IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF NORTH CAROLINA
NORTHERN DIVISION

No. 02:07-CV-0045-BO

DEFENDERS OF WILDLIFE and THE NATIONAL AUDUBON SOCIETY, Plaintiffs, v. NATIONAL PARK SERVICE; UNITED STATES DEPARTMENT OF THE INTERIOR; DIRK KEMPTHORNE, SECRETARY OF THE INTERIOR; MARY A. BOMAR, DIRECTOR OF THE NATIONAL PARK SERVICE; and MICHAEL B. MURRAY, SUPERINTENDENT OF THE CAPE HATTERAS NATIONAL SEASHORE, Defendants, and DARE COUNTY, NORTH CAROLINA; HYDE COUNTY, NORTH CAROLINA; and THE CAPE HATTERAS ACCESS PRESERVATION ALLIANCE, Defendant- Intervenors.	**DECLARATION OF ERICA NOL**

I, Erica Nol, under penalty of perjury, depose and state as follows:

1. My name is Erica Nol. I reside in Peterborough, Ontario. I am a Professor of Biology at Trent University in Peterborough, Ontario. In this position, I teach undergraduate courses in ornithology, research and data analysis, a graduate course in ecology and evolution and I coordinate an internship course in conservation biology. I also advise and supervise graduate students, and conduct my own research. Prior to my current position, I worked for the Canadian Wildlife Service on nesting ring-billed gulls and common terns in an expanding population of these species on Lake Ontario, and for the University of Guelph on the effects of oceanic currents on black guillemot distributions in the Bay of Fundy, New Brunswick, Canada. I also worked at Bird Studies Canada on age

Exhibit 11

and sex differentiation of migrating landbirds and on the ecology of nesting black terns at Long Point, Ontario, Canada. I am a founding member of the American Oystercatcher Working Group. I am on the scientific advisory committees of Long Point Bird Observatory, and World Wildlife Fund's Endangered Species Recovery Fund. I am the Co-chair of the Large Woodlands Conservation Cooperative, based in Ontario. I earned a Ph.D. in zoology in 1984 from the University of Toronto, with my dissertation work focusing on the reproductive ecology of the American oystercatcher. My work was conducted in the Virginia barrier islands so I also encountered breeding populations of colonial waterbirds, including black skimmers, least and common terns and gull-billed terns and am familiar with their biology and management. My M.Sc. in zoology was earned from the University of Guelph, where I studied management options for piping plovers. I received my B.S. in wildlife biology in 1976 from the University of Michigan. I held a post-doctoral research fellowship at the University of British Columbia, where I studied the nesting biology of killdeer, Wilson's snipe and the evolution of behavior of the chicks of precocial (fully feathered, self-feeding) birds, among other research pursuits. I have attached my *curriculum vitae* as Exhibit 1, which more fully discloses my credentials.

2. I have researched most aspects of the biology of shorebirds, both on their breeding grounds and in their wintering range. I have focused on the two genera *Charadrius*, which includes piping plovers, and *Haematopus,* which includes the American oystercatcher. My current research focus is on the ecology of arctic-nesting shorebirds, with special reference to the impacts of climate change on habitat preferences, anthropogenic disturbance on migratory and wintering shorebirds, and the influence of forestry practices on forest songbirds. My curriculum vitae contains a list of selected publications.

3. I have spent time at Cape Hatteras National Seashore, observing the shorebirds there, as well as other ecosystems with similar shorebird populations and habitat. Most recently, I attended a several-day meeting of the American Oystercatcher Working Group at Cape Hatteras National Seashore in 2002, during which we spent time observing American oystercatchers, piping plovers, other shorebirds, their habitat, and the detrimental effects of seashore management techniques on the seashore habitat. Although I have not attended a meeting of the American Oystercatcher working group since 2003 I am a member of the American Oystercatcher list serve and contribute to it periodically. I am also, with several other collaborators, preparing the revision of the Birds of North America (Cornell Laboratory of Ornithology) publication of the American Oystercatcher, a definitive reference on this species. I have also spent time in recent years observing American oystercatchers, piping plovers, terns, and black skimmers at Assateague Island National Seashore in Maryland and Virginia, which is remarkably similar to Cape Hatteras in its species and habitat composition.

4. I have reviewed the following materials relevant to this case as they pertain to piping plovers, American oystercatchers, and colonially nesting shorebirds (that is, gull-billed terns, common terns, least terns, and black skimmers):

a. The USGS's Management, Monitoring, and Protection Protocols for American Oystercatchers at Cape Hatteras National Seashore, North Carolina;

b. The USGS's Management and Protection Protocols for the Threatened Piping Plover on Cape Hatteras National Seashore, North Carolina;

c. The USGS's Management, Monitoring, and Protection Protocols for Colonially Nesting Waterbirds at Cape Hatteras National Seashore, North Carolina;

d. The USGS's Synthesis of Management, Monitoring, and Protection Protocols for Threatened and Endangered Species and Species of Special Concern at Cape Hatteras National Seashore, North Carolina;

e. The Fish and Wildlife Service's Biological Opinion for Cape Hatteras National Seashore's Interim Protected Species Management Strategy, dated August 14, 2006;

f. The Fish and Wildlife Service's Amendment to the Biological Opinion for Cape Hatteras National Seashore's Interim Protected Species Management Strategy, dated April 24, 2007;

g. The summary, Chapter 2, and Chapter 4 of the Environmental Assessment for the Interim Protected Species Management Strategy;

h. The National Park Service's Finding of No Significant Impact for the Interim Protected Species Management Strategy/Environmental Assessment, dated July 2007;

i. The Cape Hatteras National Seashore Resource Management Field Summary reports and Beach Access Reports for the 2007 nesting season at Cape Hatteras National Seashore;

j. The complaint in the lawsuit Defenders of Wildlife et al. v. National Park Service et al., 2:07-CV-00045-BO;

k. McGowan, C.P. and T.R. Simons. 2006. Effects of human disturbance on the incubation behavior of American Oystercatchers. Wilson Bulletin 118: 485-493 and Liley, D. and W. J. Sutherland. 2007. Predicting the population consequences of human disturbance for Ringed Plovers Charadrius hiaticula: a game theory approach. Ibis (suppl. 1): 82-94, among other papers on disturbance and birds.

l. Nol, Erica, and Robert C. Humphrey. 1994. American Oystercatcher (Haematopus palliatus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/082

5. The opinions expressed in this Declaration are based, in part, on my review of the foregoing documents and, in part, on the knowledge, experience, and expertise regarding shorebirds, including piping plovers, American oystercatchers, and colonially nesting shorebirds that I have gained during my professional career.

6. American oystercatchers (*Haematopus palliatus*) and piping plovers (*Charadrius melodus*) have broadly similar habitat needs for breeding, raising their chicks, foraging, and roosting. During the breeding season, American oystercatchers and Piping Plovers nest on open sandy or partially gravely areas that are of high enough elevation to

avoid flooding. An undisturbed line of wrack (vegetation and other decomposing organic matter that has washed ashore and been left behind by the retreating tide) provides some protection and stability from wind, for the nest scrapes of both species. As the wrack dries and collects windblown sand, it can form small dunes that can raise the elevation of the nest sufficiently to provide protection from especially high spring tide waters. Piping Plovers (the Atlantic Coast population) forage on open, non-vegetated, sandy coastal flats on the ocean and bay sides of the barrier islands. Once eggs or chicks are present, they make extensive use of the wrack line for foraging, both for themselves and their precocial chicks, while still also foraging at the water's edge. If the wrack is broken down prematurely, for instance by vehicle wheels, it will not become a breeding ground for fly and other insect larvae. If available, Piping Plovers will take their chicks to intertidal pools (mostly ephemeral pools formed by high tides and storm surges) in the fore dune area, and mudflats behind or between dune areas. They will preferentially feed in these habitats if they are accessible because prey densities (mostly invertebrate larvae) are almost 10x higher than that occurring on the drier beach sand. While the semi-precocial young (feathered but fed by their parents) of the American Oystercatcher attempt their first self-foraging on invertebrates in the wrack, adult oystercatchers primarily forage at the ocean water's edge or in nearby mudflats, vegetated salt marshes and oyster beds and bring this larger prey to feed the chicks.

7. In the non-breeding season, Piping Plovers rest on the wide fore dunes during high tide, sometimes shielding themselves from the wind in the small 'micro-dunes' created by the wrack, and, as the ocean and bay waters recede, they forage on newly exposed invertebrate larvae and small invertebrates. American Oystercatchers can roost in

large numbers on ocean beaches, in addition to higher elevation areas in the salt marsh, but disperse to exposed oyster beds, and mudflats in the salt marshes as the tide recedes, where they forage primarily on buried or partially buried bi-valves. Thus wintering populations of both species require a combination of higher elevation roosting locations and lower elevation foraging sites.

8. On the Atlantic Coast of the United States, such habitat configurations are characteristic of barrier islands such as the barrier islands of Cape Hatteras National Seashore, particularly in the intertidal sand flats, mud flats, and algal flats at the inlets between islands and in areas called "overwash fans," where coastal storms have penetrated the dune line from the ocean side and deposited sand and sediment on the sound side of the island. When barrier islands are naturally subjected to periodic storms and overwash, the intertidal flats are maintained in an ideal state to support plovers, oystercatchers and colonially nesting shorebirds. When artificial management of the shore is introduced to limit the effect of storms and overwash (as at Cape Hatteras, where artificial dunes are built and maintained to protect NC Highway 12 from overwash and flooding), the amount of optimal habitat is reduced, as is the quality of the remaining sub-optimal habitat. Such management eventually alters much of the flats to narrower, steeper bands of beach and other often vegetated (and thus unsuitable) territory broken up by the dunes and the road. Oystercatchers and plovers are forced to seek out the little optimal habitat left at the inlets and points, and otherwise to roost and nest at the foot of the dunes during high tide and to forage at the shoreline at low tide. This is the current situation at Cape Hatteras National Seashore, where the best remaining habitat for oystercatchers and piping plovers, which provides a combination of nesting and roosting habitat in close proximity to adequate

intertidal foraging habitat, is located at just a few inlets, spits, and points along the coastline. It is therefore crucial to their survival that their use of this limited habitat not be disturbed by vehicles driving on the beach or otherwise.

9. The breeding behavior of both American oystercatchers and piping plovers also contributes to their incompatibility with vehicle use of the beach, especially during breeding season. Both species breed in open sandy areas, and their nests consist of small indentations scratched out in the sand. Their eggs are well-camouflaged in the sand and are particularly likely to be go undetected – and therefore crushed – by pedestrians and vehicles alike. Both species also have unusually long incubation periods and also care for their chicks longer than other species of similar size. American oystercatchers arrive at nesting grounds as early as late February and early March, begin mating and establishing territory, and lay eggs in early April. They incubate their eggs for approximately 27 days. Because there is a high tide cycle that results in a particularly high spring tide approximately every 28 days, oystercatchers typically lay their eggs relatively synchronously, shortly after such a high tide, so that the eggs will have hatched before the next spring tide occurs and floods their nests. Any delay or disruption of this process can result in a nest being flooded before the eggs have hatched, resulting in loss of the eggs. Oystercatchers will attempt to renest, but the average clutch size (number of eggs) and the probability of success are both lower with each successive attempt. This is because the oystercatcher is not ready to lay new eggs until at least 10 days after the loss of the previous nest and eggs from re-nesting attempts are exposed to greater summer heat and greater disruption as more people use the beach. Oystercatchers then care for their chicks for approximately 60 days, which is also unusually long as compared to other shorebird

species. Although the chicks may begin to fly as young as 35 days, the parents can continue to feed them for 60 days or longer. The parents will typically fly to the sound, intertidal pools, or other good foraging habitat to gather food for their young, or escort the young to the wrackline and waterline where the parents forage alongside the young, both of which endanger the young on a beach that is open even partially to vehicle use. Even a very narrow corridor for vehicles to travel along the waterline along the sound will expose oystercatchers to risk of death, especially the young who cannot yet fly. At high tide or on windy days, chicks may forage on invertebrates among stalks of beach vegetation closer to the dune line.

10. Similarly, piping plovers also have particularly long periods for incubation and chick-rearing, as compared to other shorebird species of similar size. They begin their courting, territory establishment in late-March, and nesting later than oystercatchers, laying their first eggs in early to mid-May. They incubate their eggs for approximately 27 days. Although highly susceptible to flooding by spring tides, their later nesting means that storms are less frequent so tidal flooding events are less common, but this can vary from year to year. On an artificially narrowed beach, as at Cape Hatteras, this may mean that the nest must either be placed in range of flooding or placed higher into the dune vegetation, where the risk of predation is higher. If the nest, eggs, or chicks are lost to flooding, crushing, predation, or otherwise, plovers will attempt to renest, but their later start, and long period of incubation makes their renesting attempts have a low probability of success. Once any chicks have hatched, either one or both parents will care for them for approximately 30 days, although Piping plover chicks, unlike those of the American oystercatcher, forage independently (but near the adults) from the time that they hatch.

Piping plovers, their nests, and their eggs are all particularly small and cryptic (well-camouflaged). For these reasons, the birds, nests, and eggs are even more susceptible than most shorebirds to being accidentally crushed by humans, either on foot or especially in vehicles. Because they are so small, they are also at risk of being eaten by larger birds such as gulls, and will actively avoid areas where gulls are present. They may, for instance, be deterred from foraging in places where gulls have gathered, the latter having been attracted by food, bait, sand sharks, and rays discarded by fishermen. They are also unable to use highly vegetated areas of the beach for either foraging or roosting, largely because they would be so susceptible to predation there, but also because it does not provide the same food sources and other benefits that open flats provide.

11. During breeding season, populations of piping plovers and American oystercatchers nest, roost and forage at Cape Hatteras National Seashore. During migration and in the winter, a portion of the Great Lakes breeding population of piping plovers joins the wintering populations of plovers and oystercatchers at Cape Hatteras. This Great Lakes population is federally listed as endangered, as opposed to the breeding population of piping plovers at Hatteras, which is federally listed as threatened. The numbers and breeding success of each of these populations – piping plover and American Oystercatcher – have decreased dramatically in recent years.

12. Both the wintering and breeding populations of piping plovers and oystercatchers at Cape Hatteras are particularly susceptible to disturbance by vehicles driving on the beach that could result in further decline in their numbers. Because their numbers are already so small, it has become increasingly likely that the birds will fail to experience breeding success because of stochastic events (events that occur by chance and

do not, by themselves, determine the outcome of the population but which have an effect nonetheless). For instance, with only a dozen or so individuals returning to the entire Seashore, it is entirely likely that individual piping plovers will not find suitable mates during a given breeding season. As the numbers dwindle, it becomes more likely that no individuals will find mates and produce a fledged chick, as has been apparent in recent breeding seasons at Cape Hatteras. Likewise, as there are fewer and fewer breeding pairs, the effect of one or more chicks being killed is more significant. In addition, piping plover females (like many other shorebird species), are likely to abandon a breeding area like Cape Hatteras if their previous nesting attempts there have been unsuccessful. Thus, this alters the sex ratio, so that mostly males are present in small breeding populations that experience poor reproductive success.

13. The foregoing discussion with respect to disturbance, and dispersal in response to disturbance also applies to colonial nesting waterbirds. Colonially nesting waterbirds, especially black skimmers (*Rynchops niger*) are also particularly skittish, and are more likely than piping plovers to abandon their nests and breeding area when exposed to disturbances.

14. Based on the foregoing traits and preferences, American oystercatchers, piping plovers, and colonial waterbirds are particularly vulnerable to recreational impacts, including use of the beach by off-road vehicles ("ORVs"), pedestrians, and pets, in the following ways:

a. Frequent disturbance by ORVs, and to a lesser extent pedestrians and pets, will prevent the birds, especially piping plovers and colonially nesting waterbirds, from courting, attempting to nest, establishing nesting territories, and nesting.

b. Frequent disturbance to birds that have begun the several-day process of laying eggs may cause delays in that process, decreased clutch size, or abandonment of the nest altogether. Parents may even abandon eggs that they have begun incubating or chicks that have hatched, if the disturbance is sufficiently frequent and close or chicks and adults could become separated causing chick mortality.

c. ORVs and, to a lesser extent, pedestrians and pets, can crush nests, eggs, and chicks, which are all small, cryptic, and easy to overlook, even by a vigilant, slow driver. Plover chicks in particular, will, in the face of danger, crouch and be still, relying on camouflage for protection, instead of moving out of the way of an oncoming vehicle. Chicks may wander toward the waterline to forage while their parents are away gathering food, and into the paths of ORVs traveling in vehicle corridors. Chicks may fall into ruts and become trapped, and chicks and adults may attempt to use the ruts of the most used routes as shelter from wind and to hide from oncoming traffic, inadvertently putting themselves in the way of oncoming traffic. Domestic pets may harass and kill the chicks.

d. ORVs, kites and pedestrians may frighten adult birds away from their nests on hot days, leaving the eggs exposed to loss from overheating in direct sun.

e. Passing ORVs may frighten chicks away from their nests and foraging areas. If parents are unsuccessful in finding them and escorting them back to the nest, for instance if the parent was away collecting food at the time of the disturbance or if the chick has strayed particularly far from the nest, the chicks can starve, become hypothermic, or be eaten by predators.

f. When ORV tires crush wrack into the sand, it cannot be used as cover or a foraging substrate. In addition, when ORVs drive over wrack, it breaks up and separates the wrack that, in turn, speeds its decomposition, again making it unavailable as cover or foraging substrate.

g. American oystercatchers in particular, and other birds to a lesser extent, have been reported to be disoriented by or attracted to ORV headlights, causing them to approach and be hit by the vehicle.

h. When people discard food, fishing bait and unwanted catches such as sand sharks and rays onto the beach in areas of good shorebird breeding and roosting habitat, predators such as larger gulls, crows, feral cats, and foxes are attracted to the area. The increased presence of predators in their preferred habitat leads to increased predation of eggs and chicks and sometimes adults.

i. Compaction, erosion, and/or displacement of sand from heavy use in ORV driving corridors can cause the beach to become steeper, narrower, and therefore less optimal for shorebird habitat. It can destroy the communities of small invertebrates and other benthic organisms on which the birds prey,

degrade the habitat used for foraging, and even degrade the areas used for roosting at high tide.

j. ORV use can force pedestrians and other beach recreation into sensitive areas of the beach, thereby causing pedestrians to cause the disturbances listed above.

k. In the fall, winter and early spring, ORV driving will flush migrating and wintering shorebirds and thereby disrupt their feeding at a time when they are already stressed by high energy needs (from cold weather or a long journey) and low food supplies.

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15. I have reviewed in detail the interim management plan that was in effect during the summer breeding season of 2007 (hereinafter referred to as the "2007 Interim Plan"), which was described and approved in the document entitled National Park Service's Finding of No Significant Impact for the Interim Protected Species Management Strategy/Environmental Assessment, dated July 2007 (or "FONSI"). In my opinion, the 2007 Interim Plan is flawed in several respects and its flaws are responsible at least in part for the declines in numbers and lack of breeding success of the Cape Hatteras populations of piping plovers, American oystercatchers, and colonially nesting waterbirds. Among the flaws are the following:

a. The resource closures began too late (April 1) to protect the birds from disturbance during the time that they are selecting mates and selecting territories, possibly deterring some pairs from mating or nesting at all. Monitoring only one time per week prior to April 1 and closing an area only after territorial behavior has been observed during two successive weekly monitoring does not give the park service monitors an adequate opportunity to determine if birds are acting territorially, requires too high a threshold prior to beach closure, and prevents the provision of timely resource closures as necessary.

Nesting by American Oystercatchers occurs in early April in Virginia, a more northerly location, so this level of monitoring can miss early nesting attempts in North Carolina.

b. The interim plan allowed vehicle corridors at the waterline instead of excluding ORVs from this intertidal area. This allowed ORVs in the species' foraging area on the ocean side of the island and on the sound side in some cases, thereby allowing ORVs to disrupt the feeding of adults and chicks alike. It is of little use to a species to have adequate roosting and nesting habitat without any proximity to the safest and most productive foraging habitat.

c. The buffers around nesting areas under the interim plan were too small. For instance, a theoretical moving buffer of 150 feet for oystercatcher chicks, with the park service having the option of reducing the buffer to an even smaller circumference, was inadequate. It also depends upon the park service monitors actually finding the small, well-camouflaged chicks of each brood, and accurately marking the boundaries of their movements. This, in my estimation, is difficult task, even for an experienced observer. The Interim Plan's inclusion of terms that depend on park service staff exercising discretion and observance is likely to fail in the implementation due to the inherent limitations of a small staff with a large acreage to cover and the likelihood of human error. Such a plan is less preferable than a plan with explicitly defined boundaries, which ensures uniform high standards will be enforced.

d. Using only the last three years of breeding to determine "historical" breeding grounds is unsatisfactory, since the populations of the species at issue were already drastically reduced by three years ago. Ten years of nest location data would provide a more complete picture of which habitat would be appropriately closed for breeding. For instance, no more than five piping plover pairs have nested at Hatteras in

any of the last three breeding seasons, but up to eleven pairs have nested per season in the last ten years. Similarly, the number of colonially nesting waterbird nests in the last three years was 246 nests in 2007, 743 in 2006, and 888 in 2005, whereas there have been up to 1,516 nests in a single season in the last ten years (and up to 6,395 nests per season looking back as far as 1984). Accordingly, using the data for a greater number of years is more likely to show all suitable breeding habitat than are the three-year data alone.

16. From my research and my observations at other breeding grounds for piping plovers in the Virginia portion of Assateague Island, intensive management including exclusion of ORV's from the best habitats, has resulted in a substantial increase in the numbers of this species to a population size that is now sustainable. In Ontario and Minnesota, I have observed small populations (10-12 pairs) dwindle, and eventually disappear due to lack of management. My observations of American oystercatchers in Virginia suggest that when this species does not have adequate access to food resources that breeding numbers quickly decline. Finally my observations of colonial nesting waterbirds in Virginia suggest that disturbed nesting areas result in colony abandonment. Thus, I believe that if current management practices continue, in two to three years, piping plovers will no longer breed at Cape Hatteras National Seashore, and that the populations of breeding colonially nesting waterbirds and American oystercatchers will be drastically reduced if not also extirpated. Given that American oystercatcher adults live longer than piping plover adults, they may persist as an unsuccessful breeding population for another 5-8 years. Their current rate of nest success is far below that required for a stable population; a fact that is corroborated by their 50% decline in less than 10 years (1999 to 2007).

17. I have also reviewed in detail the alternative management protocols described in the USGS's Management, Monitoring, and Protection Protocols for piping plovers, American oystercatchers and colonial waterbirds at Cape Hatteras National Seashore (hereinafter, the "USGS Protocols") and in the Environmental Assessment for the Interim Protected Species Management Strategy (hereinafter, the "EA Alternatives"). The USGS Protocols described alternative management protocols of varying degrees of protectiveness, which the author labeled the "highest degree of protection", "moderate protection" and "minimum protection." The EA described four different alternative management protocols of varying degrees of protectiveness, labeled Alternative A (the "no-action alternative, continuation of 2004 management"), Alternative B (the "environmentally preferred alternative, undisturbed area focus"), Alternative C (the "tailored management focus"), and Alternative D (the "access/research component focus/preferred alternative").

18. In my opinion, the protocol that most appropriately protects piping plovers, American oystercatchers, and colonially nesting waterbirds is the protocol entitled "Option A: the Highest Degree of Protection" found on pages 15-16 of the USGS protocol for American oystercatchers, pages 27-30 of the USGS protocol for piping plovers, and pages 12-13 of the USGS protocol for colonially nesting waterbirds. These species-specific protocols correct each of the flaws of the current Interim Plan described in paragraph 15 above, and effectively provide each species with habitat that is free from ORV-related disturbances for all of their necessary activities; that is, roosting, nesting, and foraging, in sufficiently close proximity. Only by having safe habitat for all of these activities during the entire period that the animals engage in the behaviors, can the birds experience breeding success. For instance, it is of no use to a bird to have adequate nesting habitat, if

it cannot safely court a mate and establish territory prior to the time for nesting and if it cannot safely feed and care for its young after hatching. The "Highest Protection" protocols provide ORV-free habitat from a specific date that is early enough to allow undisturbed courtship behavior and adequately large fixed buffers through fledging, rather than, as under the current Interim Plan, waiting for multiple observations of courting behavior (which will not happen when birds are subjected to routine disturbance) and providing smaller buffers for chicks set at the discretion of a park service employee. Implementation of the "Highest Protection" protocols, therefore, are necessary to prevent the reproductive failures of recent years under the current Interim Plan and to encourage recolonization and recovery of piping plovers, American oystercatchers, and colonially nesting waterbirds, whose numbers have been dwindling in recent years.

19. Due to the documented declines in reproductive productivity of piping plovers, American oystercatchers, and colonially nesting waterbirds as well as the low numbers of individuals at the Seashore generally, the next several breeding seasons are of critical importance. If current management practices continue for the next two to three years, piping plovers will most likely disappear as a breeding species from Cape Hatteras entirely and the populations of colonially nesting waterbirds and American oystercatchers will be drastically reduced if not also eliminated. On the other hand, immediate implementation of the "Highest Protection" protocols developed by the defendants' own scientists are the best chance for recovering and maintaining a viable population of those species. The recovery of both piping plover and American oystercatcher populations will depend on recruits from neighboring nesting populations so may take 3-8 years. By contrast, re-colonization by colonial nesting waterbirds may occur more quickly as these species respond more readily to the availability of undisturbed suitable habitat.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge.

Executed this the 18th day of December, 2007.

Erica Nol