Impacts of Alternative 1–No-Action on Diamondback Terrapin. The diamondback terrapin has been documented by NPS biologists west of the Proposed Action Area on the west side of NC 12. Therefore, Alternative 1–No-Action may permanently affect some existing back-barrier habitats preferred by the diamondback terrapin, as erosion would continue under this alternative and increase the likelihood of overwash events or a breach in the future. While both overwash and a breach would be unpredictable in time and duration, a breach would remove back-barrier dune and marsh areas the terrapin may currently use for foraging, nesting, and hibernation. Overwash events would have the potential to bury either active or dormant individuals or preclude use of existing foraging or habitat. The duration of those effects would depend on whether or not the breach closed naturally or remained open and was temporarily bridged. Disturbance and disruptions from erosion and overwash would continue to affect the terrapin and its habitats. After some overwash events, some short periods of decreased traffic may occur before NCDOT could clear NC 12, or decreased traffic may occur over longer periods if NCDOT needs to conduct more extensive repairs to NC 12, or in the event of a breach. Post-storm maintenance activities conducted by NCDOT (road scraping and dune building) may have adverse impact to a terrapin if it attempted to cross the road during these activities. These impacts would be considered short-term and minor to moderate.

Impacts of Alternative 2–Winter Construction on Diamondback Terrapin. Under Alternative 2–Winter Construction, the diamondback terrapin would not likely be affected, as no suitable habitat exists for it within the Proposed Action Area. However, there is a chance that a project-associated support vehicle could encounter a terrapin as it crossed NC 12, but it would not likely be found on the ocean side of beach dunes where much of the project activities would occur, regardless of season. In addition, the species would be less active during the winter, which would also reduce the likelihood of an encounter with project vehicles on NC 12 during construction.

Impacts of Alternative 3–Summer Construction on Diamondback Terrapin. While this terrapin is not found on the ocean side of dunes in the summer, a project-associated vehicle en route from one beach access point to another could encounter a female diamondback terrapin crossing NC 12 on her way to or from the back barrier to a back-dune nest area. Although existing traffic is heaviest in the summer, which raises the potential for an encounter with any vehicle, the odds are somewhat remote that it would be a project-associated vehicle. Should an encounter occur, this type of impact would be considered short-term and moderate. Existing habitats for this terrapin west of the dune crest to the edge of Pamlico Sound would have no adverse impacts during summer construction and would have long-term beneficial impacts from a wider beach in front of the dunes.

Cumulative Impacts on Diamondback Terrapin. Please refer to the Cumulative Impacts on EFH/HAPC section of this document for a description of past, present, and reasonable foreseeable future actions (pg 114). Traffic is not expected to increase as a direct result of the any of the three alternatives; however, traffic on NC 12 in general may increase as it has historically and would likely continue with or without the project. An increase in traffic raises the likelihood that a diamondback terrapin would be killed as it crossed NC 12 between habitats. Alternative 2–Winter Construction would provide ~3 years of storm-surge protection to the preferred habitats of the diamondback terrapin. Alternative 3–Summer Construction would provide ~10 years of storm-surge protection. Habitat loss or degradation due to human activities associated with recreation or development elsewhere in Dare County would continue.

Conclusion – Diamondback Terrapin. Any of the three alternatives would not adversely impact the diamondback terrapin. However, Alternative 2–Winter Construction and Alternative 3–Summer Construction would have the potential beneficial impact of a wider beach better protected from storm surge and overwash. The incremental adverse impacts to diamond terrapin of any of the three evaluated

alternatives are imperceptible when added to the cumulative effects of the three proposed northern Outer Banks nourishment projects, replacement of the Bonner Bridge, periodic Oregon Inlet dredging, and continued development in Dare County..

Impacts of Alternative 1–No-Action on Seabeach Knotweed. Alternative 1–No-Action would allow erosion to continue which could increase habitat for the seabeach knotweed, as more frequent overwash events may disperse dormant seeds into new suitable habitats formed by the overwash deposits. The type of impact would be beneficial, indirect, site-specific, and short term to long term. However, should the species colonize such a deposit, continued erosion and other overwash events may bury or eliminate the pioneering plants which would be a short-term, adverse, moderate impact.

Impacts of Alternative 2 and Alternative 3 on Seabeach Knotweed. Under either Alternative 2–Winter Construction or Alternative 3–Summer Construction, no adverse effects are likely to occur as there is currently no known occurrence of the seabeach knotweed, and it has not historically been found in the Proposed Action Area. Occurrences of the seabeach knotweed has been documented south of the former location of the Cape Hatteras Lighthouse; however, not within the Proposed Action Area. The species was last documented during monthly visits between 1989 and October 1995 at the beach south of Buxton light (pre-1995 location) with no other details as to density of occurrence or more specific distances (NCNHP, Allison Weakley, Conservation Planner, pers. comm. 10 August 2015).

Since Park Service biologists conduct surveys for this plant each year along the Seashore, they would notify the Applicant and/or the nourishment contractor if any plants are found. Alternative 2–Winter Construction and Alternative 3–Summer Construction may have beneficial effects on the seabeach knotweed because the project is designed to widen the beach. As the nourished beach equilibrates over time to the additional sediment in the system, Aeolian processes may also enhance the species' preferred habitat between the wrack line and dune face. Therefore, the project under either alternative has the potential to provide more habitats for this pioneering species and is not likely to threaten its continued existence.

Cumulative Impacts on Seabeach Knotweed. Please refer to the Cumulative Impacts on EFH/HAPC section of this document for a description of past, present, and reasonable foreseeable future actions (pg 114). Habitat loss or degradation due to human activities associated with recreation or development elsewhere in Dare County would continue.

Conclusion – Seabeach Knotweed. While each of the three alternatives would have short-term minor effects on potential habitat for seabeach knotweed, only Alternative 1 has the potential for moderate effect. Each alternative has the potential for beneficial effect which differs in time (temporary overwash habitats with Alternative 1–No-Action, a wider more stable beach between the wrack line and dune toe for ~3 years with Alternative 2–Winter Construction, and ~10 years with Alternative 3–Summer Construction. Considering the lack of historic occurrence in the Proposed Action Area in conjunction with surveys performed prior to construction, it would be unlikely for seabeach knotweed to be adversely impacted by any of the three evaluated alternatives. The incremental adverse impacts to seabeach knotweed of any of the three evaluated alternatives are imperceptible when added to the cumulative effects of the three proposed northern Outer Banks nourishment projects, replacement of the Bonner Bridge, periodic Oregon Inlet dredging, and continued development in Dare County.

Impacts on State-Designated Natural Habitats

No state-designated natural areas or natural communities exist within the action area. While the North Carolina Natural Heritage Program (NCNHP) database shows two so-designated areas nearby, Turtle

Pond Registered Heritage Area (RHA) and Buxton Woods, neither would experience effects from the project activities of any of the three alternatives evaluated in this EA (see Fig 3.11).

CULTURAL RESOURCES

Methodology

The Applicant retained Tidewater Atlantic Research, Inc. (TAR) (Dr. Gordon Watts) to investigate existing and potential Cultural Resources in the Buxton Action Area. Results of the TAR studies and data collection are contained in Appendix F - *Cultural Resources*. The TAR report summarizes the cultural development of the Hatteras Island area from pre-European colonization to the present. Both onshore and offshore cultural resources were researched, with focus on offshore resources. Historical maps, literature and reports were reviewed, and methodology for the study complied with the National Historic Preservation Act of 1966 (Public Law 89-665), the National Environmental Policy Act of 1969 (Public Law 11–190), Executive Order 11593, the Advisory Council on Historic Preservation Procedures for the protection of historic and cultural properties (36 CFR Part 800), the updated guidelines described in 36 CFR 64 and 36 CFR 66, Archaeological Resource Protection Act (16 USC 470), Abandoned Shipwreck Law (North Carolina General Statute [NCGS] 121, article 3) and the North Carolina Archeological Resource Protection Act (NCGS 70, article 2).

TAR conducted remote-sensing surveys of the offshore sand search area using magnetic and acoustic imaging to detect submerged artifacts and potential remains of shipwrecks. A total of 123 magnetic anomalies were identified within the ~450-acre sand search area. With the exception of a cluster of 10 anomalies buffered for avoidance, all had signatures similar to those produced by deteriorated small pipe, old cable, or deteriorated wire. None of the 113 remaining magnetic signatures are suggestive of complex vessel remains. A search of shipwreck records indicated no known vessel remains are in the Proposed Action Area.

Impacts of Alternative 1–No-Action

Continued erosion is likely to occur in the Proposed Action Area with potential to uncover buried objects which are unknown at this time. Erosion at ~10 feet per year along portions of the beach-dune system in the Proposed Action Area would potentially expose up to 17 acres over an ~5-year period. Although there are no known shipwrecks, historic structures, or burial grounds near the beach-dune line in the Proposed Action Area, continued erosion could possibly expose cultural artifacts of importance. Therefore, Alternative 1 would generally have a negligible to minor adverse impact on Cultural Resources and would have no impact on the offshore borrow area.

Impacts of Alternative 2–Winter Construction

Beach fill operations in the Proposed Action Area would add new sand to an erosional beach, thereby lessening the chance of exposing undetected historical artifacts or shipwreck remains that are unknown at this time. Burial by an extra cover of sand is expected to have a negligible to minor beneficial impact on undetected artifacts or shipwreck remains at the shoreline.

Dredging operations in the offshore borrow area would possibly encounter undetected artifacts or shipwreck remains. The Applicant would avoid known or detected artifacts identified during surveys (Appendix F–*Cultural Resources*) by establishing no work buffers of at least 200 feet around the objects. If unknown artifacts are encountered during dredging, work would stop. The dredge would be

relocated to other parts of the borrow area until a determination could be made regarding the nature and historical importance of the material, in consultation with state and federal Historic Preservation officials. The string of magnetic anomalies that extends North-South through the middle of the offshore borrow area is being investigated further to determine whether it is an abandoned cable that can be removed before dredging. Any operation to remove the object which appears to be ~4,000 feet long (see Fig 4.4) would be performed in coordination with the North Carolina Historic Preservation Office (SHPO). If the object cannot be removed, the Applicant would establish a no work buffer around it and not utilize that portion of the borrow area.

Alternative 2 would have a beneficial impact on undetected cultural resources or artifacts that may occur in the Proposed Action Area along the beach-dune system. Additions of sand would bury such material for several years and lessen the chance of damage by erosion and wave action for the life of the project. Alternative 2 would have a negligible to minor adverse impact on undetected cultural resources or artifacts that may be encountered in the borrow area. The Applicant would cease operations and move the dredge to other parts of the borrow area should unknown artifacts be encountered during construction.

Impacts of Alternative 3 (Preferred Alternative) Summer Construction

Alternative 3 would place approximately twice the amount of nourishment along the beach in the Proposed Action Area. The impacts would be greater and longer lasting than Alternative 2. Burial of undetected artifacts would potentially extend by up to 10 years. The extra cover of sand is expected to have a beneficial impact on undetected artifacts at the shoreline. As sand erodes from the Proposed Action Area and shifts to other sections of Hatteras Island, it is expected to have beneficial impact on undetected artifacts in proximity to the Proposed Action Area.

The impacts of Alternative 3 in the offshore borrow area would be similar, but greater than Alternative 2. Deeper excavations would potentially encounter undetected artifacts or shipwreck remains. Similar to Alternative 2, if unknown artifacts are encountered during dredging, work would stop and the dredge would be relocated to other parts of the borrow area until a determination can be made regarding the nature and historical importance of the material, in consultation with state and federal historic preservation officials. See Alternative 2 for additional details on impacts and avoidance measures.

Alternative 3 would have a beneficial impact on undetected cultural resources or artifacts that may occur in the Proposed Action Area along the beach-dune system. Additions of sand would bury such material for up to 10 years and lessen the chance of damage by erosion and wave action. Alternative 3 would have a negligible to minor adverse impact on undetected cultural resources or artifacts that may be encountered in the borrow area. The applicant would cease operation and move the dredge to other parts of the borrow area should unknown artifacts be encountered during construction.

Cumulative Impacts on Cultural Resources

The principal cultural resources near the Buxton Action Area are the Cape Hatteras Lighthouse and a number of shipwrecks miles away. The only potential cultural resources in the borrow area are what appear to be abandoned cable or small pipe. The Applicant proposes to establish no-work buffers around these objects or remove them in consultation with federal and state officials prior to dredging. The other nourishment projects completed or planned along Dare County beaches between 2010 and 2020 have involved similar cultural resource surveys to avoid impacts to shipwrecks and other debris on the ocean floor. Each project is expected to avoid or minimize impacts because excavation on or around debris and wrecks would be counterproductive to dredging operations and result in unnecessary

expense associated with damages to dredges or work stoppages. Sand placement on beaches is generally considered to be beneficial to cultural resources at the shoreline because it provides additional cover to buried objects. This would reduce potential exposure of objects to erosion and damage while preserving them in situ for future research or recovery.

The No-Action Alternative would contribute a negligible to minor adverse increment to long-term, minor, adverse cumulative impacts to undetected cultural resources along eroding beaches of Dare County north of Cape Point. Alternatives 2 and 3 would contribute a beneficial increment to long-term beneficial cumulative impacts associated with additional burial by nourishment of detected or undetected cultural resources in the beach zone. Alternative 2 and 3 would contribute a noticeable adverse increment to overall cumulative impacts of dredging undetected cultural resources in offshore borrow areas.

SOCIOECONOMICS

Methodology

A primary goal of the proposed project is to widen the beach and reduce the chance of damage to NC 12, the principal access road along Hatteras Island and gateway to Park Service facilities, historic communities and structures, and the existing corridor for utilities. The economy of Dare County is tourism-based, and NC 12 accommodates far more visitors to the Seashore than would likely visit, if there was no vehicular access by road. The overall economic impact of Hatteras Island is >$200 million per year. Each road closure results in substantial economic impact, loss of access to hospitals, fire and police protection, loss of accommodations tax revenue and related devaluations of businesses and property.

The cost of the Proposed Action, though substantial, is weighed against these potentially much greater costs. Beach nourishment costs cannot be known with certainty in this setting until more systematic measurement and monitoring is performed. The Proposed Action would provide an opportunity for the County to evaluate objectively project performance, nourishment longevity, and degree of protection to infrastructure over an ~5–10-year period. With more accurate data in hand, the North Carolina Department of Transportation's alternative, long-term strategies for maintaining or relocating NC 12 could be better evaluated. The Applicant proposes to implement the project based on favorable economics and without impact to federal or state budgets. Under the terms of the permits, the Proposed Action would be a one-time event and any future nourishment activity would require another application.

Anticipated impacts on socioeconomics were analyzed using information from public records, previous studies, and similar project experience.

Impacts of Alternative 1–No-Action

Continued erosion along the action area would likely result in periodic damages to the foredune and NC 12 and force temporary road closures while emergency repairs to the road and utilities are completed. Erosion would also adversely impact developed property and lead to more emergency shore protection measures such as sand bags and beach scraping. This is expected to occur at increasing frequency as erosion proceeds at upwards of 10 feet per year in the action area. Each road closure would adversely impact economic activity on Hatteras Island, particularly the communities of Buxton, Frisco, and Hatteras Village.

When NC 12 is closed along the action area, all supplies to Buxton, Frisco, and Hatteras Village must be shipped in via temporary ferries from the north, or the existing state ferry system that operates at Ocracoke and Hatteras Inlet. Some supplies can arrive via small planes or helicopter to the municipal airport at Frisco which has a 3,000-foot runway. During periods of road closures, visitors cannot easily access the communities and businesses at the Cape. The ferry system has limited capacity to transport the numbers of visitors to the Seashore, motels, and private businesses each day, particularly in the high season tourist months of summer. Based on an economic impact of ~$200 million per year to the economy of Dare County, each day of road closure on Hatteras Island has a potential impact of hundreds of thousand dollars in lost business and tax revenues. Road closures increase the cost of basic supplies needed to support the communities. As a hub of business around Cape Hatteras, loss of access to Buxton impacts the local economy of Avon to the north or Frisco, Hatteras Village, and Ocracoke to the south. Avon also depends on Buxton for its water supply which is provided by way of a pipe paralleling NC 12. A breach of NC 12 would cut off water to Avon and impact infrastructure.

The No-Action Alternative would produce moderate adverse impacts on to the socioeconomics of Dare County and specifically Hatteras Island. The degree of the impact would be related to the timing and intensity of storm damages with greater impacts during high visitation summer months and lesser impacts during low-visitation winter months. A breach of the barrier would produce longer lasting and further reaching impacts by cutting the water supply to Avon. The Applicant has determined that the potential economic losses associated with closures of NC 12 and related damages to infrastructure and developed property would potentially be much greater than the cost of the action alternatives. Therefore, Alternative 1–No-Action is considered to have adverse, direct, regional, long-term impacts on socioeconomics.

Impacts of Alternative 2–Winter Construction

Beach nourishment in winter would provide a protective buffer between the ocean and existing infrastructure and development in the action area. Addition of ~1.3 million cubic yards would widen the beach by ~70 feet and offset annual erosion losses for several years. The number of years of protection from storm erosion would depend on the frequency and magnitude of future storms which is not predictable. Nevertheless, Alternative 2 would be expected to reduce the frequency and intensity of storm damages, breaches of the foredune and emergency closures of NC 12 in proportion to its scale. The duration of beneficial impacts would be <5 years based on projections of erosion losses after nourishment. Alternative 2 would produce beneficial impacts to the economics of Dare County and Hatteras Island with the degree of benefits proportional to the size (volume) of the project and intensity of future damaging storms. The beneficial impacts would be felt region-wide because of the dependence of Dare County on tourism and access to the Buxton area. The potential economic benefits of uninterrupted access along NC 12 over the life of Alternative 2 (~3–5 years) are expected to exceed the cost of the project.

Impacts of Alternative 3 (Preferred Alternative) Summer Construction

Impacts of Alternative 3 would be greater than Alternative 2 because the project scale would be about twice as large. Higher sand volume equates to increased project longevity and reduced probability of damages to infrastructure. Alternative 3 is expected to provide about one decade of erosion relief and economic benefits to the community. The potential economic benefits would be much greater than the cost of the project based on prior storm damage experience, the amount of economy at risk to road closures, and the accelerating values of barrier island property. Road closures along Hatteras Island

after Hurricanes *Irene* (2011) and *Sandy* (2012) forced cancellation of hotel and cottage rentals, and special events such as surfing and fishing tournaments.

Alternative 3 would produce beneficial impacts to the economics of Dare County and Hatteras Island for up to one decade. These benefits would be felt region wide because of the dependence of Dare County on tourism and access to the Buxton area. The potential economic benefits of uninterrupted access along NC 12 over the life of Alternative 3 (~10 years) are expected to exceed the cost of the project.

Cumulative Impacts on Socioeconomics

Hatteras Island is unique among east coast National Seashores in providing vehicular access over the length of the barrier island. This accounts for higher visitation rates than other National Seashores and additional major use by visitors to the area who may not be counted as park visitors. Emergency road closures have been a frequent occurrence along Hatteras Island particularly in the Rodanthe, Buxton and Hatteras Village area. The 2014 Rodanthe project was completed to widen the beach and protect NC 12 in an area of chronic erosion and emergency shore protection measures. The Buxton Project would similarly provide protection and reduce the threat of a breach of the dune or barrier island. The No-Action Alternative, combined with critical erosion areas and potential road closures along other parts of Hatteras Island, would produce an appreciable, adverse increment to long-term, cumulative, adverse impacts to the socioeconomics of Dare County.

Because the Buxton Action Area is one of the most vulnerable areas of Hatteras Island for barrier breaches, it is considered by the Applicant to be a high priority for beach restoration. The Applicant has no authority to relocate NC 12 and associated infrastructure so its options for reducing the probability of frequent road closures are limited to beach widening. Alternative 2–Winter Construction, like the 2014 Rodanthe nourishment project, would widen the beach and reduce the possibility of emergency road closures due to erosion for several years. Alternative 3–Summer Construction would provide similar benefits for up to 10 years. Other nourishment projects planned or anticipated to occur in Dare County north of Cape Point would add sand to the beach system, increasing the overall sand budget and incrementally reducing the probability of storm damages to NC 12, infrastructure, and development.

Alternatives 2 and 3 would contribute a noticeable, beneficial increment to long-term, cumulative impacts of reduced storm damages on the socioeconomics of Dare County.

VISITOR USE AND EXPERIENCE

Methodology

NPS Management Policies 2006 (NPS 2006) state that enjoyment of park resources and values by the people of the United States are part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for the public to enjoy parks. Past planning documents, park statistics, and input from park staff provide background on visitor use and experience. Anticipated impacts on visitor use and experience were analyzed based on understanding of the construction processes associated with implementation of Alternatives 2 and 3.

Impacts of Alternative 1–No-Action

Under Alternative 1, the current opportunities for visitor use and experience would continue. Vistas along the beach would remain the same, including deteriorated conditions and emergency shore-

protection measures along the portion of the Seashore fronting Buxton Village. When damaging storms occur and NC 12 is blocked or closed for some period of time, visitor use and experience would diminish. This includes extended elimination of vehicle access to park facilities and reduction in the number of visitors.

Present conditions of the deteriorated oceanfront along Buxton Village produce relatively minor impacts to park visitors because the nearest beach accesses are either ~2 miles north of Buxton at the Haulover Day Use Parking Area, or are near the former site of the Cape Hatteras Lighthouse at the south end of the action area. However, temporary loss of road access by way of NC 12 would prevent many visitors from accessing the beach and amenities in the vicinity of Buxton, as well as traveling through Buxton. During road closures in the action area, visitor use and experience would be adversely impacted well beyond the immediate action area. Previous road closures have forced cancellation of reservations at area motels, guest cottages, and restaurants. Based on the likelihood of future periods of storm damage and extended road closures, the No-Action Alternative would have a moderate to major adverse impact on visitor use and experience. The impact would be regional whenever NC 12 is closed due to storm damages.

Impacts of Alternative 2–Winter Construction

Under Alternative 2, beach nourishment would be implemented during winter months when visitor use and experience are lowest. Construction activities along the beach would generally be hidden from view by the existing dune. Visitors on NC 12 would generally not be aware of activities on the beach unless they purposefully elected to use beach accesses near the ends of the project. Because construction would be focused along several hundred feet of beach on a given day and work would progress toward the ends of the project at different times, the duration of construction impacts on visitor use and experience would be relatively short.

Recreational fishing offshore may be adversely impacted during dredging operations over the borrow area and cause such activities to shift to other areas that may not be as productive. In some projects, dredging activities have been shown to increase or attract certain fish species because of nutrients and food sources released into the water column (Burlas et al 2001). The offshore borrow area is relatively large and would be able to accommodate recreational fishermen during dredging operations with some minor modification by users to maintain safe distances.

Upon completion of construction (4 months under Alternative 2), visitor use and experience would be expected to improve by way of a wider beach for recreational use and more natural vistas where shore-protection structures are removed under state regulations following nourishment. Alternative 2 would lessen the chance of road damage and closure or a breach of the barrier within the action area for several years. To the extent Alternative 2 prevents or delays additional damages and road closures, it would provide region-wide benefits to visitor access and use along the seashore.

Based on the foregoing analysis, the short-term impacts occurring during construction would be offset by the long-term (several years) beneficial impacts of the project. Therefore, Alternative 2 would have short-term, minor, adverse impact (local, construction-related) and long-term (several years), regional, beneficial impact on visitor use and experience.

Impacts of Alternative 3 (Preferred Alternative) Summer Construction

Alternative 3 would produce greater beneficial and adverse impacts than Alternative 2. The scale of Alternative 3 would be approximately twice as large as Alternative 2, thus prolonging post-construction

benefits of a wider beach and improved protection, including reduced frequency of road closures to NC 12. However, construction during summer months has more potential to impact visitor use and experience, albeit for a shorter duration (~2–3 months) because of higher visitor use during summer months. Otherwise, impacts of Alternative 3 are similar to Alternative 2.

During construction, a limited section of beach totaling ~800 feet would be cordoned off in the vicinity of the active work area. The beach north and south of the active work area would remain open and accessible. In addition, a narrow corridor would be maintained for public access between the foredune and active work area. The nourished beach would be available for public use within ~24 hours of fill placement as construction progresses.

Like Alternative 2, Alternative 3 would have short-term, minor, adverse impacts on visitor use and experience in the immediate area of construction and long-term (decade), regional, beneficial impacts on visitor use and experience.

Cumulative Impacts on Visitor Use and Experience

Beach nourishment projects completed or planned in Dare County adversely impact visitor use and experience during construction. However, upon completion, visitor use and experience is generally improved via wider beaches, better vistas, and reduced incidence of road closure.

Alternative 1–No-Action would contribute a noticeable to appreciable, adverse increment to appreciable, adverse, cumulative impacts of beach erosion and road closures on visitor use and experience in Dare County. Each closure of NC 12 results in loss of access to businesses and park facilities, cancellation of lodging reservations, and a decline of visitors.

Alternative 2–Winter Construction would contribute a noticeable, adverse increment to adverse, cumulative impact on visitor use and experience associated with nourishment construction. However, upon completion of construction, Alternative 2 would contribute a noticeable, beneficial increment to appreciable, beneficial, cumulative impacts associated with maintenance of road access for visitors. The post-construction impacts would provide noticeable benefits extending well beyond the limits of the action area, relating to conditions during emergency road closures. Impacts during construction would be less than Alternative 3 but add an increment to cumulative impacts associated with nourishment projects planned for Dare County previously referenced. Because Alternative 2 would be constructed in winter, when there are few visitors utilizing the Proposed Action Area, impacts on visitor use and experience would be imperceptible.

Alternative 3–Summer Construction would potentially occur at the same time as three other projects scheduled for completion along Dare County Beaches. The other three sites would be north of Oregon Inlet at least 50 miles north of the Buxton Action Area. Other Seashore beaches would remain open and available to the public. Within the action area, the maximum length of shoreline that would contain the active construction area or a length of pipeline along a completed section of beach would be ~4,000 feet. The remainder of the action area would be unobstructed by equipment or pipeline. Visitor use and experience following completion of Alterative 3 would be noticeably improved via wider beaches in Dare County for up to 10 years.

Alternative 3 would contribute a noticeable, adverse increment to adverse cumulative impacts on visitor use and experience associated with nourishment construction. However, upon completion of construction, Alternative 3 would contribute a noticeable, beneficial increment to appreciable, beneficial, cumulative impacts associated with maintenance of road access for visitors.

PUBLIC SAFETY

Methodology

Public safety was considered in the context of work conditions in the Proposed Action Area as well as safety to visitors and residents. NPS Management Policies states that the National Park Service would seek to provide a safe and healthful environment for visitors and employees (NPS 2006). This impact analysis identifies potential impacts to safety associated with each Alternative.

Impacts of Alternative 1–No-Action

Under Alternative 1, current public safety conditions within the Proposed Action Area would continue. In the context of the project, potential impacts to public safety would arise in response to appreciable shoreline erosion during coastal storm events, or unpredictable dune breaches unrelated to a discrete storm event, but still caused by continued erosion that was sustained at some previous time. Such events could cause partial or complete road closures and emergency repairs of NC 12. This may require temporary lane closures. Such closures may present enhanced risks for vehicular accidents via interaction with construction equipment and the presence of workers on or near the highway. Road closures would make it difficult to evacuate the critically ill to hospitals in Nags Head or elsewhere.

A catastrophic breach of the barrier island or loss of the road surface during a major storm also would present a potentially dangerous situation for users. Should passenger vehicles be traveling through the affected area at the time of such a failure, they may not have sufficient time to react to the changing conditions or damaged areas and, as a result, could suffer personal property damage and/or personal injury. As the section of NC 12 within the project area is unlit, reaction time may be further diminished. The frequency and occurrence of conditions which produce road closures is unknown. However, continued erosion at up to 10 feet per year along the action area increases the likelihood of storm impacts to the road and a potential breach of the barrier. This would reduce the level of safety to the public over time. Road closures prevent emergency responders from reaching residents and visitors who may have life threatening health issues and transporting them to hospitals in Nags Head or elsewhere.

Based on the foregoing analysis, Alternative 1 would have a long-term, moderate, adverse impact on public safety. This impact would be a result of the risks posed by ongoing or event-driven erosion, the emergency repairs conducted after erosion impacts infrastructure, and the restrictions on emergency access associated with road closures. The impacts would be regional and extend well beyond the boundaries of the action area.

Impacts of Alternative 2–Winter Construction

Under Alternative 2, beach nourishment would help absorb damaging storm waves and reduce the risk of erosion and closure of NC 12. Impacts on public safety would be accordingly improved under Alternative 2, as damages and extended closure of NC 12 would be diminished for several years. However, direct, site-specific, short- term impacts would occur during project construction. These would include the presence and activities of construction equipment on the beach and transport of heavy equipment via NC 12 to the project site. The potential for conflicts between construction equipment and recreational traffic may arise during mobilization and demobilization.

During construction, the area of impact would generally be away from NC 12 and would be cordoned off from beachgoers. Equipment staging would be in designated areas approved by Park Service officials and would be isolated from the public. Because much of the construction equipment required for beach

nourishment would access the action area from the water, there would be limited opportunity for visitor interaction. The construction site also would be cordoned off, and safety personnel would be stationed at either end of the active work area to alert the public to the restricted areas.

Safety to construction workers is a major consideration by the Applicant in its determination of the Preferred Alternative. Winter dredging operations in the action area pose unacceptable risks to dredging personnel operating offshore (Dredging Association of America, B. Holliday, Executive Director, pers. comm., March 2008). Average sea state in winter is > 6 feet beyond the normal operating conditions for ocean certified dredges. Storms occur at frequencies of 1 per 6 days forcing frequent evacuation of equipment and personnel to the nearest safe harbor over 110 miles away in the area of Norfolk, Virginia. Personnel remain at risk if they are delayed in vacating the action area. High winds and waves, common off Buxton, combined with low temperatures in winter, produce hazardous conditions onboard dredges. After each load of a hopper dredge, the vessel must hook up to the submerged pipe before it can pump sand to the beach. This operation cannot be performed when seas exceed ~5 feet (Great Lakes Ocean Dredging, B. Hanson, Vice President, pers. comm., March 2011). In some cases, loaded hopper dredges have had to pump their material over the side into unauthorized areas because they could not hook up to the submerged pipeline before moving to a safe harbor.

Based on the foregoing analysis, adverse impacts to public safety arising from Alternative 2 would be direct, local, short-term, and minor (construction-related). Impacts to construction personnel safety associated with Alternative 2 would be major and potentially involve bodily injury or death. Over the long-term (years), impacts of the proposed action would be beneficial (post-construction) in the form of reduced chances of road closures for several years.

Impacts of Alternative 3 (Preferred Alternative) Summer Construction

The impacts to public safety arising from the implementation of Alternative 3 (Preferred Alternative) would be similar as those discussed for Alternative 2, but would have longer lasting beneficial impacts because of the larger scale of the project. Protection of NC 12 would potentially be approximately one decade under Alternative 3. Like Alternative 2, adverse impacts to the public associated with construction would be localized and short-term, and offset by the beneficial impacts of the project. Safety to construction workers would be much greater under Alternative 3 because work would be performed during low wave months in summer when temperatures are more conducive for efficient work. Dredge production efficiency as well as worker efficiency during summer months is expected to be much better under Alternative 3 and lead to shorter duration of impacts on the beach.

Alternative 3 would have direct, local, short-term, minor, adverse impacts on public safety during construction. These impacts would be minimal, provided that appropriate access restrictions are carried out where visitors would otherwise be in close proximity to heavy equipment. Alternative 3 would have minor short-term adverse impacts on worker safety common to heavy marine construction. Following completion of construction, Alternative 3 would provide indirect, regional, long-term benefits to public safety by lessening the chance of a breach inlet or road closure in the Buxton Action Area.

Cumulative Impacts on Public Safety

A primary concern expressed by the Applicant is public safety. Each closure of NC 12 due to erosion and storm breaches reduces public safety. Breaches along Hatteras Island occurred in 2003 during Hurricane *Isabel* (Hatteras Village) and in 2011 during *Irene* (Pea Island and Mirlo Beach-Rodanthe). The 2014 nourishment at Rodanthe was implemented to protect NC 12 and help maintain access along Hatteras Island. When any part of the highway is closed, residents, workers, and visitors have no direct

access to supplies, emergency services or basic utilities in some cases. The Applicant has proposed nourishment as a way of safeguarding access along Hatteras Island. Other nourishment projects in planning or implemented since 2010 along Dare County beaches have been considered in response to public safety needs and maintenance of road access (e.g. Rodanthe, Kitty Hawk, and south Nags Head). Each of these projects is planning for summer construction due to worker safety considerations. Nags Head (2011) and Rodanthe (2014) were constructed during summer months. Projects at Duck, Kitty Hawk, and Kill Devil Hills are similarly being planned for summer construction (anticipated 2016).

Alternative 1–No-Action would not improve public safety because continued erosion would increase the chance of a breach and closure of NC 12 in the critically eroding action area. Alternative 1 would contribute a noticeable, adverse increment to long-term, appreciable, adverse cumulative impacts on Public Safety.

Alternative 2–Winter Construction would improve public safety for several years by lessening the chance of a breach and road closure of NC 12. The impact would be noticeable and extend well beyond the action area. Alternative 2 would produce appreciable risks to worker safety due to winter construction. Because of high wave conditions, frequency of storms and low temperatures during winter months of construction, dredging personnel offshore would be at high risk for injury or death with frequent work stoppages required while the dredge is moved to a safe harbor. Contractor safety and liability is a paramount concern in the selection of Alternative 3 as the Preferred Alternative. Alternative 2 would contribute a noticeable, adverse increment to short-term, appreciable, cumulative impacts during construction with respect to worker safety on ocean dredges. Alternative 2 would contribute a noticeable beneficial increment to long-term (years), appreciable, cumulative impacts on public safety, with respect to protection of NC 12.

Alternative 3–Summer Construction would improve public safety for up to 10 years by lessening the chance of a breach or road closure. The impact would be noticeable and extend well beyond the action area. Alternative 3 would produce fewer risks to worker safety associated with all offshore dredging work. During summer months, warmer temperatures pose fewer hazards to dredge personnel, and wave heights would generally be within normal operational limits during construction. Alternative 3 would contribute a noticeable, beneficial increment to long-term (decade) appreciable, cumulative impacts on public safety, with respect to protection of NC 12.

SUSTAINABILITY AND LONG-TERM MANAGEMENT

Methodology

Beach nourishment has been used to maintain beaches since the 1920s (CERC 1984). Its sustainability and applicability for long-term management is dependent on numerous factors, including the cost, longevity and value of the property at risk in relation to the cost and impacts of other alternatives. In general, the longevity of nourishment depends on the underlying, or background, erosion rate, and the project's scale. Longevity tends to increase geometrically with project length (NRC 1995).

The Buxton Action Area has been nourished previously in the 1960s and 1970s using sand sources from upland areas or Pamlico Sound. No projects have been performed since 1973 or have used an offshore borrow area. Further, no quantitative surveys of sand losses have been conducted to document accurately the performance of prior projects or track the annual erosion losses in the action area. As a result, uncertainty exists regarding how well the proposed action would perform, whether nourishment would be sustainable at costs commensurate with the benefits, and whether nourishment is an appropriate long-term (decades) management approach to erosion and protection of NC 12 infrastructure

and development. The Proposed Action would be a one-time event under the terms and conditions of the permits. Each nourishment event produces a short-term disruption of the natural system with associated biological impacts. Literature on beach nourishment suggests that frequent events (every few years) are likely to be more impactful than infrequent events (every decade or so). Greater longevity of individual projects is likely to make them more sustainable and apportion capital costs over more years.

Sustainability was evaluated based on the projected longevity, projected future sand losses, and projected annualized costs of each alternative.

Impacts of Alternative 1–No-Action

Erosion along certain sections of Hatteras Island, including the Proposed Action Area, has caused dune breaches and formation of new inlets, as well as damages to NC 12 and costly closures to the highway. Each closure produces adverse impacts to the economy of Dare County and disrupts Park operations and visitor enjoyment. Such impacts would continue under Alternative 1 and potentially worsen as erosion progresses in the Buxton area, leaving less sand in the littoral system seaward of NC 12, although washovers would build up back-barrier areas, an important process over the long term. Continued erosion, undermining of NC 12, extended road closures, and frequent emergency repairs are not deemed sustainable relative to the economy at risk.

Alternative 1–No-Action would continue the management approach of the past several decades in the Buxton area and produce a moderate, long-term, adverse impact. This alternative is not considered sustainable without major consequences to the economy and welfare of existing communities, jobs, and tourism on Hatteras Island. The potential impacts are not quantifiable and would depend on the frequency and magnitude of damaging storms. Breaches of the foredune and washovers onto NC 12 are generally short-term events of minor consequence until sand can be cleared and the highways reopened. However, a breach inlet in the action area would result in extended road closure and disruption to the economy for weeks or months. Alternative transportation arrangements would be required while repairs are made or a temporary bridge is installed. The March 1962 breach inlet was initially bridged but the emergency bridge washed out in late 1962. The breach inlet was closed by dredge in early 1963 after ~10 months of disruption to the local economy. Costs associated with a breach of the barrier island include the cost of repairs, increased costs of supplies, and the loss of tourism business among other factors.

Alternative 1–No-Action would have a long-term, moderate, adverse impact on sustainability and long-term management of the action area. The impacts would likely extend to the broader region of Hatteras Island and lead to more demands on limited financial resources of the County.

Impacts of Alternative 2–Winter Construction

Maintenance of NC 12 along certain erosion hotspots of Hatteras Island, including the Buxton Action Area, has been costly and the subject of considerable debate for decades (NCDOT 2008). The North Carolina Department of Transportation (NCDOT 2015 in prep) is evaluating the feasibility of short-term (5-years) and long-term (~50 years) alternatives for NC 12 in the Buxton area. Alternative 2 would offer a quantitative measure of performance and provide site-specific cost and performance data which are not available for the area at this time. Cost and performance data would help to establish whether nourishment using an offshore, borrow area is sustainable and cost-effective relative to other NCDOT alternatives for NC 12. The Applicant has no authority over NC 12 and cannot implement alternative transportation strategies. However, the Applicant bears certain costs or reduction in tax revenues associated with unplanned road closures.

The Applicant has proposed nourishment to mitigate erosion with negligible, long-term, adverse impacts on adjacent shorelines. Nourishment may be sustainable relative to the potential costs of future road closures and potential damages to the Dare County economy although the benefit is not quantifiable. Alternative 2 would provide several years of erosion relief and limited sustained benefits. The time frame over which Alternative 2 is projected to last is well below the planning scenarios for sea level rise (SLR). Local erosion processes rather than SLR are expected to control shoreline change for the foreseeable future in the Buxton Action Area.

Alternative 2 would have a long-term (years), beneficial impact on sustainability and long-term management of infrastructure and development in the action area by adding to the littoral sediment budget for the area. The Proposed Action is expected to mitigate erosion and to widen the beach for a period of several years before the beach returns to a deficit volume condition in the action area. Sand losses from the action area over time would contribute to sustainability of Cape Point beaches.

Impacts of Alternative 3 (Preferred Alternative) Summer Construction

The impact of Alternative 3 on sustainability and long-term management would be greater than Alternative 2, because of the larger scale of the project. Nourishment longevity would be upwards of 10 years in the action area, thus reducing average annual project costs by ~50%. Protection of NC 12 would be sustained longer at lower cost with negligible long-term adverse impacts. As sand erodes from the action area, it would migrate alongshore to other parts of the Seashore, providing indirect benefits for an extended period of time. Less frequent nourishment would provide more time for biological resources to return to normal or recover from short-term impacts of construction. Alternative 3 would facilitate long-term management of the action area if coastal resources are spared disruptions caused by chronic erosion, storm damages, dune losses, or barrier island breaches. Alternative 3 would have a long-term (decade), beneficial impact on sustainability and long-term management of development and infrastructure in the action area by adding to the littoral sediment budget for the area. The Proposed Action is expected to mitigate erosion and widen the beach for a period of about 10 years before the beach returns to a deficit volume condition in the action area. The beneficial impacts would extend to other parts of the Seashore and Dare County and reduce the need for emergency shore protection such as sand bags.

Cumulative Impacts on Sustainability and Long-Term Management

Other than dredge disposal projects from Oregon Inlet to a 2-mile length of Pea Island and some small-scale truck hauling projects in Dare County, there were no large scale nourishment events between 1973 and 2011. As a result there is relatively little recent experience with nourishment to develop cost information. Sustainability of completed and planned projects in Dare County would depend on: the underlying erosion rate and loss rate of the nourishment; the proximity of quality borrow areas to the beach segment considered for restoration; and the quality of the borrow material.

The 2011 Nags Head project involved ~4.6 million cubic yards at a cost of ~$32 million. The 2014 Rodanthe Project involved ~1.7 million cubic yards at a cost of ~$21 million. Unit costs of these projects were ~$6.70 per cubic yard and ~$12.30 per cubic yard (respectively). The Buxton Project has a projected cost of~$9.75 per cubic yard. This range of costs reflects various economies of scale and dredging distances which vary by project. The Buxton Project is projected to provide benefits for up to 10 years along an ~15,500 foot length of shoreline. Thus, on a unit basis, the average cost would equate to (~)$1,635 per foot or (~)$163 per foot per year for 10 years. Nags Head was a 10-mile-long project with lower unit costs equaling ~$610 per foot. If that project lasts 10 years as planned, the average

annual cost would ~$61 per foot per year. The higher unit cost estimated for Buxton reflects higher sand loss rates than Nags Head.

Previous dune breaches along Hatteras Island have been costly to the economy of Dare County. The Applicant estimates that each day NC 12 is closed has an economic impact in the range of $0.5-1 million. The amount varies with the season which is driven by tourism. Nevertheless a two month closure such as the period associated with the breach inlets near Rodanthe would be comparable to the cost of the 2014 Rodanthe project or the proposed action. For this reason, the Applicant has proposed Alternative 3 as a means of mitigating emergency expenditures to maintain access along Hatteras Island. It is part of a strategy by the Applicant to preemptively prevent damages to infrastructure along Dare County beaches.

Alternative 1–No-Action would not achieve the goals and objectives of the applicant and is not considered sustainable or consistent with the long-term management goals of maintaining access along Hatteras Island. It would contribute a noticeable increment to appreciable, adverse cumulative impacts on sustainability and long-term management along the critically eroding parts of Hatteras Island.

Alternative 2–Winter Construction would provide about half the nourishment volume at the same fixed budget of the Applicant. It therefore would provide a noticeable beneficial increment to long-term, adverse cumulative inputs of erosion on sustainability and long-term management of Dare County beaches. The unit cost per year would be more than twice Alternative 3 and thereby be less sustainable.

Alternative 3–Summer Construction would provide noticeable benefits for up to 10 years. As the first nourishment in the action area in over 40 years, it would provide more project experience which, when combined with other Dare County projects, would offer realistic measures of the cost of nourishment. Alternative 3 would therefore provide a noticeable, beneficial increment to long-term, adverse, cumulative impacts of erosion on sustainability and long-term management of Dare County beaches.

CHAPTER 5 – CONSULTATION AND COORDINATION

Federal regulations require the US Army Corps of Engineers (USACE) and the National Park Service (NPS) to involve the interested and affected public in a review and comment process under the National Environmental Policy Act of 1969 (NEPA). For the present Environmental Assessment, this was accomplished through several means as outlined below. A number of federal and state agencies were also consulted and solicited for input into the scoping and alternatives development process. This chapter documents the scoping process for the Proposed Action, identifies future compliance needs and permits, and includes a list of preparers for the document.

INTERNAL SCOPING

Because most of the Proposed Action would occur along oceanfront beach that is under the jurisdiction of the National Park Service, the Applicant (Dare County) met with NPS officials prior to developing plans for the Proposed Action. Meetings to discuss the general need and rationale for the Proposed Action were convened from December 2013 to July 2014 between the Applicant and NPS local, regional, and national offices. During this preliminary scoping period, the Applicant also met with representatives of the US Army Corps of Engineers, the US Fish and Wildlife Service (USFWS), the North Carolina Department of Environment and Natural Resources (NCDENR), North Carolina Wildlife Resources Commission (NCWRC), and the North Carolina Department of Transportation (NCDOT) to inform those agencies of a County plan for funding restoration of Dare County beaches along critically eroding areas. Emergency beach restoration work by NCDOT and US Army Corps of Engineers along the S-curve at Rodanthe informed the Applicant's decision to pursue a project along the critically eroding Buxton Action Area.

During 2014, the Applicant notified the public in regular Dare County Commission meetings of its regional, long-range strategy for funding and implementing beach restoration projects along critically eroding areas of the county. On 18 August 2014, the Dare County Board of Commissioners voted to proceed with planning and permitting of a beach restoration project at Buxton, authorizing the firms of Coastal Science & Engineering and CZR Incorporated to prepare the necessary documents under NEPA in support of a permit application. On 19 August 2014, Dare County convened the first agency consultation meeting involving NPS and NCDOT officials. A public forum was held that same night in Buxton to outline the Applicant's plan for beach restoration before the local community. The Applicant discussed a timetable, emphasizing the requirements for environmental review and comment by the National Park Service and other federal and state regulatory and resource agencies before any action could be taken.

AGENCY CONSULTATION

During fall 2014, meetings were convened at Dare County offices between the Applicant and the National Park Service (10 September, 9 October, 30 October, 13 November, and 4 December). These meetings were preparatory to formal scoping and public notices through the NPS Planning, Environment, and Public Comment (PEPC) website. NPS resource staff provided guidance to the Applicant on environmental protection measures that would be required if any action was conducted along NPS beaches. The Applicant submitted an application for a special use permit to the National Park Service on 5 November 2014.

In accordance with Section 102(2)(c) of the National Environmental Policy Act of 1969 (NEPA), the National Park Service published a notice in the federal register on 29 December 2014 informing the

public of its intent to prepare an Environmental Impact Statement (EIS) for beach nourishment proposed by Dare County along Seashore property in the Buxton, North Carolina, area. Comments were solicited from the public regarding the Proposed Action, and the PEPC website was activated to receive comments. The National Park Service also solicited and received comments by regular mail, e-mail, and hand delivery through 27 February 2015.

PRE-APPLICATION MEETINGS AND PREPARATION OF SUPPORTING DOCUMENTS

Three pre-application meetings were convened in Washington, North Carolina (22 October 2014, 8 January 2015, and 29 July 2015) with federal and state regulatory and resource agencies to outline the Applicant's proposed activity. Attendees included the National Park Service, US Army Corps of Engineers, US Fish and Wildlife Service (USFWS), and NC Department of Environment and Natural Resources. Other attendees included representatives from National Oceanic and Atmospheric Administration-National Marine Fisheries Service (NOAA-NMFS), North Carolina Department of Environment and Natural Resources' Division of Coastal Management (NCDCM), Division of Marine Fisheries (NCDMF), and the Wildlife and Resources Commission (NCWRC).

The Applicant prepared supporting technical documents in fall 2014 and winter 2015, including littoral processes, biological assessment, geotechnical data, essential fish habitat assessment, biological monitoring, cultural resources, and monitoring and mitigation measures. Each report was submitted in draft form for review by the National Park Service and the US Fish and Wildlife Service preliminary to placing the project on public notice under a permit application to US Army Corps of Engineers (September 2015).

Comments on the NPS special-use permit application were received on 27 February 2015 and were used by the Applicant to finalize the project purpose and need and to identify alternatives retained for detailed analysis in the environmental documents. The National Park Service received a total of 261 comments through the PEPC website, regular mail, e-mail, and hand delivery. The comments were summarized in Chapter 1 – *Purpose and Need for Action* of this document.

The US Army Corps of Engineers and the National Park Service reviewed draft documents describing the project and determined that an Environmental Assessment (EA) rather than an Environmental Impact Statement (EIS) would be required and that USACE would serve as the lead federal permitting agency. Accordingly, the National Park Service notified the public via the Federal Register on 17 June 2015 of the intent to terminate preparation of an EIS and instead prepare an EA for the project. The purpose of the EA remained the same, to assist the NPS in determining whether, where, and under what conditions the NPS would issue a Special Use Permit to Dare County for actions related to the protection of Highway 12 in the Buxton village area (CFR Vol. 80 (116) pp. 34691-34692).

Between January and August 2015, the Buxton project team convened regular weekly and biweekly meetings via conference call to review progress on document preparation. During the development of the environmental documents, an interdisciplinary team of technical experts within the National Park Service and US Army Corps of Engineers provided review and comments as well as guidance regarding protection of park resources.

OTHER CONSULTATION

During the preparation of the EA and supporting appendices, many agencies were contacted for information as documented in each report. These included North Carolina Department of Transportation, North Carolina Department of Environment and Natural Resources' Division of

Coastal Management, Division of Marine Fisheries, Water Resources Commission, and the Natural Heritage Program (NCNHP), NC State Historic Preservation Office (SHPO), National Oceanic and Atmospheric Administration-National Marine Fisheries Service, and USACE-Wilmington (Planning Section). There are no ethnographic or Indian Trust resources in the Action Area, so no tribal consultations were required.

SECTION 7 OF THE ENDANGERED SPECIES ACT

The Applicant's Preferred Alternative–Summer Construction would impact threatened or endangered species. Accordingly, the Applicant prepared a Biological Assessment (BA) in connection with the Proposed Action (Appendix B) and anticipates a request by US Army Corps of Engineers to US Fish and Wildlife (USFWS) and National Marine Fisheries Service (NMFS) for formal Section 7 consultation when the US Army Corps of Engineers' permit application is placed on public notice. Officials at USFWS and NMFS have been involved in pre-application meetings and have had opportunities to input prior to completion of the BA and EA.

MARINE MAMMAL PROTECTION ACT AND MAGNUSON-STEVENS FISHERY CONSERVATION AND MANAGEMENT ACT

As a condition of any federal permits for the proposed project, the Applicant through the US Army Corps of Engineers must consult with the National Marine Fisheries Service under the Marine Mammal Protection Act and the Magnuson-Stevens Fishery Conservation and Management Act.

NATIONAL HISTORIC PRESERVATION ACT (NHPA)

As a condition of any federal and state permits for the proposed project, the Applicant through the US Army Corps of Engineers must consult with the North Carolina State Historic Preservation Office (SHPO) regarding potential cultural resources that may be present or impacted in the general vicinity of the project under Section 106 of the NHPA.

REQUIRED PERMITS AND APPROVALS

Clean Water Act Section 404

The Proposed Action impacts waters of the United States as defined by the Clean Water Act and is therefore subject to review by the US Army Corps of Engineers. The Clean Water Act Section 404 regulates the discharge of dredged or fill material into waters of the United States, and under Section 404, impacts to wetlands or aquatic habitats may be considered in compliance if the project is water dependent.

Rivers and Harbors Act Section 10

Section 10 of the Rivers and Harbors Act is administered by the US Army Corps of Engineers and regulates construction, filling, dredging, or excavation in navigable waters of the United States. The US Army Corps of Engineers would have to issue a major permit for the proposed action.

Clean Water Act Section 401 Certification

North Carolina Department of Environment and Natural Resources' Division of Water Resources (NCDWR) administers the Clean Water Act Section 401 Certification. The NCDWR must review the

proposed action and issue a 401 Certification prior to state or federal permits for construction involving dredge and fill in navigable waters of the US.

North Carolina Coastal Area Management Act (CAMA)

The North Carolina Department of Environment and Natural Resources' Division of Coastal Management (NCDCM) administers the North Carolina Coastal Area Management Act (CAMA) and must review the proposed action prior to issuance of a Major CAMA permit. NCDCM requires a permit application and supporting documents under NEPA in parallel with a federal permit application. NCDENR is the overall coordinating state agency responsible for soliciting review and comment on the proposed action from relevant state resource agencies or divisions of NCDENR, including the Division of Coastal Management (NCDCM), Division of Marine Fisheries (NCDMF), Division of Water Resources (NCDWR), and Wildlife Resources Commission (NCWRC). Other corresponding agencies are North Carolina Department of Transportation and the North Carolina Office of State Archaeology.

US Coast Guard

If any actions are approved and permitted which involve dredging in navigable waters of the United States, the Applicant or contractor will be required to contact the US Coast Guard so that a Notice to Mariners is published prior to mobilization of equipment or any operations. The Notice to Mariners would identify the equipment and potential obstructions that may be in the action area and the dates of the action.

FUTURE PUBLIC INVOLVEMENT

This document will be available for review and comment for 30 days. The Environmental Assessment and all appendices are available on the project website throught he NPS Planning, Environment and Public Comment system at http://parkplanning.nps.gov/BeachRestorationPermits. If you wish to comment on the Environmental Assessment, you may mail comments to:

Beach Restoration to Protect NC 12 Permits EA
US Army Corps of Engineers–Wilmington District
Washington Regulatory Field Office
2407 West Fifth Street
Washington, NC 27889
Attn: Raleigh W Bland, PWS

In addition, public forum(s) on the project will be convened prior to issuance of permits with press releases and notices published in local papers prior to each event. A public forum is scheduled for 29 September 2016 at the Fessenden Center, Buxton, North Carolina. Contact the National Park Service for times and dates of other forums (252-473-2111) or visit the above link to the project website.

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This document was prepared by Coastal Science & Engineering, Inc, and CZR Incorporated, with assistance from Tidewater Atlantic Research, Inc, and input from staff at Cape Hatteras National Seashore, the NPS Denver Service Center, the NPS Southeast Regional Office, and the USACE-Regulatory Office of the Wilmington (NC) District.

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