETLANDS

The impact thresholds for wetlands are based on the size, integrity, and connectivity of the wetlands affected. These indicators are defined as follows:

- *Size*. The severity of impacts to wetlands depends on the size of the wetland impacted. A small area of impact in a large wetland would be likely to have less of an effect than a large area of impact in a small wetland. The change in size of a wetland, as a result of an impact, would also influence the integrity and connectivity of the wetland.

- *Integrity*. Highly intact wetland areas with little prior disturbance would be more susceptible to impacts from direct development than a wetland previously degraded by development or other activities. The loss of function and productivity of the higher quality wetland would be a greater loss than that of a lower quality wetland. Additionally, indirect impacts due to human trampling or a change in vegetation or hydrology would also impact the integrity of the wetland.

- *Connectivity*. The relationship of wetlands to other wetlands or other valuable natural resources is also important in determining the degree of impact. Plant communities that are isolated from each other are less productive and functional than those that are connected. For example, narrow, previous trail corridors that are infrequently or seasonally used would have less fragmenting effect than would a wide hard-surface roadway with high volumes of vehicular or pedestrian traffic. Establishment of structures in wetland areas could also create barriers to the natural dispersal of plants and animals and impact the connectivity of wetlands.

Negligible: No measurable or perceptible effects on size, integrity, or connectivity of wetlands would occur.

Minor: The effect on wetlands would be measurable or perceptible, but small in terms of area and the nature of the impact. A small effect on size, integrity, or connectivity would occur; however, the overall viability would not be affected. If left alone, an adversely affected wetland would recover, and the impact would be reversed.

Moderate: The impact would cause a measurable effect on one of the three wetlands indicators (size, integrity, connectivity) or would result in a permanent loss or gain in wetland acreage, but not to large areas. Wetland functions would not be affected in the long term.

Major: The impact would cause a measurable effect on all three wetlands indicators (size, integrity, connectivity) or a permanent loss or gain of large wetland areas. The impact would be substantial and highly noticeable. The character of the wetland would be changed so that the functions typically provided by the wetland would be substantially altered.

Duration:

Short-term effects for vegetative wetlands: recovers in less than three years from any action taken;

Long-term effects for vegetative wetlands: takes longer than three years to recover or effect is almost permanent;

Short-term effects for non-vegetated wetlands (shorelines): recovers within days to months.

Long-term effects for non-vegetated wetlands (shorelines): effects last longer than one year.

FLOODPLAINS

Negligible: Impacts would result in a change to floodplain functions and values, but the change would be so slight that it would not be of any measurable or perceptible consequence.

Minor: Impacts would result in a detectable change to floodplain functions and values, but the change would be expected to be small, of little consequence, and localized. There would be no appreciable increased risk to life or property. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate: Impacts would result in a change to floodplain functions and values that would be readily detectable and relatively localized. Location of operations in floodplains could increase risk to life or property. Mitigation measures, if needed to offset adverse effects, could be extensive, but would likely be successful.

Major: Impacts would result in a change to floodplain functions and values that would have substantial consequences on a regional scale. Location of operations would increase risk to life or property. Extensive mitigation measures would be needed to offset any adverse effects, and their success would not be guaranteed.

Duration:

Short-term effects: the floodplain recovers in less than one year from any action taken.

Long-term effects: The floodplain takes longer than one year to recover or the effect is almost permanent.

Study Area

The study area for wetlands and floodplains includes the entire area within the Seashore boundary.

Wildlife and Wildlife Habitat

Guiding Regulations and Policies

The Seashore's *Resource Management Plan* (NPS 1997) identifies the following natural resource related goals to provide direction for future management of the Seashore.

- Identify visitor uses and impacts to establish appropriate management policies which would meet the needs of the park visitor while providing for the preservation and protection of the resources unimpaired for future generations.

- Continue to provide rigorous enforcement, research, environmental surveying, and applied resource management in accordance with available funding and direction.

Servicewide NPS regulations and policies, including the NPS Organic Act of 1916, NPS *Management Polices 2006* (NPS 2006a), and the NPS *Natural Resource Management Reference Manual #77* also direct national parks to provide for the protection of park resources. The Organic Act directs national parks to conserve wildlife unimpaired for future generations and is interpreted to mean that native animal life is to be protected and perpetuated as part of a park unit's natural ecosystem. Parks rely on natural processes to control populations of native species to the greatest extent possible; otherwise, they are protected from harvest, harassment, or harm by human activities. The NPS *Management Policies 2006* state that the NPS "will maintain as parts of the natural ecosystems of parks all plants and animals native to park ecosystems." The NPS will achieve this by

- preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur;

- restoring native plant and animal populations in parks when they have been extirpated by past human-caused actions; and

- minimizing human impacts on native plants, animals, populations, communities, and ecosystems, and the processes that sustain them." (NPS 2006a, sec. 4.4.1).

Policies in the NPS *Natural Resources Management Guidelines (Directors Order 77)* state, "the National Park Service will seek to perpetuate the native animal life as part of the natural ecosystem of parks" and

that "native populations will be protected against . . . destruction . . . or harm through human actions." (NPS 1991)

Seashore wildlife have evolved in a barrier island ecosystem, which is dependent on the continuation of natural shoreline processes. Barrier islands are highly dynamic with changes in sea level, wave and wind action, and ocean currents continuously creating and altering habitat for wildlife through the processes of erosion and accretion of shorelines and sand dunes; overwash across the islands; and the formation, migration, and closure of inlets. To protect coastal barrier processes, the NPS *Management Policies 2006* direct that natural shoreline processes such as erosion, deposition, dune formation, overwash, inlet formation, and shoreline migration will be allowed to continue without interference (NPS 2006a, sec. 4.8.1.1). The policies further state, "Where human activities or structures have altered the nature or rate of natural shoreline processes, the Service will, in consultation with appropriate state and federal agencies, investigate alternatives for mitigating the effects of such activities or structures and for restoring natural conditions."

Assumptions, Methodology, and Intensity Thresholds

Information on wildlife and wildlife habitat was acquired from staff at the Seashore, the U.S. Fish and Wildlife Service, and available literature. Potential impacts on wildlife and wildlife habitat were evaluated based on the pattern of proposed ORV use at the Seashore under each alternative, the nature of habitats and species present, and the nature of coastal barrier processes that create and alter habitat. Primary steps in assessing impacts on wildlife and wildlife habitat were to determine (1) the potential for species to occur in habitats likely to be affected by management actions described in the alternatives; (2) current and future use and distribution of ORVs by alternative; (3) habitat impact or alteration caused by the alternatives; and (4) disturbance potential of the action and the potential to directly or indirectly affect wildlife or wildlife habitat as a result of ORV activities. The information contained in this analysis was obtained through best professional judgment of the Seashore staff and experts in the field, and by reviewing applicable scientific literature.

The analysis does not address essential fish habitat as this habitat occurs in soundside submerged vegetation. ORV use below the high-tide line is limited due to the soft substrate.

The following thresholds for the impacts on wildlife and wildlife habitat were defined:

Negligible: There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them.

Minor: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Occasional responses by some individuals to disturbance could be expected, but without interference to feeding, reproduction, resting, or other factors affecting population levels. Small changes to local population numbers, population structure, and other demographic factors might occur. However, some impacts might occur during critical reproduction periods for a species, but would not result in injury or mortality. Sufficient habitat in the Seashore would remain functional to maintain the viability of the species in the Seashore.

Moderate: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, resting or other factors affecting local population levels. Some impacts might occur during critical periods of reproduction or in key habitats in the park and result in harassment, injury, or mortality to one or more individuals. However, sufficient population numbers or habitat in the Seashore would remain functional to maintain the viability of the species in the Seashore.

Major: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a decrease in park population levels. Impacts would occur during critical periods of reproduction or in key habitats in the park and result in direct mortality or loss of habitat that might affect the viability of a species in the Seashore. Local population numbers, population structure, and other demographic factors might experience large declines.

Duration:

Short-term effects would be one to two breeding seasons for bird species and one to two years for all other species.

Long-term effects would be anything beyond two breeding seasons for bird species or two years for all other species.

Study Area

The study area for wildlife and wildlife habitat includes the entire area within the Seashore boundary.

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Vegetation, Including Rare or Unusual Vegetation

Guiding Regulations and Policies

As described in the "Wildlife and Wildlife Habitat" section, natural resources at the Seashore are managed in accordance with the Seashore's *Resource Management Plan* (NPS 1997); servicewide NPS regulations and policies, including the NPS Organic Act of 1916, NPS *Management Polices 2006* (NPS

2006a), and the NPS *Natural Resource Management Reference Manual #77*. In addition to the regulations and policies stated in the "Wildlife and Wildlife Habitat" section, the following regulations and policies would be applicable.

Section 4.4.4 of the NPS *Management Polices 2006* addresses management of non-native species, stating that such species will not be allowed to displace native species if displacement can be prevented. Section 4.4.4.2 of these polices allows for the removal of non-native species already present in park units and places priority on species that have, or potentially could have, a substantial impact on park resources, and that can reasonably be expected to be successfully controlled. The Seashore also addresses non-native species in special use permits. A recent Special Use Permit with the North Carolina Department of Transportation for the replacement of bridges on Ocracoke stated that "All construction vehicles will be pressure cleaned with water prior to arriving at and departing from the construction site to minimize the potential for introducing exotic plant species." (NPS, Carfioli, pers. comm. 2008).

Section 4.6.5 of the NPS *Management Policies 2006* addresses management of wetlands and directs a "no net loss of wetlands" policy, as described in the "Wetlands and Floodplains" section. This policy is applicable to the vegetation found within wetlands at the Seashore.

Assumptions, Methodology, and Intensity Thresholds

Available information on vegetation and vegetative communities occurring at the Seashore was compiled and reviewed. Vegetative types were also documented during site visits that occurred Month 2008. Introduced non-native species observed during field studies were also documented at this time. Predictions about short- and long-term project impacts on vegetation were based on general characteristics and potential encroachment into vegetated areas associated with ORV use.

Primary steps in assessing impacts to vegetation at the Seashore were to determine (1) the occurrence and location of native and non-native vegetation in areas likely to be affected by management actions described in the alternatives; (2) current and future use and distribution of ORVs by alternative; (3) habitat impact or alteration caused by the alternatives; and (4) disturbance potential of the actions and the potential to directly or indirectly affect native vegetation as a result of ORV use. The information contained in this analysis was obtained through best professional judgment of Seashore staff and experts in the field, and by reviewing applicable scientific literature.

Negligible: Individual plants may be affected, but changes in the natural function and character of the native vegetation communities in terms of growth, abundance, reproduction, distribution, structure, or diversity of native species would not be measureable or perceptible.

Minor: Effects on multiple plants would be measurable or perceptible. However, the natural function and character of native vegetation communities in terms of growth, abundance, reproduction, distribution, structure, or diversity of native species would only be perceptible in small localized areas.

Moderate: A change would occur in the natural function and character of the native vegetation communities in terms of growth, abundance, reproduction, distribution, structure, or diversity of native species, but not to the extent that vegetation community properties (i.e., size, integrity, or continuity) change.

Major: Effects on native vegetation community properties would be readily apparent and would substantially change the natural function and character of the vegetation community.

Duration:

Short-term effects are apparent over two or three growing seasons or less corresponding to initial management actions.

Long-term effects are changes that would be detectable over multiple seasons and could persist over the lifetime of the plan and beyond.

Study Area

The study area for vegetation, including rare or unusual vegetation, includes the entire area within the Seashore boundary.

Rare, Unique, Threatened, or Endangered Species

Federally Listed Special-Status Wildlife and Plant Species

Guiding Regulations and Policies

The Endangered Species Act (16 USC 1531 et seq.) mandates that all federal agencies consider the potential effects of their actions on species listed as threatened or endangered. If the NPS determines that an action may affect a federally listed species, consultation with the U.S. Fish and Wildlife Service is required to ensure that the action would not jeopardize the species' continued existence or result in the destruction or adverse modification of critical habitat. NPS *Management Policies 2006* state that the NPS will survey for, protect, and strive to recover all species native to NPS units that are listed under the

Endangered Species Act, and proactively conserve listed species and prevent detrimental effects on these species (NPS 2006a).

Assumptions, Methodology, and Intensity Thresholds

The following information was used to assess impacts on all listed species from ORV management actions:

1. which species are found in areas likely to be affected by management actions described in the alternatives
2. habitat loss or alteration caused by the alternatives
3. displacement and disturbance potential of the actions and the species' potential to be affected by the activities

Specific methodologies and assumptions pertaining to the piping plover, sea turtles, or seabeach amaranth are described under the relevant descriptions in the following text.

When examining the impacts of artificial light on threatened and endangered species, the lighting zones developed for Cape Hatteras National Seashore by the NPS Night Skies Team was considered. In these zones, special consideration is given to areas with sensitive wildlife and alternate guidance is provided to enhance the protection of nocturnal habitat. These special lighting zones represent the conditions that should be present at the Seashore, not necessarily actual current conditions, and create a buffer when two varying zones abut each other.

Piping Plover

Species-Specific Methodology and Assumptions

Potential impacts on the federally threatened piping plover populations and habitat were evaluated based on available data on the species' past and present occurrence at Cape Hatteras National Seashore, as well as the species' association with humans, pets, predators, and ORVs. Information on habitat and other existing data were acquired from staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and from available literature.

The analysis focuses on effects to the piping plover from a variety of human recreational activities, species surveying and management activities, predators, soundscapes, and artificial lighting.

Sea Turtles

Species-Specific Methodology and Assumptions

Potential impacts on federally listed sea turtle populations and their habitat within Cape Hatteras National Seashore were evaluated based upon the species' known interaction with humans, domestic pets, recreation and nighttime activities, predators, artificial lighting, and ORVs, as well past and present occurrence at the Seashore. Information on habitat, occurrence within the Seashore, and potential impacts on sea turtles from recreation and other activities was acquired from park staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, the North Carolina Wildlife Resources Commission, and available literature.

Although five threatened or endangered sea turtle species occur in the waters of North Carolina, only three, the loggerhead, green, and leatherback sea turtles, are known to nest at the Seashore. The other two species, Kemp's ridley and hawksbill, are only known to occur at the Seashore through the occasional stranding, usually due to either prior death or incapacitation due to hypothermia. Therefore the analysis only focuses on the three species that nest at the Seashore. Except for the timing of nest laying activities, the nesting habits for loggerhead, green, and leatherback sea turtles at the Seashore are similar. Therefore the analysis generally discusses the impacts on the sea turtles as a group. Impacts to a specific species are noted where they differ from the other sea turtle species. Sea turtle nesting habitat overlaps protected bird species and seabeach amaranth habitat seaward of the primary dune line. Therefore ORV management focused on protection of these species would also be beneficial to nesting sea turtles and is included in the analysis. However, the extent to which the bird and seabeach amaranth closures are beneficial to the turtles would depend on the location, size, and duration of the closures. It is also assumed that compliance with closures and other regulations such as leash laws, disposal of bait and fish carcasses, and other regulations, would increase from current levels where alternatives increase the number of natural resource and law enforcement staff.

Primary steps in assessing impacts on sea turtles were to determine (1) the potential for species to occur in habitats likely to be affected by management actions described in the alternatives; (2) current and future use and distribution of ORVs by alternative; (3) habitat impact or alteration caused by the alternatives, and (4) disturbance potential of the action and the potential to directly or indirectly affect sea turtles as a result of ORV activities. The information contained in this analysis was obtained through best professional judgment of Seashore staff and experts in the field, and by reviewing applicable scientific literature.

Seabeach Amaranth

Species-Specific Methodology and Assumptions

Potential impacts on seabeach amaranth populations and habitat at Cape Hatteras National Seashore were evaluated based on the species' life history, its past and present occurrence at the Seashore, as well as known effects on the species from activities relating to humans, pets, predators, and ORVs. Information on habitat and other existing data were acquired from park staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and available literature.

Seabeach amaranth often grows in habitat areas used by other protected species within the Seashore such as plovers, oystercatchers, colonial waterbirds, and sea turtles. Therefore any ORV-related closures established to protect the habitat or nests of these species would also benefit seabeach amaranth, though the extent of the benefit would depend upon the actual location, size, and duration of the closures. It is also assumed that increases in natural resource and law enforcement staffing at the Seashore would increase public compliance with closures and other park regulations (e.g., leash laws) than currently exists.

Primary steps in assessing impacts to seabeach amaranth at the Seashore were to determine (1) occurrence and location of seabeach amaranth in areas likely to be affected by management actions described in the alternatives; (2) current and future use and distribution of ORV by alternative; (3) habitat impact or alteration caused by the alternatives, and (4) disturbance potential of the actions and the potential to directly or indirectly affect seabeach amaranth as a result of ORV use. The information contained in this analysis was obtained through best professional judgment of Seashore staff and experts in the field, and by reviewing applicable scientific literature.

The Endangered Species Act defines the terminology used to assess impacts to the piping plover, sea turtles, and seabeach amaranth as follows:

No effect:	When a proposed action would not affect a listed species or designated critical habitat.
May affect / not likely to adversely affect:	When effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the

	species. Insignificant effects relate to the size of the impact and should never reach the scale where "take" occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.
May affect / likely to adversely affect:	When any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not: discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, the proposed action "is likely to adversely affect" the listed species. If incidental take is anticipated to occur as a result of the proposed action, then it "is likely to adversely affect" the species. Incidental take is the take of a listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity.
Is likely to jeopardize species / adversely modify critical habitat:	The appropriate conclusion when the NPS or the U.S. Fish and Wildlife Service identifies an adverse effect that could jeopardize the continued existence of a species or destroy or adversely modify critical habitat of a species within or outside park boundaries.

The EIS also serves as the Biological Assessment consultation with the U.S. Fish and Wildlife Service for listed species, and analyzes impacts using the above terminology. To provide the public with additional

information on the intensity of impacts the following NEPA thresholds for the impacts on federally species were defined:

Negligible: There would be no observable or measurable impacts to rare, unique, or threatened and endangered species, their habitats, or the natural processes sustaining them. Impacts would be well within natural fluctuations.

Minor: Impacts on rare, unique, or threatened and endangered species, their habitats, or the natural processes sustaining them would be detectable, but would not be outside the natural range of variability. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, resting, or other factors affecting population levels. Small changes to local population numbers, population structure, and other demographic factors might occur. However, some impacts might occur during critical reproduction periods for a protected species, but would not result in injury or mortality. Sufficient habitat in the park would remain functional to maintain the viability of the species in the Seashore.

Moderate: Impacts on rare, unique, or threatened and endangered species, their habitats, or the natural processes sustaining them would be detectable and could be outside the natural range of variability. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, resting, or other factors affecting local population levels. Some impacts might occur during critical periods of reproduction or in key habitats in the park and result in harassment, injury, or mortality to one or more individuals. However, sufficient population numbers and habitat in the park would remain functional to maintain the viability of the species in the Seashore.

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Major: Impacts on rare, unique, or threatened and endangered species, their habitats, or the natural processes sustaining them would be detectable, would be expected to be outside the natural range of variability, and would be permanent. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a decrease in park population levels. Impacts would occur during critical periods of reproduction or in key habitats in the park and result in direct mortality or loss of habitat that might affect the viability of a sensitive species. Local population numbers, population structure, and other demographic factors might experience large declines.

... [1]

Duration:

Short-term effects would be one to two breeding seasons for bird species and one to two years for all other protected species.

Long-term would be anything beyond two breeding seasons.

Study Area

The study area for federally listed species includes the entire area within the Seashore boundary and regionally, as defined in the recovery plans for each species.

State-Listed and Special-Status Species

Guiding Policies and Regulations

The NPS *Management Policies 2006* state that the NPS will inventory, monitor, and manage state and locally listed species in a manner similar to its treatment of federally listed species to the greatest extent possible (NPS 2006a). The NPS is required to control access to important habitat for such species and to perpetuate the natural distribution and abundance of these species and the ecosystems upon which they depend. In addition, one of Cape Hatteras National Seashore's management goals is to provide protection for species that occur within the park and that suffer population reductions or require special management. Therefore, an analysis of the potential impacts to state-listed species and certain park sensitive species is included in this section.

Assumptions, Methodology, and Intensity Thresholds

The following information was used to assess impacts on all state-listed and special-status species:

1. which species are found in areas likely to be affected by management actions described in the alternatives
2. habitat loss or alteration caused by the alternatives
3. displacement and disturbance potential of the actions and the species' potential to be affected by the activities

Specific methodologies that were implemented and assumptions that were made that pertained to the American oystercatcher, colonial waterbirds, Wilson's plover, and red knot are described under the relevant species impact analysis below.

American Oystercatcher

Species-Specific Methodology and Assumptions

Potential impacts on oystercatcher populations and habitat were evaluated based on available data on the species' past and present occurrence at Cape Hatteras National Seashore as well as the species' association with humans, pets, predators, and ORVs. Information on habitat and other existing data were acquired from staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and available

literature. American oystercatchers are identified as a species of high concern by the *U.S. Shorebird Conservation Plan* (Manomet 2001) and are proposed for listing by the state of North Carolina.

The analysis focuses on effects from ORV use to the American oystercatcher including a variety of human recreational activities, predators, and artificial lighting.

Colonial Waterbirds

Species-Specific Methodology and Assumptions

Potential impacts on colonial waterbird populations and habitat were evaluated based on available data on the species past and present occurrence at Cape Hatteras National Seashore as well as the species association with humans, pets, predators, and ORVs. Information on habitat and other existing data were acquired from staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and available literature. The species addressed in this analysis are state-listed threatened and species of special concern and include the common tern, least tern, gull-billed tern, and black skimmer.

The analysis focuses on effects from ORV use to colonial waterbird including a variety of human recreational activities, predators, and artificial lighting.

Wilson's Plover

Species-Specific Methodology and Assumptions

Potential impacts on Wilson's plover populations and habitat were evaluated based on available data on the species past and present occurrence at Cape Hatteras National Seashore as well as the species association with humans, pets, predators, and ORVs. Information on habitat and other existing data were acquired from staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and available literature. Wilson's plover are identified as a species of high concern by the *U.S. Shorebird Conservation Plan* (Manomet 2001).

The analysis focuses on effects from ORV use to Wilson's plover including a variety of human recreational activities, predators, and artificial lighting.

Red Knot

Species-Specific Methodology and Assumptions

Potential impacts on red knot populations and habitat were evaluated based on available data, on the species' past and present occurrence at Cape Hatteras National Seashore, as well as the species'

association with humans, pets, predators, and ORVs. Red knot are identified as a species of high concern by the *U.S. Shorebird Conservation Plan* (Manomet 2001). In 2005, Defenders of Wildlife filed a petition for the emergency listing of the red knot. In July 2007, the *Final Status Assessment Report for the Red Knot* was released and stated that the red knot was designated as a candidate for protection under the Endangered Species Act. Information on habitat and other existing data were acquired from staff at Cape Hatteras National Seashore, the U.S. Fish and Wildlife Service, and available literature.

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The analysis focuses on effects from ORV use to the red knot including a variety of human recreational activities, predators, and artificial lighting.

The assessment of impacts on wildlife species listed by the state of North Carolina (but not at the federal level under the Endangered Species Act) and special-status species that the park has identified as needing special management consideration uses the same thresholds developed for the assessment of impacts on wildlife.

Negligible: There would be no observable or measurable impacts to native species, their habitats, or the natural processes sustaining them.

Minor: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, resting, or other factors affecting population levels. Small changes to local population numbers, population structure, and other demographic factors might occur. However, some impacts might occur during critical reproduction periods for a protected species, but would not result in injury or mortality. Sufficient habitat in the park would remain functional to maintain the viability of the species in the Seashore.

Moderate: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Frequent responses to disturbance by some individuals could be expected, with some negative impacts to feeding, reproduction, resting or other factors affecting local population levels. Some impacts might occur during critical periods of reproduction or in key habitats in the park and result in harassment, injury, or mortality to one or more individuals. However, sufficient population numbers and habitat in the park would remain functional to maintain the viability of the species in the park.

Major: Impacts on native species, their habitats, or the natural processes sustaining them would be detectable. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a decrease in park population levels. Impacts would occur during critical periods of reproduction or in key habitats in the park and would result in direct mortality or loss of habitat that might affect the viability of a sensitive species. Local population numbers, population structure, and other demographic factors might experience large declines.

Duration:

Short-term effects would be one to two breeding seasons for bird species and one to two years for all other protected species.

Long-term effects would be anything beyond two breeding seasons.

Study Area

The study area for state-listed and special-status species includes the entire area within the Seashore boundary.

Visitor Use and Experience

Guiding Regulations and Policies

The NPS *Management Policies 2006* (NPS 2006a) state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks.

Cape Hatteras National Seashore's purpose states, "except for certain portions of the area, deemed to be especially adaptable for recreational uses…the said areas shall be permanently reserved as a primitive wilderness and no development of the project or plan for the convenience of visitors shall be undertaken which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing in this area." Management goals include making available to the public traditional outdoor recreational opportunities that are not detrimental to the natural or cultural resources of the park. Management goals related to ORV use are included in the Seashore's General Management Plan, which states, "Selected beaches will continue to be open for ORV recreational driving and in conjunction with surf fishing in accordance with the existing use restrictions." Providing for this use would occur in the context of the overall planning objective of preserving the cultural resources and the flora, fauna, and natural physiographic condition, while providing for appropriate recreational use and public access to the oceanside and soundside shores in a manner that will minimize visitor use conflict, enhance visitor safety, and preserve park resources. Selected beaches will continue to be open for ORV recreational driving and in conjunction with surf fishing in accordance with the existing use restrictions. (NPS 1984).

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While recreation is a key component of the NPS *Management Policies 2006*, the policies also instruct park units to maintain all native plants and animals as parts of the natural ecosystem. The NPS would achieve this by preserving and restoring the natural abundances, diversities, dynamics, distributions, habitats, and behaviors of native plant and animal populations and the communities and ecosystems in which they occur (NPS 2006a, sec. 4.4.1).

The goals of providing recreational opportunities and protecting the natural systems at Cape Hatteras National Seashore are evident in the objectives of this plan/EIS. With regard to recreation and conservation, the objectives state that this plan/EIS should:

- Manage ORV use to allow for a variety of appropriate visitor use experiences.
- Minimize conflicts between ORV use and other uses.
- Ensure that ORV management promotes the safety of all visitors.

Assumptions, Methodology, and Intensity Thresholds

The potential for change in visitor experience was evaluated by identifying projected increases or decreases in visitor uses, including ORV use, related to the proposed alternatives, and determining whether these projected changes would affect the visitor use and experience. The primary sources of data used to determine current visitation were XXXX [To be further developed based on the outcome of the peer review of the Neal and Vogelsong studies, and the work of RTI regarding available visitor use surveys. Sources of data could include Vogelsong (2003), ongoing traffic counts, studies from the Outer Banks Visitors Bureau, etc, and any new studies that could be performed.]

Visitation was estimated using a range of data and assumptions. The data used to calculate the official park visitation statistics was supplemented with data from new traffic counters, fly-over's conducted by the park, and other verifiable information on visitation at different times of the year and in different parts of the park. A range of assumptions about the number of visitors per car and the number of trips per visitor was used based on standard NPS assumptions and Cape Hatteras National Seashore specific studies. The result is a range of possible baseline visitation levels, rather than a point estimate.

The analysis of visitor use and experience considered the number of visitors and the activities in which they engaged. Under each alternative, this analysis qualitatively considered the ability of a visitor to obtain their desired visitor experience while at the Seashore. In evaluating visitor experience, the Seashore's enabling legislation was considered. This legislation states, "Except for certain portions of the area, deemed to be especially adaptable for recreational uses, particularly swimming, boating, sailing, fishing, and other recreational activities of similar nature, which shall be developed for such uses as needed, the said areas shall be permanently reserved as a primitive wilderness and no development of the project or plan for the convenience of visitors shall be undertaken which would be incompatible with the preservation of the unique flora and fauna or the physiographic conditions now prevailing in this area" (NPS 1937)[add to references]. Based on this, the analysis of visitor experience considered not only the

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ability of visitors to engaged in a desired activity, but if that activity is compatible with the preservation of the unique flora and fauna or the physiographic conditions.

In addition to visitor activities, the analysis of visitor use also considers the viewscape and soundscape of the Seashore. The alternatives were qualitatively analyzed and considered if, while engaging in their desired visitor activity, visitors would see and hear the sights and sounds expected under that activity. A component of this experience is viewing night skies, discussed in more detail below.

The analysis of visitor use and experience includes the ability to experience night skies at the Seashore. The analysis of night skies looks at zones that have been identified in the park by the NPS Night Skies Team. The zones represent the conditions that should be occurring at the Seashore in regards to permanent lighting sources, and not necessarily what is occurring currently. These zones exclude temporary lighting installed less than 60 days for special (non-ongoing) purposes and all emergency lighting. These zones are: [Note: some of this data may be moved to the Affected Environment when drafted]

Naturally Dark Zone (NDZ) In this zone there is an expectation of a natural lighting regimen and the absence of artificial light sources. No permanent light fixtures are allowed in this zone. Humans are provided the best opportunity for dark adaptation and experiencing of natural lightscapes. Nocturnal habitat is afforded maximum protection. Examples may include: wilderness areas, backcountry areas, sensitive wildlife habitats, beaches, stargazing sites, primitive campgrounds, and frontcountry areas with dispersed use and no facilities.

Park Lighting Zone 1 (PLZ1) In this zone, there is no expectation of artificial lighting. Permanent artificial light fixtures may exist in isolated areas and at certain times. There is a negligible impact to human dark adaptation and experiencing of natural lightscapes. There is a presumed minimal impact to nocturnal habitat. Activities in this zone are darkness oriented. Examples may include: developed campgrounds, restrooms in campgrounds or isolated areas, residence areas located adjacent to sensitive habitats, parking areas with limited nighttime use, high use trailheads, interpretive kiosks, backcountry ranger stations, entrance stations closed at night, outdoor amphitheaters, rustic cabins, storage yards, and administrative facilities with infrequently nighttime activity.

Park Lighting Zone 2 (PLZ2) In this zone, expectation for artificial lighting is low. Lighting is frequently non-uniform, discontinuous/used only in specific areas, and may often be limited to specific times. There is a minimal to moderate impact to human dark adaptation and the experiencing of natural lightscapes. There is a presumed moderate impact to nocturnal habitat. Activities in this zone may

occasionally require artificial light, though lighting is at a low relative brightness. Examples may include: high use entrance stations, maintenance yards, administrative facilities with moderate nighttime activity, visitor centers, residence areas removed from visitor use areas and sensitive habitat, pathways in intensive developed zones, piers, boat ramps, lodges, stores, restrooms (non-campground), outdoor dining areas, museums, and high asset buildings.

Park Lighting Zone 3 (PLZ3) In this zone there is an expectation for artificial lighting. Lighting is of low brightness relative to mundane lighting outside a park setting. Lighting is frequently continuous, but may also be non-uniform, discontinuous, or limited to specific times. There is a moderate to major impact to human dark adaptation and the experiencing of natural lightscapes. There is a presumed major impact to nocturnal habitat. Artificial light color rendition is frequently important. Activities in this zone regularly require artificial light, though lighting is at a low relative brightness. Most parks do not have the visitor use intensity or administrative use intensity to warrant this zone. Examples may include: busy entrance stations operated at night, areas of high vehicle-pedestrian conflict, busy equipment staging areas, marinas, highly congested areas, dams, and contact stations and offices within an urban setting.

The analysis of visitor use related to night skies considered the lighting sources that would be introduced or would continue to exist under each alternative. Potential new lighting sources were compared against the designated zones and if the lighting source would cause an area not to be in the desired zone, it was considered an impact and the level of impact determined. [note this will be moved when the Affected Environment Chapter is written but is included for context]

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[During 1/15 visit to the Seashore, Meghan C. mentioned that there could also be standards for temporary sources such as campfires, lanterns, etc. As these are developed, insert them into the methodology]

The following thresholds for evaluating impacts on visitor experience were defined:

Negligible: Visitors would likely be unaware of impacts associated with proposed changes. There would be no noticeable change in visitor use and experience or in any defined indicators of visitor satisfaction or behavior. Any permanent lighting would not change the existing lighting zone designation throughout the Seashore. Visitors would not have a noticeable change in the ability to experience night skies in the NDZ and PLZ1 zones, where there is not an expectation of artificial lighting.

Minor: Changes in visitor use or experience would be slight and detectable, but would not appreciably limit or enhance any critical characteristics of the visitor experience. Visitor satisfaction would remain stable. New introduced sources of permanent light may slightly alter the desired lighting zone designation of an area. Visitors would have a noticeable, but slight, change in the ability to experience night skies in the NDZ and PLZ1 zones, where there is not an expectation of artificial lighting, but this change would not impact their overall visitor experience.

Moderate: A few critical characteristics of the existing visitor experience would change, and the number of visitors engaging in a specified activity would be altered. Some visitors participating in that activity or visitor experience might be required to pursue their choices in other available local or regional areas. Visitor satisfaction at the park would begin to either decline or increase. New introduced sources of permanent light would create a noticeable change in the desired lighting zone designation of an area. Visitors would have a noticeable change in the ability to experience night skies in the NDZ and PLZ1 zones, where there is not an expectation of artificial lighting, and this change would impact their overall visitor experience.

Major: [Many critical characteristics of the existing visitor experience would change, and the number of visitors engaging in a specified activity would be substantially altered. Many visitors participating in an activity or visitor experience would not be able to pursue their choices in other local or regional areas. WHAT ABOUT BENEFICIAL IMPACTS?]

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Visitors would not be able to experience night skies in the NDZ and PLZ1 zones, where there is not an expectation of artificial lighting, and this change would impact their overall visitor experience.

Duration:

Short-term impacts would occur sporadically throughout a year, but would generally last no more than three weeks per year.

Long-term impacts would occur more than three weeks per year.

Study Area

The geographic study area for the visitor use and experience analysis includes the entire area within the Seashore boundary.

Cultural Resources (Archeology)

Guiding Regulations and Policies

Federal actions that have the potential to affect cultural resources are subject to a variety of laws and regulations. The National Historic Preservation Act of 1966, as amended (NHPA), is the principal legislative authority for managing cultural resources associated with NPS projects. Generally, Section 106 of the NHPA requires all federal agencies to consider the effects of their actions on cultural resources listed and/or determined eligible for listing in the National Register. Such resources are termed "historic

properties." Agreement on mitigation of adverse effects to historic properties is reached through consultation with the State Historic Preservation Officer; Tribal Historic Preservation Officer, if applicable; and, as required, the Advisory Council on Historic Preservation (Advisory Council). In addition, the NHPA requires that federal agencies take actions to avoid, minimize, and mitigate harm to historic properties that would be adversely affected by a federal undertaking. Other important laws and regulations designed to protect cultural resources include:

- Native American Graves Protection and Repatriation Act (NAGPRA), 1990
- American Indian Religious Freedom Act (AIRFA), 1978
- National Environmental Policy Act (NEPA), 1969
- Archeological Resources Protection Act (ARPA), 1979
- Executive Order #11593, Protection and Enhancement of the Cultural Environment, 1971

In addition, the NPS is charged with the protection and management of cultural resources in its custody. This is furthered through the implementation of *Director's Order #28: Cultural Resources Management Guidelines* (NPS 1998), NPS *Management Policies 2006*, and the 1995 Servicewide Programmatic Agreement with the Advisory Council and the National Conference of State Historic Preservation Officers. These documents charge NPS managers with avoiding, or minimizing to the greatest degree practicable, adverse impacts on park resources and values. Although the NPS has the discretion to allow certain impacts in parks, that discretion is limited by the statutory requirement that park resources and values remain unimpaired, unless a specific law directly provides otherwise.

Assumptions, Methodology, and Intensity Thresholds

Archeological resources consist of buried prehistoric and historic remains and artifacts significant to our study of prehistory and history. As these resources exist primarily in subsurface contexts, potential impacts to archeological resources are assessed according to the extent to which the proposed alternatives would promote access to these sites. At the Seashore, these sites include 63 documented shipwrecks, as well as many undocumented shipwrecks, and 26 known archeological sites.

The analyses of effects on cultural resources that are presented in this section respond to the requirements of both NEPA and Section 106 of the NHPA. In accordance with the Advisory Council's regulations implementing Section 106 (36 CFR 800, Protection of Historic Properties), impacts on cultural resources were identified and evaluated by (1) determining the Area of Potential Effects (APE); (2) identifying

cultural resources present in the APE that are either listed in or eligible to be listed in the National Register (i.e., historic properties); (3) applying the criteria of adverse effect to affected historic properties; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Analysis of possible impacts to archeological resources was based on a review of previous archeological studies and information, consideration of the proposed alternatives, and other information provided by the NPS. The analysis of potential impacts to archeological resources began with the identification and evaluation of archeological sites, including shipwrecks, in the study area. Information concerning site location, type, age and National Register eligibility provided an essential understanding of not only known sites, but, based on certain environmental factors, such the slope of ground, where potential undocumented archeological resources sites may be found. National Register listed and eligible archeological sites were then assessed for potential impacts from the proposed alternatives. Alternatives allowing or restricting ORV access to certain areas of the Seashore could impact the Seashore's archeological resources.

Under the implementing regulations for Section 106, a determination of either adverse effect or no adverse effect must be made for affected historic properties. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (for example, diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the proposed alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5). A determination of no adverse effect means there is either no effect or that the effect would not diminish, in any way, the characteristics of the cultural resource that qualify it for inclusion in the National Register. Cultural resources are non-renewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under Section 106 may be mitigated, the effect remains adverse.

CEQ regulations and *Director's Order #12, Conservation Planning, Environmental Impact Analysis, and Decision-Making* (NPS 2001), call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only

and not under the NHPA. The NPS guidance for evaluating impacts under NEPA (*Director's Order #12, Conservation Planning, Environmental Impact Analysis, and Decision-Making*) (NPS 2001) requires that impact assessment be scientific, accurate, and quantified to the extent possible. For cultural resources, it is seldom possible to measure impacts in quantifiable terms; therefore, impact thresholds must rely heavily on the professional judgment of resource experts.

For purposes of analyzing potential impacts to archaeological resources, the thresholds of change for the intensity of an impact are defined as follows:

Negligible: The impact on archeological sites is at the lowest level of detection, barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be *no adverse effect.*

Minor: The impact on archeological sites is measurable or perceptible, but it is slight and localized within a relatively small area of a site or group of sites. The impact does not affect the character-defining features of a listed or eligible National Register archeological site and would not have a permanent effect on the integrity of any archeological sites. For purposes of Section 106, the determination of effect would be *no adverse effect.*

Moderate: The impact is measurable and perceptible. The impact changes one or more character- defining feature(s) of an archeological resource but does not diminish the integrity of the resource to the extent that its National Register eligibility is jeopardized. For purposes of Section 106, the determination of effect would be *no adverse effect.*

Major: The impact on archeological sites is substantial, noticeable, and permanent. The impact is severe or is of exceptional benefit. For National Register-eligible or listed archeological sites, the impact changes one or more character-defining features(s) of an archeological resource, diminishing the integrity of the resource to the extent that it is no longer eligible for listing in the National Register. For purposes of Section 106, the determination of effect would be *adverse effect.* A major impact can also be one of exceptional benefit. For purposes of Section 106, the determination of beneficial effect would be *no adverse effect.*

Duration: All impacts to archeological resources are considered long-term impacts.

Study Area

The study area for the evaluation of potential effects to archeological resources includes the entire area within the Seashore boundary.

Socioeconomics

Guiding Regulations and Policies

The National Environmental Policy Act requires that economic and social impacts be analyzed when they are interrelated with natural or physical impacts. Economic impacts would potentially result from actions considered under the alternatives; therefore, they are addressed in this document.

Assumptions, Methodology, and Impact Thresholds

Socioeconomic impacts were estimated using a Monte Carlo approach to estimate change in visitation, direct changes in visitor and national welfare, changes in spending patterns, indirect changes in revenue and profitability of local businesses and multiplier effects (or ripple effects) of changes in spending on the local and regional economy.

Visitation under the no action alternative is uncertain and was estimated using a range of data and assumptions. The data used to calculate the official park visitation statistics was supplemented with data from new traffic counters, fly-over's conducted by the park, and other verifiable information on visitation at different times of the year and in different parts of the park. A range of assumptions about the number of visitors per car and the number of trips per visitor was used based on standard NPS assumptions and Cape Hatteras National Seashore specific studies. The result was a range of possible baseline visitation levels, rather than a point estimate.

Proposed management alternatives may directly impact visitors to the park and, through changes in the condition of park resources such as endangered species, may directly affect the general public. The management changes can affect both the number and timing of visits and the value of the experience. A range of assumptions about changes in visitation patterns was created based on the activities of current visitors, interviews with stakeholders and park employees, and visitation patterns in response to past episodes with similar characteristics. Monetary changes in welfare resulting from changes in the park management was estimated quantitatively using existing studies and qualitatively if there were no appropriate existing studies.[2]

[2] Ideally changes in visitation patterns and in visitor and public welfare, or consumer surplus are estimated by first using data collected from a survey that references the specific proposed alternatives discussed in this document and asks questions about visitation plans under the alternatives relative to baseline conditions. In the same way, questions about the specific alternatives would be used to calculate the monetary value of the changes in allowable activities, crowding, and park resources from the

To assess the range of possible impacts on local businesses and the local and regional economy, the visitation changes in response to each proposed alternative and data on current spending patterns was used to estimate the range of possible impacts on business revenue. A list of local businesses was created. Each business was classified as a small business or a large business based on Small Business Association criteria and data from interviews with the businesses and from publicly available sources. Welfare changes to businesses, or producer surplus, result from the incremental changes in visitation and visitor spending from baseline to conditions under the proposed alternative changes.

A Monte Carlo model was constructed that includes each piece of the quantitative analysis, from estimating baseline visitation through calculating changes in producer and consumer surplus. As discussed above, each input was characterized using a range and distribution. The Monte Carlo model draws the parameters for the model from these distributions to calculate the producer and consumer surplus impacts. The parameters in the model include the data points and assumptions discussed including baseline visitation, change in visitation, spending patterns, monetary change in per day or per trip consumer surplus, and revenue and profit streams for businesses. The model was run several thousand times to develop a range and distribution of possible net benefit outcomes each based on different combinations of parameter values.

Local and regional economic impacts (multiplier or ripple effects) can result from changes in the local economy caused by the change from baseline conditions to conditions under the proposed alternatives. The regional economic impacts refer to impacts caused when people spend money at local businesses which in turn pay some part of that money out to employees and suppliers, who in turn spend some of that money at other businesses, etc. These impacts were estimated using IMPLAN, a software program developed for input-output analysis. The estimated change in spending for each industry category resulting from a proposed alternative was used as input to the IMPLAN model.

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proposed alternative relative to baseline conditions. Such a survey was not feasible for this project due to time and funding constraints. Change if we're able to do a targeted study.

The following thresholds for evaluating socioeconomic impacts were defined:

Negligible: No impacts would occur or the impacts to socioeconomic conditions would be below the level of detection.

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Minor: The impacts to socioeconomic conditions would be small, but detectable and localized.

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In particular, a business within a town or village or commercial fishermen within the region could be affected in a perceptible way, but no impacts would be perceptible at the regional level.

Impacts on visitor consumer surplus would be confined to small, but perceptible changes in consumer surplus for a small number of visitors who use the areas affected by the alternative. Consumer surplus related to the public's value of the park resources would be small and potentially not perceptible.

Local impacts would be limited.

Moderate: The impacts to socioeconomic conditions would be readily apparent at the localized level and the possibility of small, but detectable impacts at a regional level (beyond Dare and Hyde counties) would exist.

In particular, impacts would result in changes to socioeconomic conditions on a local scale affecting many businesses and could include changes to the operation and/or profitability of local businesses and/or commercial fishermen. Businesses outside Dare and Hyde counties could be affected in a perceptible way.

Impacts on visitor consumer surplus would be readily apparent and a moderate number of visitors in the area would be affected by the alternative and possibly a small number of visitors in other areas of the park. Consumer surplus related to the public's value of the park resources across the United States would be perceptible.

Impacts at the regional level would be minor.

Major: The impacts to socioeconomic conditions would be readily apparent on a localized level and at the regional level (beyond Dare and Hyde counties).

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In particular, impacts would cause substantial changes to socioeconomic conditions in the region of influence both in and outside Dare and Hyde counties, including potential large scale changes to the operation and/or profitability of multiple businesses and/or commercial fishermen.

Impacts on visitor consumer surplus would be substantial and involve a substantial fraction of visitors in the area affected by the alternative and other parts of the park. Consumer surplus related to the public's value of the park resources across the United States would be substantial.

Impacts at the regional level would be moderate.

Duration:

Short-term impacts would occur sporadically throughout a year, but would generally last between no more than three weeks per year, and/or *short-term* impacts would last for one to two years.

Long-term impacts would occur more than three weeks per year, and/or *long-term* impacts would persist for more than two years.

Study Area

The study area for the evaluation of potential socioeconomic effects includes the entire area within the Seashore boundary, the communities within the Seashore, and Dare and Hyde Counties.

Seashore Management and Operations

Guiding Regulations and Policies

Direction for management and operations at Cape Hatteras National Seashore is set forth in the Seashore's enabling legislation, *General Management Plan* (NPS 1984), *Strategic Plan* (NPS 2000a), and the *Superintendent's Compendium* (NPS 2006b). Specifically related to the long-term ORV Management Plan/EIS, the *General Management Plan* includes the following specific management objectives for the Interpretation and Resource Management Divisions (NPS 1984):

- Foster awareness, appreciation, and understanding of the natural and cultural resources of the Outer Banks and their interrelationships;
- Make visitors aware of the hazards associated with living and recreating in a coastal environment;
- Encourage visitors to safely pursue only those recreational activities that are compatible with and not detrimental to the natural and cultural resources;
- Provide, through an active education program, for the nonconsumptive use of the Seashore as an outdoor classroom by educational organizations;
- Strengthen within visitors and park employees an environmental ethic;
- Promote understanding of and support for NPS goals and policies;
- Preserve the dynamic physiography and characteristic ecological communities of the Outer Banks.

The *General Management Plan* also states that the Seashore will review and update as necessary an existing action plan regulating ORV use to reduce visitor conflicts and to protect dunes, vegetation, wildlife, and cultural resources. The *General Management Plan* also refers to an action plan to designate ORV routes as well as sensitive resource areas periodically closed to ORV use.

The *Strategic Plan* identified the following goals in relation to the long-term ORV plan/EIS (NPS 2000a). Although the plan aimed to achieve these goals by the year 2000, they are still applicable.

- Identify Seashore populations of threatened and endangered species that have stable populations.
- Ensure Seashore visitor satisfaction with the appropriate park facilities, services, and recreational opportunities.
- Increase the number of volunteer hours.
- Increase the amount of receipts from Seashore entrance, recreation, and other fees.

The *Superintendent's Compendium: Closures, Permit Requirements, and Other Restrictions* (NPS 2006b) sets forth the closure and public use limits that the Seashore staff are required to enforce, thus determining levels of park operations. For the purposes of this plan/EIS, applicable sections include:

- Section 1.5: Closure and public use limits;
- Section 1.6: Permits;
- Section 2.2: Wildlife protection;
- Section 2.3: Fishing;
- Section 2.13: Fires;
- Section 2.15: Pets;
- Section 4.2: State law applicable (regarding vehicles and traffic safety);
- Section 4.10: Travel on roads and designated routes; and
- Section 4.21: Speed Limits.

Assumptions, Methodology, and Impact Thresholds

Seashore management and operations, for the purpose of this analysis, refers to the quality and effectiveness of Seashore staff to maintain and administer Seashore resources and provide for an effective visitor experience. This includes an analysis of the projected need for staff time and materials in relation to ORV management under each of the alternatives, as well as the various funding mechanisms available

to implement these alternatives. The analysis also considered trade-offs for staff time or the budgetary needs required to accomplish the proposed alternatives and discusses each alternative in terms of its impacts to the Interpretation, Resource Management, Maintenance, and Law Enforcement Divisions at the Seashore. Seashore staff from each of the divisions were members of the planning team, and were consulted regarding expected staffing and funding needs under each alternative. The impact analysis is based on the current description of park operations presented in the "Affected Environment" chapter of this document.

The following thresholds for evaluating impacts on Seashore management and operations were defined and applied to beneficial and adverse impacts:

Negligible: Seashore or agency operations would not be impacted or the impact would not have a noticeable or measurable impact on Seashore or agency operations.

Minor: Impacts would be noticeable and would result in a measurable, but small, change in Seashore or agency operations. Any required changes in Seashore staffing and funding could be accommodated within normal budget cycles and expected annual funding without appreciably affecting other operations within the Seashore. Current levels of funding and staffing would not be reduced or increased, but priorities may need to be changed.

Moderate: Impacts would be readily apparent and would result in a substantial change in Seashore or agency operations that would be noticeable to staff and the public. Required changes in Seashore staffing and/or funding could not be accommodated within expected annual funding and would measurably affect other operations within the Seashore by shifting staff and funding levels between operational divisions. Increases or decreases in staff and funding would be needed or other park operations would have to be reduced and/or priorities changed.

Major: Impacts would be readily apparent and would result in a substantial change in Seashore operations that would be noticeable to staff and the public and would be markedly different from existing operations. These changes in Seashore staffing and/or funding could not be accommodated by expected annual funding and would require the Seashore to readdress its ability to sustain current Seashore operations. Increases or decreases in staff and funding would be needed and/or other park programs would have to be substantially changed or eliminated.

Duration:

Short-term effects would be 1 fiscal year.

Long-term effects would continue beyond 1 fiscal year indefinitely into the future.

Study Area

The study area for Seashore management and operations is the units of the Outer Banks Group: Cape Hatteras National Seashore, Wright Brothers National Memorial, and Fort Raleigh National Historic Site. All units were considered because of shared staff and funding sources.

References

Council on Environmental Quality (CEQ)

1997 *Guidance Regarding Consideration of Global Climatic Change in Environmental Documents Prepared Pursuant to the National Environmental Policy Act.* Washington,DC.

Manomet Center for Conservation Sciences

2001 *United States Shorebird Conservation Plan 2001.* Second Edition. Brown, S., C. Hickey, B. Harrington, and R Gill, eds. Manomet Center for Conservation Sciences, Manomet, MA. May 2001. Available at <http://www.fws.gov/shorebirdplan/USShorebird.htm>.

National Park Service

n.d. *Natural Resource Management Reference Manual #77.* Washington DC. Available at <http://www.nature.nps.gov/rm77/>.

1937 [add citation from p. 28]

1984 *Cape Hatteras National Seashore General Management Plan/Development Concept Plan Amended Environmental Assessment.* January.

1991 Director's Order #77: NPS Natural Resource Management Guidelines. Available at http://www.nature.nps.gov/Rm77.

1997 *Cape Hatteras National Seashore Resource Management Plan.* December.

1998 *Director's Order #28: Cultural Resources Management Guidelines.* Washington, DC. Available at < http://www.nps.gov/policy/DOrders/DOrder28.html>.

2000a *Cape Hatteras National Seashore Strategic Plan.*

2000b *Director's Order #47: Soundscape Preservation and Noise Management.* Washington, DC. Available at < http://www.nps.gov/refdesk/DOrders/DOrder47.html>.

2001 *Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-making, and Handbook.* Washington, DC. Available at <http://www.nps.gov/policy/ DOrders/DOrder12.html> and <http://www.nps.gov/policy/DOrders/RM12.pdf>.

2002 *Director's Order #77-1: Wetland Protection*, and accompanying procedural manual. Washington, DC. Available at <http://www.nps.gov/policy/DOrders/DO77-1-Reissue.htm>.

2003 *Director's Order #77-2: Floodplain Protection*, and accompanying procedural manual. Washington, DC. Available at <http://www.nps.gov/policy/DOrders/DO77-2--Floodplains.pdf>.

2006a NPS *Management Policies 2006*. Washington, DC. Available at <http://www.nps.gov>.

2006b *Cape Hatteras National Seashore Superintendent's Compendium*. May.

2006c NPS Nature & Science: Air Resources Division – Permits: AIRS State Map North Carolina. Available at <http://www2.nature.nps.gov/air/Permits/ARIS/states/nc.cfm>.

2007 Cape Hatteras National Seashore Off-Road Vehicle Management Plan and Environmental Impact Statement Final Draft Updated Internal Scoping Report. July 2007.

U.S. Fish and Wildlife Service (USFWS)

2007 "Status of the Red Knot in the Western Hemisphere." July. Available at: http://www.fws.gov/northeast/endangered/Red%20Knot%20Assessment%20May%202007.standard.pdf

Personal Communication

National Park Service

2008 Carfioli, Meghan, Cape Hatteras National Seashore, personal communication by email to Lori Fox, The Louis Berger Group Inc., regarding non-native species at the Seashore and special use permit language pertaining to non-native species. February 8, 2008.

2008 Green, Cherry, and Kevin Noon, Cape Hatteras National Seashore, personal communication by phone to Nancy VanDyke and Lori Fox, The Louis Berger Group, Inc., regarding wetland impacts and issues. February 6, 2008.

2008 Martinez, Norah, Chief of Law Enforcement, Cape Hatteras National Seashore, personal communication by fax to Lori Fox, The Louis Berger Group, Inc. Provided a list of the Seashores cultural resources including shipwrecks, cultural landscapes, archeology sites, and historic structures. January 23, 2008.

2008 Stover, Doug, Cape Hatteras National Seashore, personal communication by email to Lori Fox, The Louis Berger Group, Inc., regarding the number of submerged vehicles annually at the Seashore and surface runoff. January 30, 2008.

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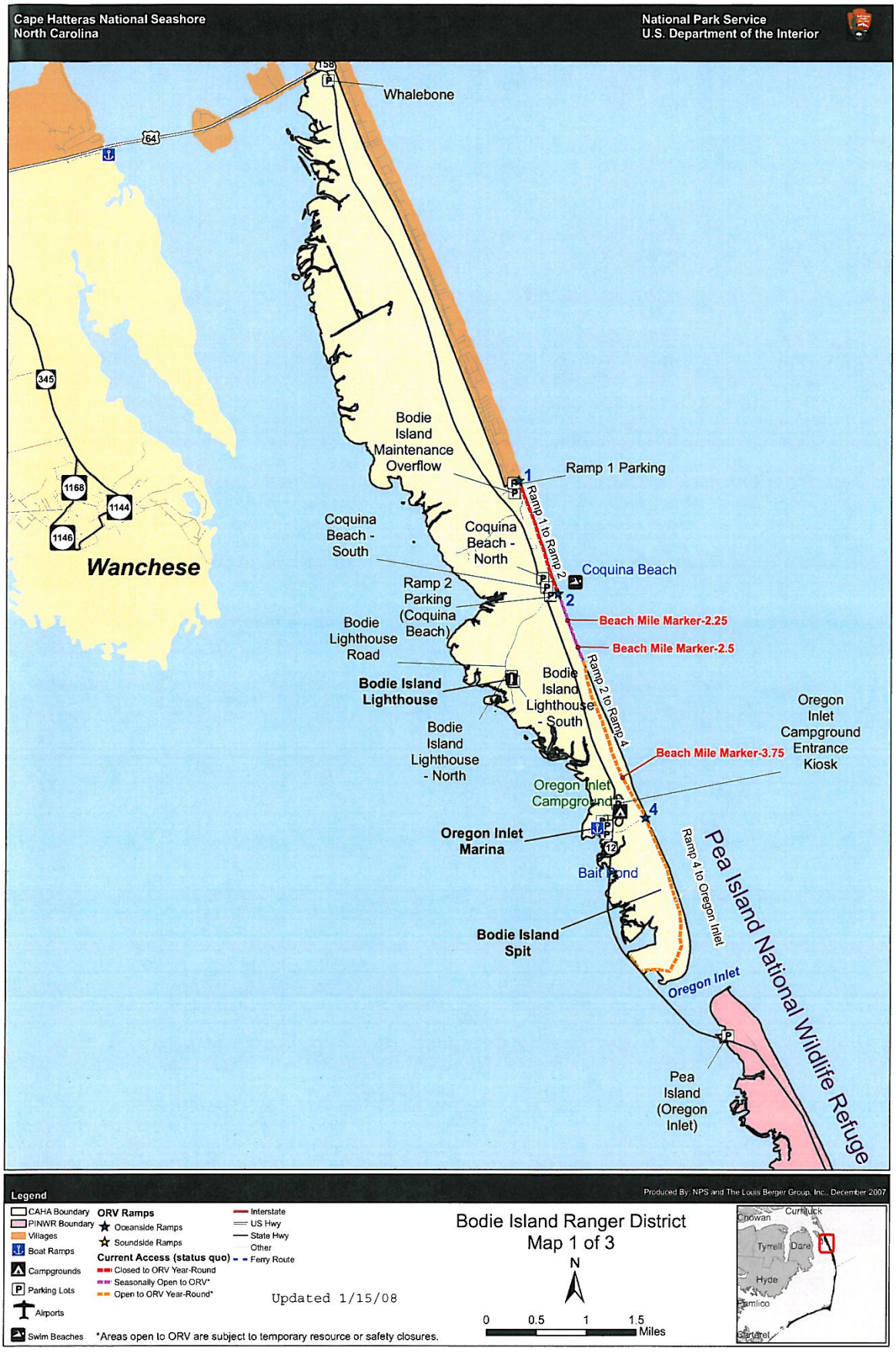
Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Whalebone
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64
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Wanchese
Bodie Island Maintenance Overflow
Ramp 1 Parking
1
Ramp 1 to Ramp 2
Coquina Beach - South
Coquina Beach - North
Coquina Beach
Ramp 2 Parking (Coquina Beach)
2
Bodie Lighthouse Road
Beach Mile Marker-2.25
Beach Mile Marker-2.5
Bodie Island Lighthouse
Bodie Island Lighthouse - South
Ramp 2 to Ramp 4
Bodie Island Lighthouse - North
Oregon Inlet Campground Entrance Kiosk
Beach Mile Marker-3.75
Oregon Inlet Campground
4
Oregon Inlet Marina
12
Bait Pond
Ramp 4 to Oregon Inlet
Pea Island National Wildlife Refuge
Bodie Island Spit
Oregon Inlet
Pea Island (Oregon Inlet)
Legend
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
Soundside Ramps
Current Access (status quo)
Closed to ORV Year-Round
Seasonally Open to ORV*
Open to ORV Year-Round*
Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Produced By: NPS and The Louis Berger Group, Inc., December 2007
Bodie Island Ranger District
Map 1 of 3
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Miles
Currituck
Chowan
Tyrrell
Dare
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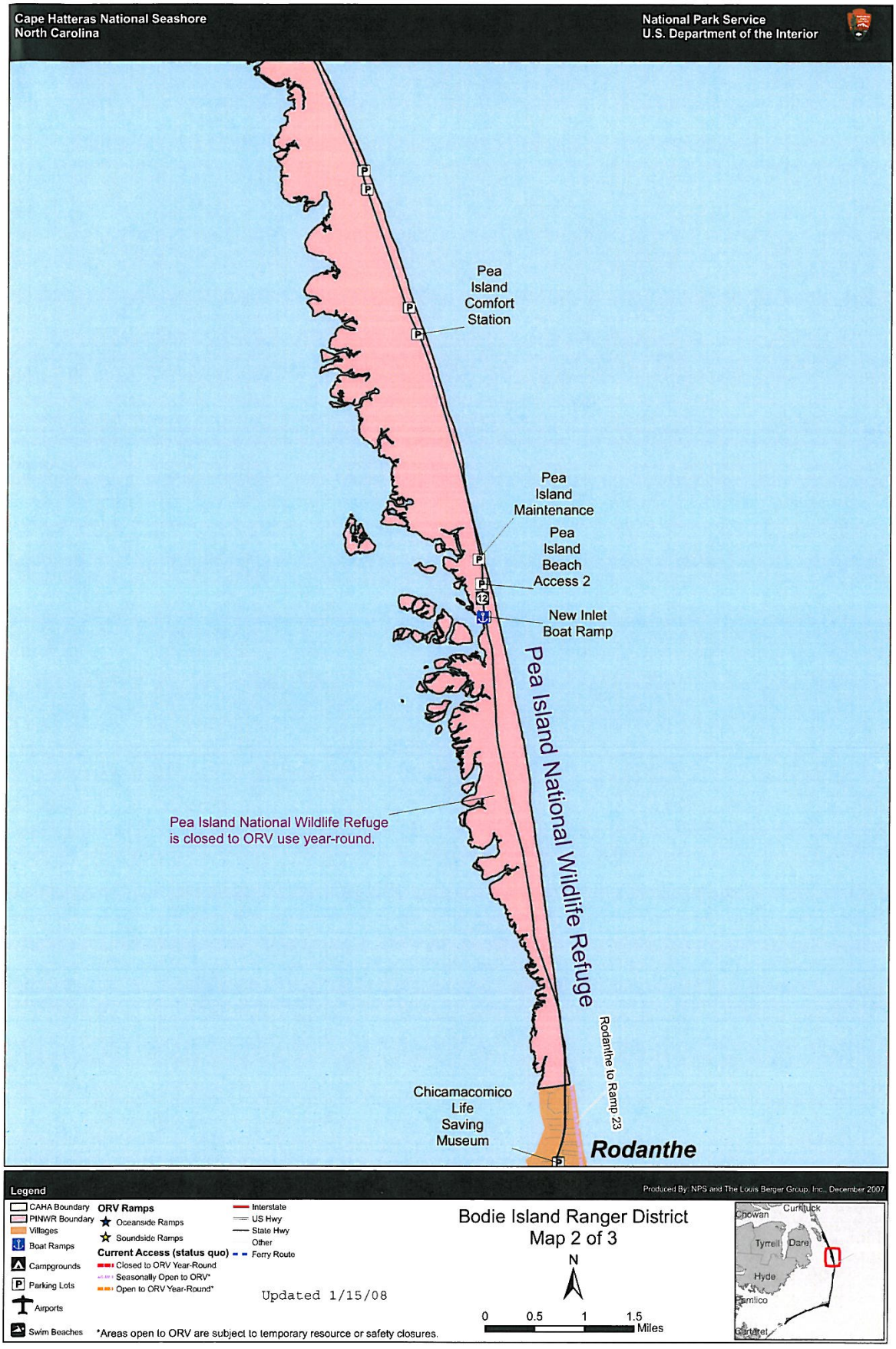
Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Pea Island Comfort Station
Pea Island Maintenance
Pea Island Beach Access 2
New Inlet Boat Ramp
Pea Island National Wildlife Refuge
Pea Island National Wildlife Refuge is closed to ORV use year-round.
Rodanthe to Ramp 23
Chicamacomico Life Saving Museum
Rodanthe
Legend
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
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Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Produced By: NPS and The Louis Berger Group, Inc., December 2007
Bodie Island Ranger District
Map 2 of 3
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Miles
Currituck
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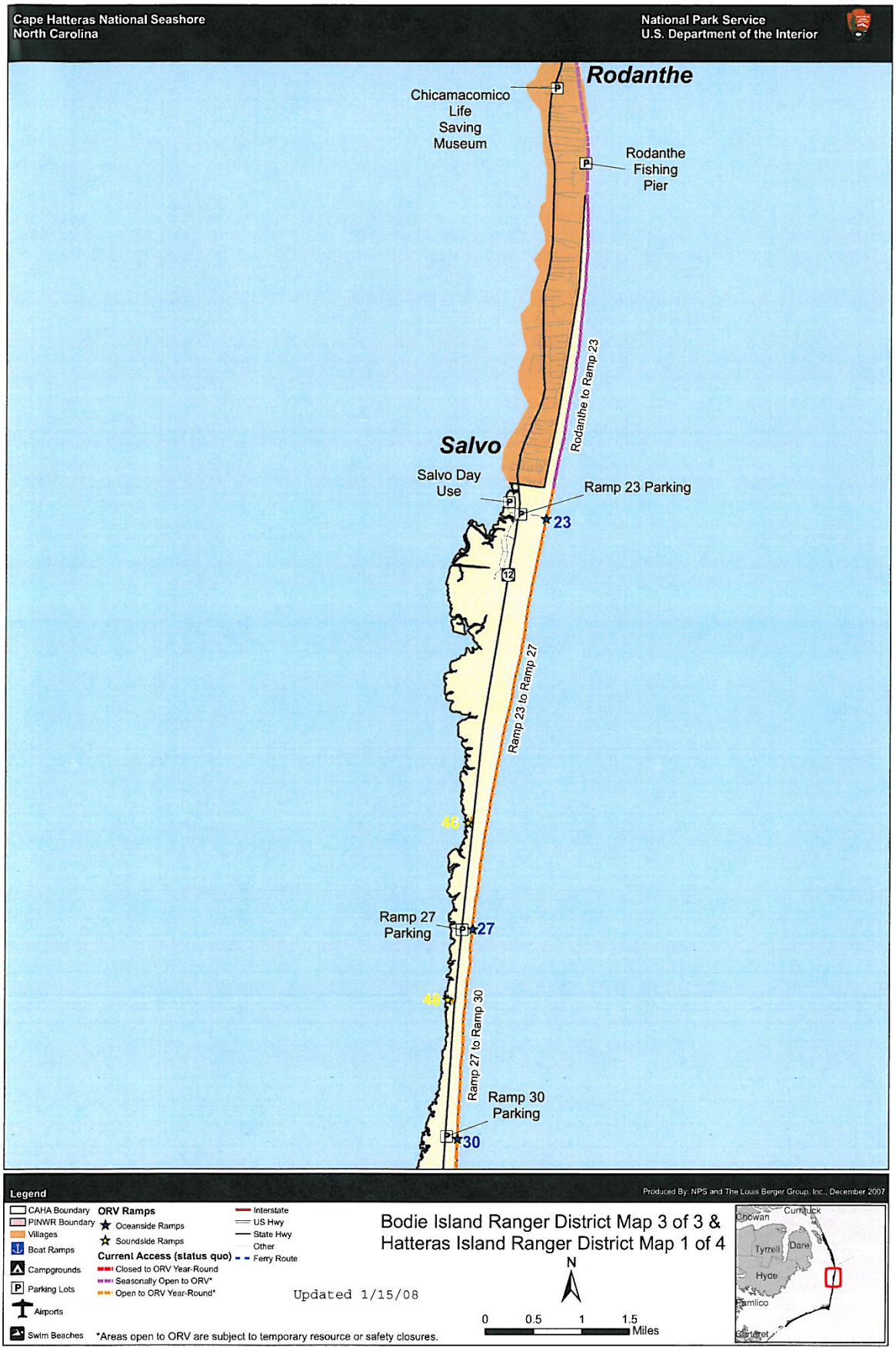
Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Rodanthe
Chicamacomico Life Saving Museum
Rodanthe Fishing Pier
Rodanthe to Ramp 23
Salvo
Salvo Day Use
Ramp 23 Parking
23
12
Ramp 23 to Ramp 27
46
Ramp 27 Parking
27
48
Ramp 27 to Ramp 30
Ramp 30 Parking
30
Legend
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
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Updated 1/15/08
Produced By: NPS and The Louis Berger Group, Inc., December 2007
Bodie Island Ranger District Map 3 of 3 &
Hatteras Island Ranger District Map 1 of 4
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Carteret

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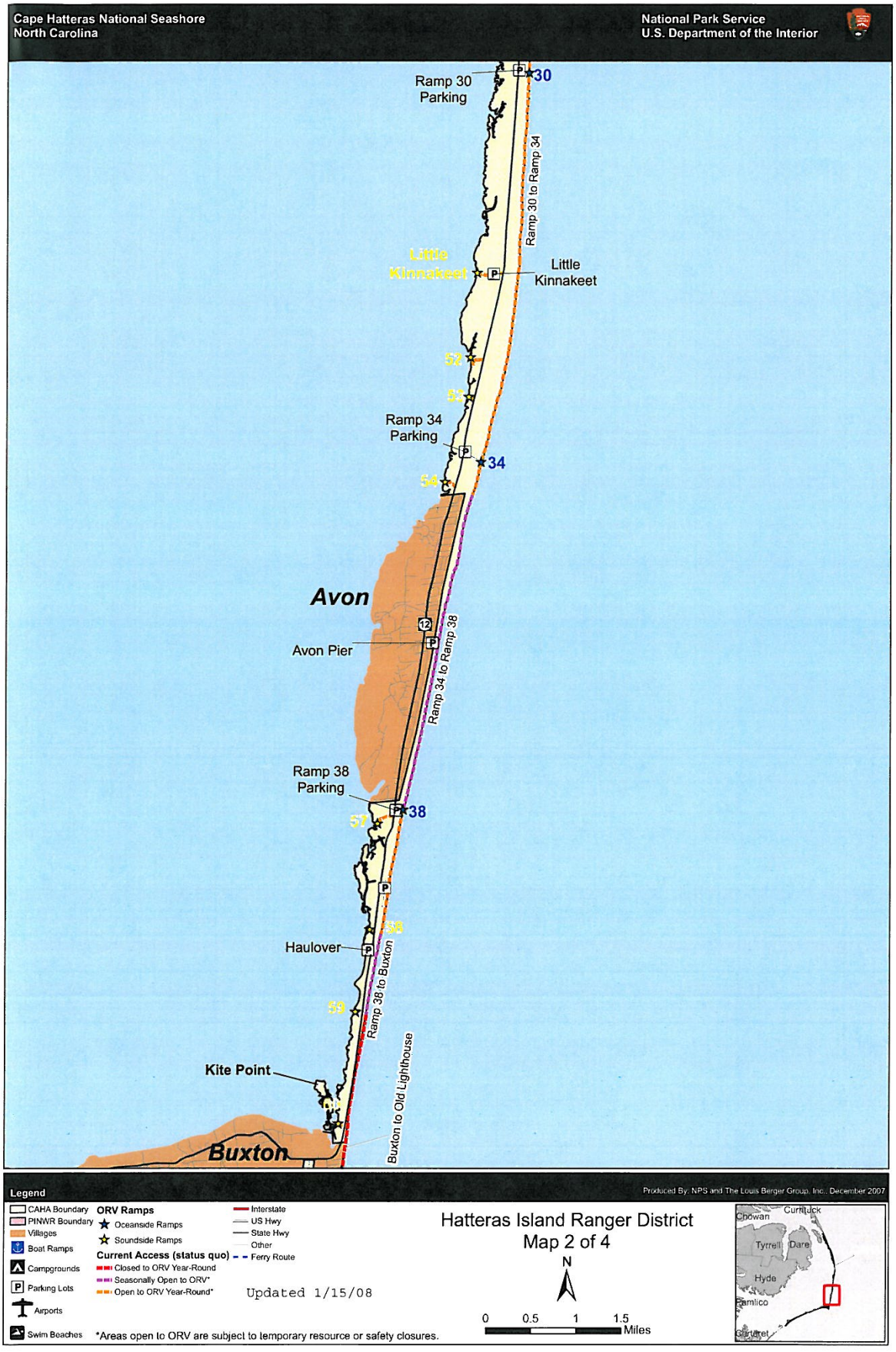
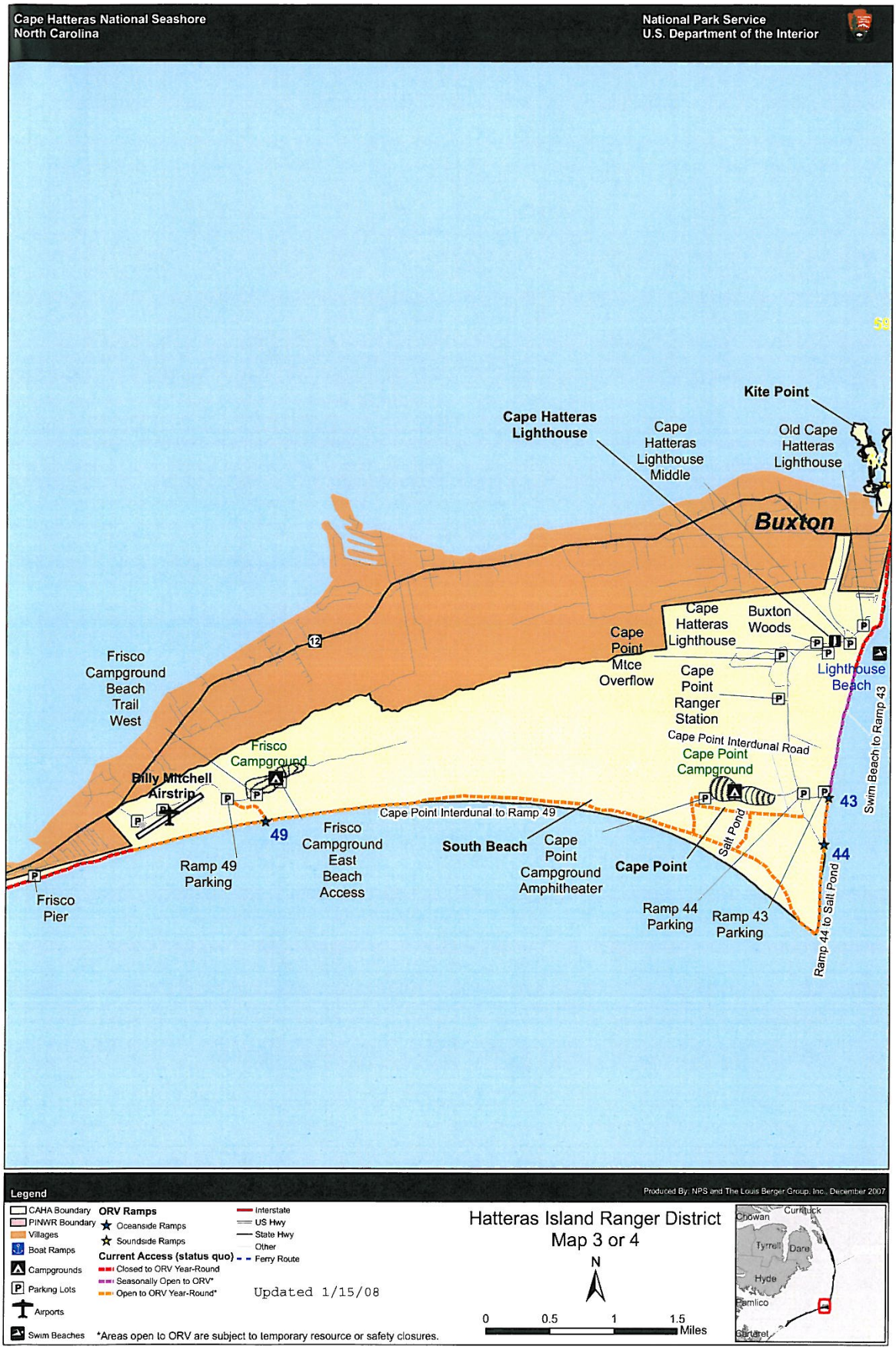
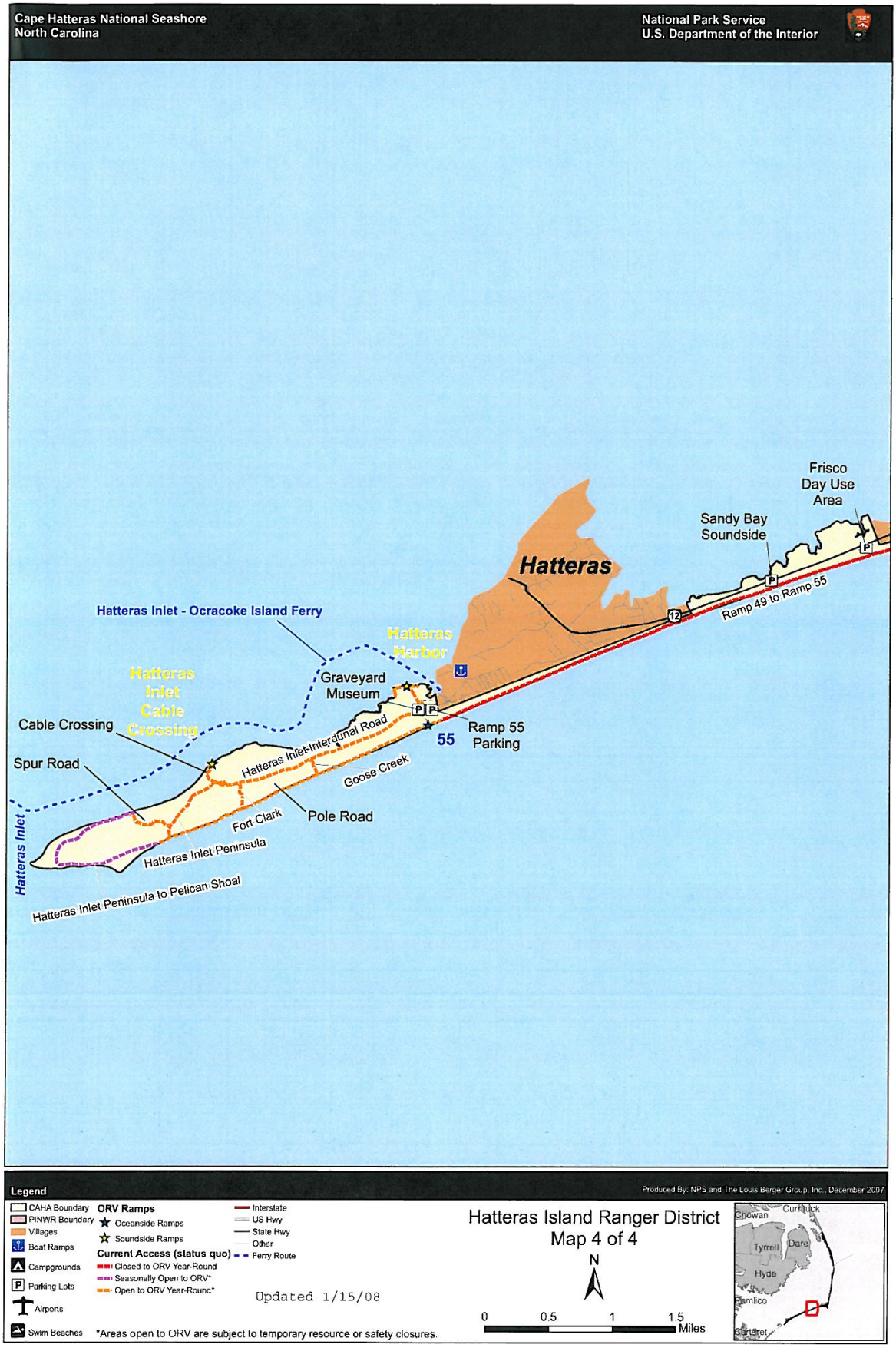
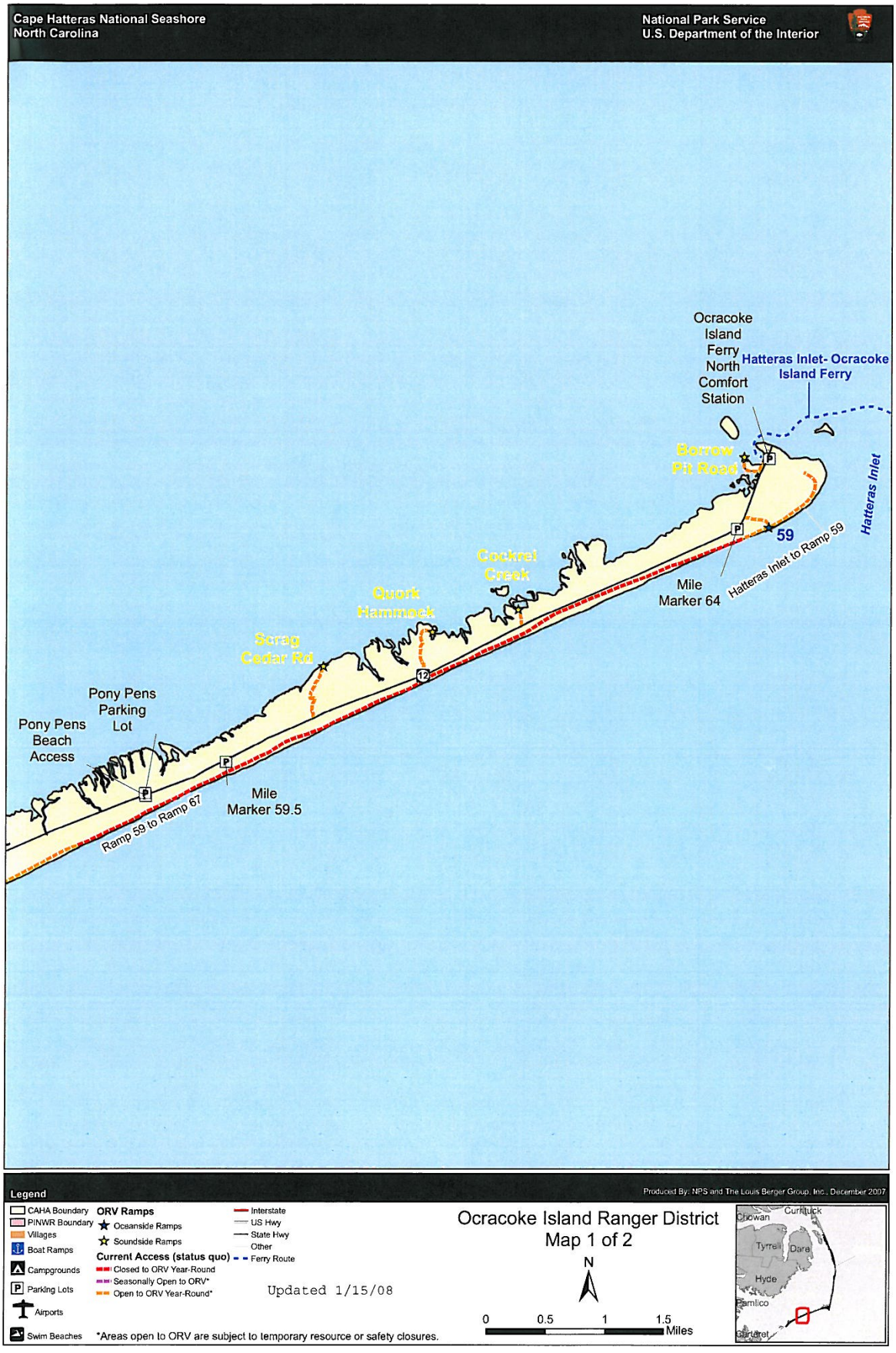

Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Ramp 30 Parking
30
Ramp 30 to Ramp 34
Little Kinnakeet
Little Kinnakeet
52
53
Ramp 34 Parking
34
54
Avon
Avon Pier
Ramp 34 to Ramp 38
Ramp 38 Parking
38
57
58
Haulover
59
Ramp 38 to Buxton
Kite Point
Buxton to Old Lighthouse
Buxton
Legend
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
Soundside Ramps
Current Access (status quo)
Closed to ORV Year-Round
Seasonally Open to ORV*
Open to ORV Year-Round*
Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Produced By: NPS and The Louis Berger Group, Inc.: December 2007
Hatteras Island Ranger District
Map 2 of 4
N
0 0.5 1 1.5
Miles
Currituck
Chowan
Tyrrell
Dare
Hyde
Pamlico
Carteret

0020824


Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Kite Point
Cape Hatteras Lighthouse
Cape Hatteras Lighthouse Middle
Old Cape Hatteras Lighthouse
Buxton
Cape Hatteras Lighthouse
Buxton Woods
Cape Point Mtce Overflow
Lighthouse Beach
Cape Point Ranger Station
Swim Beach to Ramp 43
Frisco Campground Beach Trail West
Cape Point Interdunal Road
Cape Point Campground
Frisco Campground
Billy Mitchell Airstrip
Cape Point Interdunal to Ramp 49
43
49
Frisco Campground East Beach Access
South Beach
Cape Point Campground Amphitheater
Cape Point
Salt Pond
44
Ramp 49 Parking
Frisco Pier
Ramp 44 Parking
Ramp 43 Parking
Ramp 44 to Salt Pond
Legend
Produced By: NPS and The Louis Berger Group, Inc., December 2007
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
Soundside Ramps
Current Access (status quo)
Closed to ORV Year-Round
Seasonally Open to ORV*
Open to ORV Year-Round*
Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Hatteras Island Ranger District
Map 3 or 4
N
0
0.5
1
1.5
Miles
Currituck
Chowan
Tyrrell
Dare
Hyde
Pamlico
Carteret

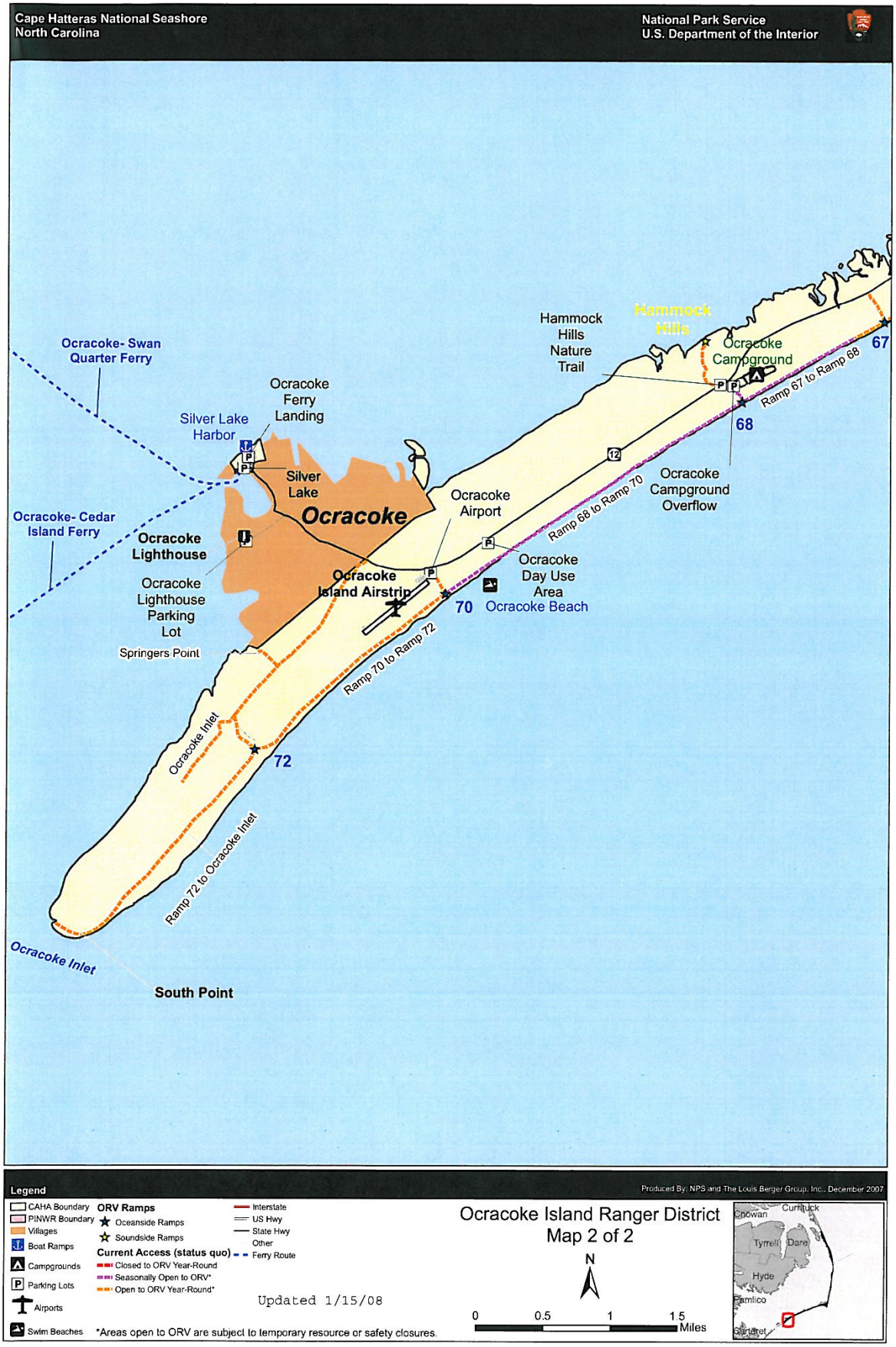

Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Frisco
Day Use
Area
Sandy Bay
Soundside
Hatteras
Hatteras Inlet - Ocracoke Island Ferry
Hatteras
Harbor
Ramp 49 to Ramp 55
Hatteras
Inlet
Cable
Crossing
Graveyard
Museum
Cable Crossing
Hatteras Inlet Interdunal Road
55
Ramp 55
Parking
Spur Road
Goose Creek
Fort Clark
Pole Road
Hatteras Inlet
Hatteras Inlet Peninsula
Hatteras Inlet Peninsula to Pelican Shoal
Legend
Produced By: NPS and The Louis Berger Group, Inc., December 2007
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
Soundside Ramps
Current Access (status quo)
Closed to ORV Year-Round
Seasonally Open to ORV*
Open to ORV Year-Round*
Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Hatteras Island Ranger District
Map 4 of 4
N
0
0.5
1
1.5
Miles
Currituck
Chowan
Tyrrell
Dare
Hyde
Pamlico
Carteret

0020828


Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Ocracoke Island Ferry North Comfort Station
Hatteras Inlet- Ocracoke Island Ferry
Borrow Pit Road
Hatteras Inlet
59
Hatteras Inlet to Ramp 59
Mile Marker 64
Cockrel Creek
Quork Hammock
Scrag Cedar Rd
12
Pony Pens Parking Lot
Pony Pens Beach Access
Mile Marker 59.5
Ramp 59 to Ramp 67
Legend
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
Soundside Ramps
Current Access (status quo)
Closed to ORV Year-Round
Seasonally Open to ORV*
Open to ORV Year-Round*
Interstate
US Hwy
State Hwy
Other
Ferry Route
Updated 1/15/08
*Areas open to ORV are subject to temporary resource or safety closures.
Produced By: NPS and The Louis Berger Group, Inc., December 2007
Ocracoke Island Ranger District
Map 1 of 2
N
0 0.5 1 1.5 Miles
Currituck
Chowan
Tyrrell
Dare
Hyde
Pamlico
Carteret

0020830

0020831


Cape Hatteras National Seashore
North Carolina
National Park Service
U.S. Department of the Interior
Ocracoke- Swan Quarter Ferry
Ocracoke Ferry Landing
Silver Lake Harbor
Silver Lake
Ocracoke
Ocracoke- Cedar Island Ferry
Ocracoke Lighthouse
Ocracoke Lighthouse Parking Lot
Springers Point
Ocracoke Island Airstrip
Ocracoke Airport
Hammock Hills Nature Trail
Hammock Hills
Ocracoke Campground
Ocracoke Campground Overflow
Ramp 67 to Ramp 68
Ramp 68 to Ramp 70
Ramp 70 to Ramp 72
Ramp 72 to Ocracoke Inlet
67
68
70
72
Ocracoke Day Use Area
Ocracoke Beach
Ocracoke Inlet
South Point
Legend
Produced By: NPS and The Louis Berger Group, Inc., December 2007
CAHA Boundary
PINWR Boundary
Villages
Boat Ramps
Campgrounds
Parking Lots
Airports
Swim Beaches
ORV Ramps
Oceanside Ramps
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US Hwy
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Ferry Route
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Ocracoke Island Ranger District
Map 2 of 2
N
0
0.5
1
1.5
Miles
Chowan
Currituck
Tyrrell
Dare
Hyde
Pamlico
Carteret