Enclosure 1

STATEMENT OF THE DEPARTMENT OF THE INTERIOR CONCERNING THE CORPS OF ENGINEERS MANTEO (SHALLOWBAG) BAY PROJECT, DARE COUNTY, NORTH CAROLINA

PREPARED FOR THE COUNCIL ON ENVIRONMENTAL QUALITY

EXECUTIVE SUMMARY

Oregon Inlet, located in Dare County, North Carolina, is bounded on the north by Cape Hatteras National Seashore and on the south by Pea Island National Wildlife Refuge. The inlet currently provides the only access from the mainland to the Atlantic Ocean for a distance of about 130 miles. The dynamic geologic forces operating at Oregon Inlet have complicated its use for navigation. In 1960, the U.S. Army Corps of Engineers dredged a 14-foot-deep channel through the ocean bar (ebb tidal delta) and a 12-foot-deep channel in Pamlico Sound for navigational purposes. Subsequently, Congress authorized the COE to implement the Manteo (Shallowbag) Bay Project. The 1970 Act authorizing the project did not specifically list the components of the project. Instead, it referenced a House of Representatives document that generally described the project, which is deepening the ocean bar channel from 14 to 20 feet, construction of two jetties on either side of Oregon Inlet to maintain the 20-foot-deep channel, and bypassing all jetty-trapped sand to the beaches adjacent to the inlet.

The 1970 Act did not mention that the project would be constructed on and significantly affect lands and waters administered by the Department of the Interior. The northern jetty would be constructed on Bodie Island within CHNS. The southern jetty would extend from PINWR which was established in 1938 and is administered by the U.S. Fish and Wildlife Service. Additionally, the 1970 Act did not transfer jurisdiction of the lands that would be impacted by the project from the National Park Service and FWS to the COE, or otherwise limit the NPS's and FWS's authority over this area. Therefore, NPS and FWS special use permits are required for project construction.

The purpose of the Manteo Project is to ensure safe and reliable navigation through Oregon Inlet. The original economic justification was to increase seafood landings at Wanchese Harbor and other North Carolina ports. However, based on consultations with the National Marine Fisheries Service, the COE acknowledged in the mid-1990s that the project would not increase fish landings. The current economic justification is based primarily on increased recreational benefits, improving commercial fishing efficiency (i.e., by reducing waste of fuel and labor), and land erosion protection.

In December 2000, U. S. Senators Max Baucus and John Edwards requested a General Accounting Office review of the Manteo Project. The Senators asked for an examination of whether: (1) the COE had adequately assessed alternatives to the jetties that reduce harm to CHNS and PINWR and reduce impacts on fish stocks; (2) the COE considered all relevant factors, such as environmental impacts, in selecting the jetty alternative; (3) the COE adequately and accurately performed cost-benefit and other economic analyses in the selection of the jetty alternative; (4) the jetties will maintain the desired channel or would additional dredging be required; and, (5) the COE adequately assessed similar projects to gauge the likely impacts to the shoreline and the environment at Oregon Inlet. The GAO review is underway and a report is expected in March 2002.

Draft Supplement III to the Final Environmental Impact Statement of January 1999, determined that a dual jetty system with a Sand Management Plan was the only feasible alternative to ensure safe and reliable navigation through Oregon Inlet. The DOI comments of March 22, 1999, on the Draft EIS concluded that unresolved environmental concerns were so significant that DOI would consider referring the project to the Council on Environmental Quality. The Notice of Availability for the Final Supplement III to the Final EIS was published in the Federal Register on September 21, 2001. The COE did not concur with the serious concerns raised by the DOI and the preferred alternative remained unchanged.

The proposed dual jetty system would produce unacceptable, adverse environmental impacts on PINWR, CHNS, and within the entire project region. In addition, construction of this magnitude would set a disturbing precedent for inlet navigation projects affecting national seashores and national wildlife refuges. The laws applicable to the management of land under the jurisdiction of the FWS and the NPS conflict with the 1970 legislation directing the COE to construct the jetties. These concerns have resulted in the FWS and DOI repeatedly requesting that the COE give serious consideration to dredging as a feasible alternative to the jetties. Overall, it is our opinion that the COE has not fully disclosed nor rigorously evaluated the impacts of feasible alternatives as required by the National Environmental Policy Act. However, DOI contends that most adverse impacts resulting from the proposed dual jetties alternative would not occur with selection of the dredging-only alternative. Therefore, the DOI is referring the project the project to CEQ in accordance with part 1504 of the NEPA Implementing Regulations to resolve these issues. Included in this referral, are clear and concise recommendations for resolving the issue – all of which have been discussed with the COE over the past two decades.

Our criteria for referring this project to CEQ comply with the requirements in 40 CFR 1504.2. These criteria include the fact that we have irreconcilable differences with the COE regarding the proposed selection of the dual jetties alternative that would adversely affect resources of national importance in terms of severity, geographic scope, and duration. Additionally, the COE preferred alternative involves a violation of national environmental standards and policies. Finally, we believe there is a feasible, environmentally preferable alternative to the proposed action.

The DOI supports the goal of ensuring safe and reliable navigation through Oregon Inlet. However, the dual jetties and associated sand bypassing system would cause unacceptable impacts to uplands, submerged lands, and waters that were set aside by Congress for the benefit of fish and wildlife as well as the enjoyment of the American public. The DOI believes that safe and reliable navigation through Oregon Inlet can and should be achieved. The DOI believes that a conventional dredging program accompanied with an appropriate sand management plan is feasible and would achieve the stated project purpose.

This supporting statement lays out discussions of the material facts regarding the COE preferred alternative, including those on which there is general agreement and those in disagreement. A section presents our views regarding existing environmental laws and policies which the proposed project will violate. The reasons why the project is considered environmentally unacceptable are given. Findings regarding concerns which are of national importance because of impacts and threats to nationally important resources are presented. A chronology of events regarding the project has been prepared which includes those steps taken to inform the COE of our concerns and outlines our efforts to resolve those concerns. Finally, specific recommendations which, in our opinion, will resolve the matter are made.

DEPARTMENT OF THE INTERIOR RECOMMENDATIONS FOR FUTURE ACTION

The DOI has concluded that construction of the dual jetty system and implementation of the SMP would result in substantial and unmitigable environmental harm to lands of national importance under its jurisdiction, and would therefore be environmentally unacceptable. The COE preferred alternative would be contrary to laws governing our management of these lands, pursuant to the National Wildlife Refuge System Improvement Act of 1997 and National Park Service Organic Act of 1916. Specifically, this alternative is not compatible with the purposes for which PINWR was established and would impair the resources and values of CHNS. Therefore, DOI recommends that the COE select the dredging-only alternative at the 14-foot depth or other appropriate depth, consistent with the National Wildlife Refuge System Improvement Act of 1997, National Park Service Organic Act of 1916, and other applicable laws.

The DOI stands ready to assist the COE in fulfilling these aspects of planning for safe and reliable navigation through Oregon Inlet.

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Table 1 - List of Acronyms

Acronyms used in this statement are summarized below.

ASA(CW)	- Assistant Secretary of the Army (Civil Works)	GAO	- General Accounting Office
A/S-FW	- Assistant Secretary of the Interior for Fish and Wildlife and Parks	GDM	- General Design Memorandum
CEQ	- Council on Environmental Quality	NCDOT	- North Carolina Department of Transportation
CHNS	- Cape Hatteras National Seashore	NEPA	- National Environmental Policy Act
COE	- U. S. Army Corps of Engineers	NMFS	- National Marine Fisheries Service
Dare County Project	- Dare County Storm Damage Reduction Project	NPS	- National Park Service
DOI	- U. S. Department of the Interior	OITOC	- Oregon Inlet Technical Observation Committee
EIS	- Environmental Impact Statement	OITDC	- Oregon Inlet Technical Design Committee
EO	- Executive Order	PINWR	- Pea Island National Wildlife Refuge
EPA	- U. S. Environmental Protection Agency	project	- Manteo (Shallowbag) Bay Project [the jetties at Oregon Inlet], Dare County, North Carolina
FDM	- Feature Design Memorandum	SAV	- submerged aquatic vegetation (sea grasses)
FWS	- U. S. Fish and Wildlife Service	SMP	- sand management plan
FWCA	- Fish and Wildlife Coordination Act		

INTRODUCTION

Oregon Inlet, bounded on the north by Cape Hatteras National Seashore and on the south by Pea Island National Wildlife Refuge, was opened by a hurricane in 1846. Although the Outer Banks have contained more than two dozen inlets over the last two centuries, Oregon Inlet currently provides the only access from the mainland to the Atlantic Ocean between the Virginia border and Hatteras Inlet, a distance of about 130 miles. High wave energies and associated strong currents at Oregon Inlet have caused the inlet to migrate 3 miles south of its original location.

The dynamic geologic forces operating at Oregon Inlet have complicated its use for navigation. In 1960, the U.S. Army Corps of Engineers dredged a 14-foot-deep channel through the ocean bar (ebb tidal delta) and a 12-foot-deep channel in Pamlico Sound. Subsequently, in the Rivers and Harbors Act of 1970, P.L. 91-611, Congress authorized the COE to implement the Manteo (Shallowbag) Bay Project. The 1970 Act did not specifically list the components of the project. Instead, it referenced a House of Representatives document that generally described the project, which is deepening the ocean bar channel from 14 to 20 feet, construction of two jetties on either side of Oregon Inlet to maintain the 20-foot-deep channel, and bypassing all jetty-trapped sand to the beaches adjacent to the inlet.

The 1970 Act did not mention that the Manteo Project would be constructed on and significantly affect lands and waters administered by the Department of the Interior. The northern jetty would be constructed on Bodie Island within CHNS. The CHNS was established in 1953 and is administered by the National Park Service. The southern jetty would extend from PINWR, which was established in 1938 and is administered by the U.S. Fish and Wildlife Service. Also, the
1970 Act did not transfer jurisdiction of the area that would be affected by the Manteo Project from the NPS and FWS to the COE, or otherwise limit NPS's and FWS's authority over this area. Therefore, NPS and FWS permission, in the form of special use permits, is required for project construction.

Originally, the purpose of the Manteo Project was to increase seafood landings at Wanchese Harbor and other coastal ports. Based on consultations with the National Marine Fisheries Service, the COE acknowledged in the mid-1990s that the project would not increase fish landings. The present stated project purpose is to improve navigation safety and to maintain adequate channel depths through Oregon Inlet in an efficient and environmentally acceptable manner. The current economic justification is based primarily on increased recreational benefits, improving commercial fishing efficiency (i.e., by reducing waste of fuel and labor), and land erosion protection.

In December 2000, U. S. Senators Max Baucus and John Edwards requested a General Accounting Office review of the Manteo Project. The Senators asked for an examination of whether: (1) the COE had adequately assessed alternatives to the jetties that reduce harm to CHNS and PINWR; (2) the COE considered all relevant factors, such as environmental impacts, in selecting the jetty alternative; (3) the COE adequately and accurately performed cost-benefit

and other economic analyses in the selection of the jetty alternative; (4) the jetties will maintain the desired channel or would additional dredging be required; and (5) the COE adequately assessed similar projects to gauge the likely impacts to the shoreline and the environment at Oregon Inlet. The GAO review is underway and a report is expected in March 2002.

The DOI supports the goal of ensuring safe and reliable navigation through Oregon Inlet. However, the dual jetties and associated sand bypassing system would cause unacceptable impacts to uplands, submerged lands, and waters that were set aside by Congress for the benefit of fish and wildlife as well as the enjoyment of the American public. The DOI believes that safe and reliable navigation through Oregon Inlet can and should be achieved through a plan that balances economic development with the unique environmental values of North Carolina's Outer Banks. The DOI believes that a conventional dredging program accompanied with an appropriate sand disposal plan is feasible and would achieve the stated project purpose.

The DOI analysis and position presented in this statement are based on FWS's Final Fish and Wildlife Coordination Act Report, dated July 2001; DOI comments on the Draft Supplemental III Final Environmental Impact Statement; DOI reports on coastal geology and economics obtained through various contracts; and other reports.

SUMMARY OF ALTERNATIVES EVALUATED BY THE CORPS OF ENGINEERS

The development and evaluation of alternatives by the COE has consistently been based on an ocean bar channel 20 feet deep, as specified in the 1970 authorization. This design feature would be a 43 percent increase in depth over the ocean bar channel that the COE has maintained at a depth of 14 feet since the early 1960s. The following alternatives were contained in the draft and final National Environmental Policy Act compliance documents.

Dual jetties with weir and sand bypassing system (COE preferred alternative) - This alternative would construct two, rubble-mound, stone jetties spaced 3,000 feet apart, each extending 2,500 feet into the ocean from the post-construction shoreline. The northern jetty would be anchored on Bodie Island within CHNS. This jetty would have a total length of 10,020 feet, a crest elevation approximately 9 feet above mean sea level, and contain a 1,000-foot-long weir with a crest elevation at mean sea level. The weir would be aligned at a 45-degree angle to the shoreline and would have a 60-acre sediment deposition basin in its lee. A 2,000-foot-long portion of CHNS upland would have to be dredged to create this basin. The weir is intended to facilitate larval fish transport from the ocean into Oregon Inlet and would consequently reduce construction and dredging costs. The southern jetty would extend from the existing terminal groin on PINWR and would have a total length of 6,575 feet. This groin was constructed by the North Carolina Department of Transportation during 1989-1991 to protect the southern base of Bonner Bridge, threatened by natural inlet migration.

In years when the net littoral sediment transport in the area, either north-to-south or south-to-north, exceeds 250,000 cubic yards, the COE Sand Management Plan calls for bypassing sand from the deposition basin to the beaches of Pea and/or Bodie Islands. Most of the sand would be

disposed on Pea Island since this island is downdrift of the jetties and therefore is more likely to suffer jetty-induced erosion than Bodie Island. If the measured volume of sand trapped in the sediment basin was less than 250,000 cubic yards, the COE would not bypass sand, but wait until this minimum volume could be moved. If routine sand bypassing failed to hold beach erosion below certain established thresholds, the COE would undertake additional beach nourishment operations using designated contingency, or emergency, sand sources in the ocean, sound, or between the jetties.

Dredging-only alternative (DOI recommended alternative) - The Corps would maintain the navigation channel at an appropriate depth (potentially less than 20 feet deep) via a hopper dredge and/or ocean-certified pipeline dredge. The dredged material would be moved to the beaches or shallow, nearshore waters of Bodie and Pea Islands. This alternative would be adapted to respond to changing sea level, weather, and the unpredictable sand transport conditions within the project area. This alternative would allow passage of larval fish and storm waters through Oregon Inlet. Since sand would continue to naturally bypass the inlet, the amount of sand dredged and deposited onto the barrier islands would be less than the amount trapped and bypassed under the COE preferred alternative. Some sand would continue to enter Pamlico Sound and help maintain estuarine wetlands and sandy shoals.

The DOI believes there are two reasons that the dredge-only alternative would cause less erosion to Bodie and Pea Islands than the jetties alternative. First, previous hopper dredging operations in Oregon Inlet caused erosion on Pea Island by placing sediment removed from the littoral system in water too deep to allow waves and currents to return sand to the active alongshore transport system, i.e, the sand was permanently lost from the beaches. The DOI recommended alternative would keep sand in the littoral system. Second, coastal geologists agree that, with few exceptions, navigational modifications such as jetties result in substantial downdrift erosion, notwithstanding concerted efforts to artificially bypass trapped sand. The dredge-only alternative would allow some natural sand movement across the inlet to continue.

Other jetty alternatives - Previous COE jetty designs called for longer jetties; concrete, sand-impervious cores inside the jetties; no weirs; and asphalt walkways along the crest of the jetties.

Alternative channel dimensions - The COE asserts that the commercial fishing fleet requires an ocean bar channel that is 20 feet deep. Since the late 1960s, planning documents prepared by the COE do not contain any analysis of ocean bar depths less than 20 feet.

No-action alternative - The COE would continue its current maintenance dredging activities in the existing 14-feet deep ocean bar channel and the 12-feet deep interior channel.

BASIS FOR THE DEPARTMENT OF INTERIOR REFERRAL

The DOI referral is based on the conclusion that the dual jetties and SMP would cause significant and unmitigatible harm to the project area and be inconsistent with the legal authorities applicable to DOI lands and waters. Specifically, the COE preferred alternative would potentially impair the resources and values of CHNS and would be incompatible with the purposes for which PINWR was established.

I. Project Material Facts

A. Agreed upon Facts

The agreed upon material facts of the project are:

1. The lands associated with the CHNS and PINWR were purchased for their uniqueness and environmental value. The natural resources of the Outer Banks barrier island ecosystem are of national importance for fish and wildlife habitat and human recreation. Present uses of the area, which are regionally and nationally significant, relate directly or indirectly to its natural resources.

2. The area around Oregon Inlet is subject to the most severe wave climate along the East Coast of the United States. These waves transport considerable quantities of sand along the beaches of Bodie and Pea Islands. Such sand movements create shoaling at the Oregon Inlet navigation channel that can create hazardous conditions for vessels that must use the navigation channel to move between ports and ocean fishing areas. The unreliability of navigation at the inlet has frequently prevented the commercial fishing fleet (especially larger vessels) from using port facilities at Wanchese, North Carolina, and caused some vessels based there to relocate fishing activities to Hampton Roads, Virginia.

3. There is a valid need to ensure safe and reliable navigation through Oregon Inlet and link ocean fishing areas to port facilities. Certain benefits associated with a successful dredge-only plan would equal those created by the jetties alternative.

4. Building jetties at Oregon Inlet would not produce any increase in fish landings. The fisheries resources of the mid-Atlantic Ocean are now fully exploited with current access. Project benefits are now primarily restricted to improved fishing efficiency.

5. Construction and maintenance of the COE preferred alternative would result in the permanent (jetty footprint and permanent infrastructure) or periodic (sand movement and placement) alteration of 126 acres of park and refuge lands. Sand bypassing operations would detract from the quality of visitor experiences in the project area and create noise and dust disturbances in the Oregon Inlet campground operated by the NPS.

6. The COE preferred alternative would result in a loss of wetlands within CHNS and estuarine bottoms in Oregon Inlet and Pamlico Sound and thus decrease estuarine productivity.

7. Oregon Inlet is a critical passageway for the movement of eggs and larvae of ocean-spawning fish, typically passively carried by the current, from the ocean to estuarine nursery areas. The inlet is the only passageway for these larval marine organisms for approximately 130 miles between Rudee Inlet, Virginia, to the north and Hatteras Inlet, North Carolina, to the south. The jetties would physically block the passage of an undetermined percentage of these larval organisms. Larvae blocked by the jetties would not survive. The ability of the new weir section to facilitate larval passage is unknown.

8. While populations of most beach invertebrates (small, sand-dwelling worm, clams, and crabs) can recover fairly quickly from a single beach disposal event, the annual sand placements specified in the SMP would keep beach fauna in a state of perpetual disturbance at reduced levels. Populations would never fully recover before the next sand bypassing operation. Therefore, the COE preferred alternative is anticipated to produce long-term declines in beach fauna within the beach disposal area. The Pea Island population of ghost crabs, a species particularly sensitive to sand placements, would be severely depressed within the limits of the beach disposal area. Shorebirds and fish which feed on these beach invertebrates would find a reduced prey base in the disposal area and would be forced to spend more time in adjacent feeding areas, increasing competition for food resources at those sites.

9. While the COE preferred alternative would not jeopardize the continued existence of any species protected by the Endangered Species Act, it may adversely affect nesting of threatened loggerhead and green sea turtles. Sand placements on area beaches could occur during the sea turtle nesting season, forcing the relocation of nests detected by monitoring efforts. Sea turtle nests that are not detected in the sand placement area would be buried and lost. The project may adversely affect migrating and overwintering piping plovers of all three breeding populations that are considered threatened during these times of the year. The project may adversely affect breeding of the threatened Atlantic Coast population of piping plovers. The project would not adversely modify designated critical habitat for overwintering piping plovers.

10. Not all of the adverse environmental impacts of the COE preferred alternative can be predicted.

11. Starting in approximately 2004, the COE will begin construction of the Dare County Storm Damage Reduction Project (Dare County Project), a 50-year commitment to place sand mined from offshore marine bottoms on developed beaches from Kitty Hawk to the southern limit of South Nags Head, approximately 5 miles north of Oregon Inlet. The predominant alongshore transport of sand is from north to south. Initial construction of artificial beaches would require 12,340,000 cubic yards of offshore material and periodic placement would require 3,890,000 cubic yards approximately every 3 years. Using a simple average, approximately 1.3 million cubic yards of sand would leave these artificial beaches every year during the first 50 years of the project. Material used to construct these beaches is expected to move south into CHNS and some sand from this large beach nourishment effort would flow into the Oregon Inlet navigation channel.

B. Disputed Facts

The project facts that are disputed include:

1. **The Feasibility of the Dredging-Only Alternative**

• DOI position: A dredge-only alternative to 14 feet or other appropriate depth deserves a thorough, impartial evaluation. Such a dredging alternative has less risk of environmental harm, greater flexibility, and lower cost than the COE preferred alternative if total project costs and environmental values are fully considered.

• COE position: The COE evaluated dredging of a 20-foot channel and determined it was not economically justified. Due to past difficulties with dredging, there is a high level of uncertainty and risk associated with dredging. The existing 14-foot ocean bar channel cannot be effectively maintained with currently available dredging technology.

2. **The Necessity of Jetties and the 20-Foot Channel to Improve Safe Passage through the Inlet**

• DOI position: The COE has not fully explained why jetties are integral to improve safe passage through the inlet. The FWS noted that fatalities at the inlet have declined dramatically over the past 40 years without the jetties. The 20 reported deaths which occurred between 1961 and 1979 have declined to only two deaths from 1980 through 2000. The most recent fatality occurred in 1996. Improved vessel construction, better communications, better weather forecasting, and improving navigation technology will continue to reduce accidents at the inlet, regardless of whether the jetties are constructed. Furthermore, jetties can actually increase navigational risks to vessels for four reasons: (1) tidal velocities in an artificially constrained inlet may increase during storm events, to accommodate the increased volume of water; (2) inlet channels tend to migrate towards jetties and channels located adjacent to jetties increase the risk to vessels of grounding on the jetty in the event of engine failure or a rogue wave; (3) wave conditions at the entrance of the jetties could become more hazardous, due to wave refraction by the jetties which results in higher and lower wave energies; and (4) vessel collisions with rock jetties are more catastrophic than running aground on sand beaches. Any increase in overall safety is dependent on no concomitant increase in the size of vessels using the inlet. If a channel is maintained that is larger and deeper than the currently existing channel, and that channel would experience some shoaling, it is likely that damage to existing small vessels may be replaced by future damages to larger vessels, and the safety benefits of the deeper, jettied channel would be nullified or further degraded.

• COE position: Without the jetties, 14 vessels and 14 lives will be lost during the next 50 years due to present conditions at the inlet. The COE "does not envision an increase in size or number of the commercial fishing fleet." Jetties are believed to be the only practical alternative to achieve safe and reliable navigation.

3. **The Ability of the COE to Predict the Shoreline Response to the Jetties**

• DOI position: The dynamic nature of the project area and uncertainties regarding the projected sea level rise and impacts resulting from major coastal storms make it impossible to predict with an acceptable level of accuracy the shoreline response to the jetties. Computer models used by COE do not achieve an acceptable level of accuracy.

• COE position: A numerical model was used as a tool to evaluate the proposed weir jetty and SMP. Model results help substantiate the assumption that the weir jetty/SMP alternative is capable of responding to the varied situations likely to occur following inlet stabilization without adverse impacts to adjacent shorelines.

4. **The Effects of Future Sea Level Rise on the Jetties**

• DOI position: Current sea level rise and the potential for an acceleration in the rate of sea level rise makes long-term existence of the fixed dual jetty system on barrier islands untenable. Problems related to sea level rise would require additional construction such as shoreline armoring to protect the jetties.

• COE position: The jetty system and SMP would counteract the erosive influence of sea level rise by placing all sand that would normally enter Pamlico Sound on the beaches of Bodie and Pea Islands. Planning for this project has considered the uncertainties inherent in such projects, and has tried to compensate by the incorporation of detailed monitoring and mitigation plans.

5. **The Impact of Barrier Island Migration on Viability of Fixed Jetty Structures**

• DOI position: Bodie and Pea Islands are migrating landward as global sea level rises. Natural barrier island migration would either cause the jetties to become detached from existing land or require extensive additional construction.

• COE position: Barrier island migration occurred in the geologic past, but is not occurring today and would not affect the performance of the jetties in the foreseeable future.

6. **The Required Depth of Ocean Bar Channel**

• DOI position: The COE has not justified the need to increase the depth of the ocean bar channel by 43 percent, from 14 to 20 feet, for passage of vessels currently using the existing channel. The COE predicts that the number and relative size of commercial fishing vessels using the inlet will not increase. In addition, smaller recreational vessels do not need a 20-foot channel. The COE has shown no correlation between the proposed 20-foot channel and increased commercial fishing efficiency, which is the primary basis for their benefits. Likewise, the COE did not analyze whether such efficiency could be obtained by the fleet utilizing a shallower channel that would be less expensive to maintain. We believe sustainable levels of

fish harvest could be accomplished for the foreseeable future by simply ensuring passage through the existing 14-foot ocean bar channel.

• COE position: The authorized 20-foot channel is not overly designed and any reduction in depth would create unsafe conditions.

7. **The Ability of the Sand Management Plan to Prevent Erosion of Area Beaches**

• DOI position: Excessive beach erosion is very likely to occur on project area beaches with the proposed SMP for the following reasons:

1. The COE plan to delay sand bypassing until the material to be moved equals at least 250,000 cubic yards would allow bypassing operations to be omitted for a year or more. The beaches would continue to erode, especially around erosional "hot spots," for long periods of time between bypassing operations. This management scheme would result in wide swings in annual sand movement patterns and the associated lateral sand transport budget leading to wider variations and greater erosional impacts to area beaches.

2. The weir may become blocked by sudden inflows of sand, e.g., sand from the updrift Dare County Project, causing sand to be diverted from the deposition basin, flow around the seaward end of the jetties, and be pushed by tidal currents either landward or seaward. Blockage of the weir would prevent sand from entering the deposition basin. Sand not captured in the sediment basin would not be available for bypassing and could be lost to the alongshore sand transport system.

• COE position: Concerns about project effects on littoral processes have been addressed through the development of the SMP. The sand bypassing feature of the COE preferred alternative will mitigate the reduction of the littoral transport of sand to the up- and down-drift beaches of Oregon Inlet. Sand volumes of less than 250,000 cubic yards are to "small" to move economically.

8. **The Areal Extent of Environmental Impacts to Project Area Beaches**

• DOI position: Subtle and long-term variations in the landforms, sediment budget, and ecosystems of the areas would occur up to 10 miles north and south of the jettied inlet.

• COE position: While the most likely areas of impact will be within 3 miles of the inlet, the COE will assume responsibility for erosion losses that occur in a zone 6 miles north and 6 miles south of the inlet. These zones are based on shoreline response modeling that indicates that post-jetty impacts would be limited to areas less than 6 miles from the inlet.

9. **The Adequacy of Contingency Sand Resources to Correct Shortfalls of Sand Bypassing**

• DOI position: While sand sources to be used for emergency erosion control or other shortfalls in the SMP are estimated to be over 10 million cubic yards, this supply is not likely to be adequate for the 50 years of the official project life and are certainly inadequate for a project that is essentially permanent. Any failure of the SMP to trap and retain sand moving along the beaches will result in less sand for bypassing and the recurring use of the reserve supply. Persistent use will eventually deplete this sand reserve and lead to either unchecked beach erosion, the very expensive importation of sand over long distances, or shoreline armoring that would require even more artificial beach construction.

• COE position: Identified emergency or contingency sand resources are adequate to allow beach nourishment should conditions on either Bodie or Pea Islands reach some critical condition or sand in accretion fillets is insufficient to satisfy the sediment demands associated with the SMP erosion thresholds. These sources are also adequate to counter the impacts associated with any increase in the rate of sea level rise should sea level rise threaten the integrity of the jetties.

10. **The Environmental Impacts of Eliminating Sand Movement into Pamlico Sound**

• DOI position: The jetties are designed to eliminate all sand flows into Pamlico Sound. This reduction in sand increases erosion of the existing estuarine wetlands and maintenance of important areas of submerged aquatic vegetation (sea grasses). Both of these habitat types are critically important habitats for fish. The loss of sand flows adversely impacts subaerial sandy flats used by waterbirds. Under natural conditions, sandy shoals in the sound are incorporated into the backside of barrier islands as they migrate landward and thus wide, natural beaches are maintained during the migration process.

• COE position: Oregon Inlet intercepts and retains large portions of the annual volume of sand transported along the coast. The natural inlet traps a large amount of sand in the ebb and flood tide shoals which creates erosion on the ocean beaches. A function of the jetties is to prevent sand from entering the inlet. In bypassing the sand that would normally enter the inlet, the COE preferred alternative would prevent beach erosion and enhance the stability of Bodie and Pea Islands by preventing sand from being removed from the active littoral zone. Estuarine habitat in Pamlico Sound would be monitored after jetty construction and mitigation measures would be developed for significant environmental impacts detected.

11. **The Impact of Jetties on the Passage of Larval Marine Organisms**

• DOI position: The jetties, even with the weir section, pose a serious risk of blocking the migration of ocean spawned larval marine organisms that must be passively carried by natural tidal current through Oregon Inlet to nursery areas in Pamlico Sound. Even a small reduction in larval passage when compounded over many decades (i.e., the 50 year project life) would have a serious adverse effect on nationally important ocean fisheries stocks.

• COE position: Definitive conclusions regarding the impacts of the proposed project on larval fish and shellfish migration are not completely known. Every practical larval transport feature has been incorporated into the selected design.

12. **The Impact of the Dare County Storm Damage Reduction Project on the Functioning of the Jetties**

• DOI position: Large amounts of sand will be carried from this large beach nourishment project to Oregon Inlet. Sand inflows are likely to impair the functioning of the weir and prevent sand from entering the sediment deposition basin. If the weir becomes blocked by sand, sand may move around the north jetty and block the navigation channel. These additional sand inflows may require additional construction on the jetties and/or increase the need for dredging at the inlet.

• COE position: Only a minor increase in net southerly transport toward Oregon Inlet is expected from the Dare County Project. Any sand moving south from the beach nourishment project would be within the natural range of sand movement and would not impair the functioning of the jetties.

13. **Integration of Planning for Future Highway Infrastructure with Navigation Through Oregon Inlet**

• DOI position: The COE cumulative impact assessment should fully consider the impacts of current and future plans to replace Bonner Bridge spanning Oregon Inlet and North Carolina Highway 12 along the outer banks by the Federal Highway Administration and North Carolina Department of Transportation. This assessment should consider a relocated Bonner Bridge and NC Highway 12 that are not dependent on a stabilized inlet (e.g., a highway on structure in Pamlico Sound or other alternatives). Removal of the bridge and highway from the immediate vicinity of Oregon Inlet would eliminate the basis for the special use permits for the terminal groin and eventually lead to the removal of the groin. This would allow Oregon Inlet and the navigation channel to migrate naturally.

• COE position: Planning for navigation through Oregon Inlet does not need to consider future configurations of Bonner Bridge and NC Highway 12. The removal of the terminal groin and the resumption of natural inlet migration are too speculative to factor into current planning.

14. **The Ability of the Post-construction Environmental Monitoring Program to Prevent Significant Environmental Harm**

• DOI position: The Environmental Monitoring Program may not be able to detect significant adverse environmental impacts due to the dynamic nature of the project area or interruptions in

COE funding required to carry out the monitoring. Even if such impacts are documented, an acceptable mitigation plan may not be technically feasible or funded in a timely manner.

• COE position: The proposed Environmental Monitoring Program will be able to detect significant adverse environmental impacts and appropriate mitigation measures can be developed. Once funding for mitigation or restoration measures is provided, these measures will be implemented by the COE.

15. **The Timing of Compensatory Wetland Mitigation for Expansion of Wanchese Harbor**

• DOI position: The expansion of Wanchese Harbor in the late 1970s, originally a part of the overall project, eliminated 42 acres of saltmarsh. The COE should implement compensatory mitigation for this valuable fish and wildlife habitat as soon as possible without resolution of the overall project.

• COE position: Compensatory mitigation for saltmarsh losses at Wanchese Harbor is linked with other mitigation for losses of shallow estuarine bottoms associated with deepening estuarine channels. Funding for Wanchese Harbor mitigation will be included in appropriations for jetty construction, and thus mitigation must await a final decision on jetty construction.

16. **The Relationship of Project Costs to Benefits**

• DOI position: Two reports (1999 and 2001) by academic economists contracted by the DOI have concluded that the costs to build and maintain the jetties would exceed their benefits. While project construction and routine maintenance costs recognized by the COE may be accurate, other costs such as large expenditures for future mitigation of impacts detected by the monitoring program, additional construction as shorelines erode, unexpected dredging requirements, or the requirement to import large quantities of sand to control beach erosion have been ignored. Some project benefits have been inflated.

• COE position: Project costs and benefits have been carefully determined and two benefit-cost-ratios have been calculated based on projected fish landings from the North Carolina Division of Marine Fisheries and the National Marine Fisheries Service. The B/C ratios based on NCDMF and NMFS data are 1.8 and 1.6, respectively. Using either landing projection, the project is economically feasible and produces maximum net National Economic Development benefits.

II. Relationship to National Environmental Laws and Regulations

The Department has determined that the COE preferred alternative does not comply with the following National Environmental Laws and Regulations:

The National Park Service Organic Act of 1916, 16 U.S.C. §§ 1-4, directs the NPS to conserve park resources and values unimpaired and to provide for their enjoyment by present and future generations. If constructed, the dual jetties and sand bypassing operational requirements would permanently utilize 93 acres of CHNS lands on Bodie Island. The jetties would be located in areas of the park containing critical natural resources, such as wetlands, maritime shrub communities, and nesting areas for threatened species such as the piping plover and sea turtles. The jetties would also significantly alter prime opportunities for family recreation, such as recreational angling, wildlife observation, beach activities, water sports, and appreciation of the view of the Atlantic Ocean. In short, the jetties would permanently impair park resources and values, and would therefore be in violation of the NPS Organic Act.

National Park Service Management Policies (2001) clarify that the non-impairment mandate of the NPS Organic Act is the primary responsibility of the NPS. The Policies require NPS decision makers to deny permission for any proposed activity that would impair park resources and values. The Policies also direct the NPS to recognize natural change as an integral part of the functioning of natural systems. By preserving these natural components and processes in their natural condition, the NPS will prevent resource degradation, and therefore avoid any subsequent need for resource restoration. The Policies also require the NPS to protect floodplains and wetlands, and permit no net loss of wetlands within park boundaries. Finally, the Policies require the NPS to allow natural shoreline processes (such as erosion, deposition, dune formation, overwash, inlet formation, and shoreline migration) to continue without interference. Any erosion control, infrastructure protection, or new developments in NPS coastal areas must comply with specified criteria in order to minimize their effect on natural resources and processes. Granting the COE permission to construct and operate the jetties and SMP within park boundaries would be inconsistent with these policies.

The National Wildlife Refuge System Improvement Act of 1997, P.L. 105-57, amending 16 U.S.C. §§ 668dd, 668ee, requires the Secretary of the Interior to provide for the conservation of fish, wildlife, and plants and their habitats within the National Wildlife Refuge System; ensure that the biological integrity, diversity, and environmental health of the System are maintained for present and future generations; and permit new uses of a refuge only if the use is compatible with (i.e., does not materially interfere with or detract from) the mission of the National Wildlife Refuge System or the purpose(s) of the refuge. The Act expressly retains pre-existing compatibility determinations. Because the COE has repeatedly failed to resolve FWS concerns about the impacts of the dual jetty system alternative on 33 acres of PINWR, the determination of incompatibility made by the FWS in 1982 is still in effect. The granting of a permit for jetty construction on PINWR would violate this law.

The National Environmental Policy Act and its implementing regulations at 40 C.F.R. Part 1500 require Federal agencies to rigorously explore and objectively evaluate all feasible alternatives for achieving the purpose and need of a proposed action. Additionally, agencies are directed to enhance and restore the quality of the human environment and avoid or minimize the adverse effects of their proposed actions on the human environment. Some of the reasons that DOI believes the Corps has not complied with NEPA include:

1. In considering the purpose and need for the project, the COE asserts that the deeper channel protected by jetties would improve navigational safety. This determination is based on an implicit assumption that the size of vessels using the inlet would not increase. However, it is reasonably foreseeable that vessel size would increase in direct proportion to the deeper channel. People by nature tend to push the limits, be they speed limits or, in this case, size limits. An increase in average vessel size could reduce or nullify the jetties' safety benefits. Damage to small vessels would be replaced by damage to larger vessels and there would be no overall safety improvement, in fact, overall safety concerns could be aggravated. The COE should have analyzed this aspect of the project. The COE also failed to consider that massive stone jetties can, in themselves, be navigational hazards and create hazardous unsafe wave conditions. For example, four people died in 1999 after their vessel collided with a jetty near Charleston, South Carolina. Two people, dangerously hypothermic after only 15 minutes in the water, were rescued in 1994 after colliding with the Masonboro Inlet jetty near Wrightsville Beach, North Carolina.

2. The Corps has not critically reexamined and validated the purpose and need for deepening the ocean bar channel from 14 to 20 feet despite the fundamental change in the project's economic justification that occurred in the mid-1990s. The 20-foot channel depth, authorized in 1970, was approved by Congress to allow larger commercial vessels to catch more fish. Now, since the fishery is admittedly over exploited and fishing vessels are not expected to increase in size, NEPA compliance documents should analyze the purpose and need for a channel of that depth and whether the new project justification, increased fishing efficiency, could be achieved by an ocean bar channel that is shallower and less expensive to maintain.

3. In considering potentially damaging shoreline erosion after jetty construction, the COE has relied solely on computer models that fail to adequately account for the dynamic nature and complexity of the area. For example, the COE has not considered major storm events, which can greatly influence the severity of environmental impacts. The models utilized are based on flawed assumptions and oversimplifications. Model results are modified by unverified calibration coefficients. Additionally, the models cannot be validated by comparisons to long term studies. By excluding the reports and professional opinions of qualified experts outside the COE, environmental impacts have not been adequately disclosed to the extent necessary to make an informed decision on a preferred alternative.

4. In 1982, the DOI concluded that the COE alternatives analysis unrealistically required a higher assurance of success for a dredging alternative than that required for the jetties. The analysis of alternatives under NEPA should devote substantial treatment for each alternative considered in detail so that reviewers and decisionmakers may evaluate their comparative merits. In essence, NEPA requires equal treatment of all alternatives.

5. The COE has acknowledged, but not evaluated, the cumulative impacts on wetlands caused by the enlargement of Wanchese Harbor, the deepening of navigation channels in Pamlico Sound, the total elimination of sand inputs into the sound, and the construction of the north jetty through wetlands on Bodie Island. The COE contends that the project's impacts on wetlands,

and the resulting need for and cost of wetland mitigation, are unknown at this time. Yet this information should be available to the agencies and the public before a decision is made. Further, the COE asserts that lost wetlands on Bodie Island would be partially mitigated by converting NPS uplands to wetlands. However, the COE has not obtained NPS permission for this mitigation scheme and has not disclosed the impacts of such measures on NPS resources and values or whether such measures would be consistent with NPS mandates.

6. In considering the cumulative impacts of the project and the ability of the jetties to perform as predicted, the COE has not considered the implications of the Dare County Project. Sand from this project will be carried to the inlet by the prevailing north-to-south alongshore current. The inflows of this sand year after year are likely to prevent the jetties from operating as planned and will likely lead to additional construction and/or considerable additional dredging.

7. While the DOI has repeatedly pointed out the adverse impacts of excluding sand flows into Pamlico Sound, the COE impact analysis has failed to disclose that excluding these natural sand inputs would cause wetland loss through unchecked erosion and would eliminate sandy, subaerial shoals used as bird habitat.

8. The Corps has not analyzed the impact of dredging any "emergency sand supplies" on the region's inshore processes and ecology along Pea Island.

9. The COE did not analyze the impacts of the jetty project on CHNS and PINWR in light of national park and wildlife refuge system mandates. For example, although the COE 1999 EIS Supplement conceded that the preferred jetty design would have an intrusive visual impact on the Oregon Inlet campground, it failed to alert the reader that this impact would be on a national park unit and would be contrary to NPS policies and mandates.

The Fish and Wildlife Coordination Act of 1958, 16 U.S.C. §§ 661-667d states that ". . .wildlife conservation shall receive equal consideration with other features of water resources development programs . . ." The FWCA requires Federal agencies proposing to control or modify any water body to first consult with the FWS in order to conserve fish and wildlife resources by preventing damage to such resources and by providing for the improvement of such resources. The FWCA also authorizes agencies to modify water-control projects in order to conserve wildlife resources, and to submit to Congress an estimation of the wildlife benefits and losses that would be caused by a new project. The FWS provided the COE with a comprehensive Draft FWCA Report in May 1998 and a Final Report in July 2001. Both reports recommended that an equal consideration of fish and wildlife resources would lead to the selection of a dredging alternative. The COE has not adopted FWS recommendations for the conservation of wildlife resources. Fish and wildlife resources were not given equal consideration in the selection of the preferred alternative. The selection process appeared dominated by economic considerations which excluded natural resources with no easily determined market value. Project modifications purported to have fish and wildlife benefits appear to have been made solely to reduce project costs. The addition of a weir section and a reduction in jetty length are mentioned as benefits for larval fish passage. However, the COE

provided no supporting information that these modifications would facilitate larval passage. In fact, by drawing water over the weir from the top of the water column, this feature may actually be more harmful to larval fish which are likely to be near the bottom of the water column at the seaward margins of the jetties. In short, we believe the Corps has not fully complied with the FWCA.

Executive Order 11988 (Floodplain Management) requires Federal agencies to avoid, to the extent possible, the long and short term adverse impacts associated with the occupancy and modification of floodplains, including floodprone areas of offshore islands. Since barrier islands of the project area may at times be completely covered by storm surges from either the ocean or Pamlico Sound, these islands are considered floodplains. The COE asserts that the dual jetty project complies with this Executive Order because there is "no practicable alternative to the project (jetties) being located within the 100-year floodplain level." However, the U.S. Water Resources Council defines "practicable" as "capable of being done within existing constraints." (43 Fed. Reg. 6030 (Feb. 10, 1978)). Based on this definition, the dredge-only alternative is a practicable alternative, and should have been selected by the Corps to comply with this EO.

Executive Order 11990 (Protection of Wetlands) requires Federal agencies to minimize the destruction or degradation of wetlands, and to avoid undertaking new construction located in wetlands unless they find there is no practicable alternative to such construction. The dual jetty project and sand bypassing system would directly affect wetlands by construction of the north jetty. At the present time, an unspecified amount of wetlands is in the footprint of the north jetty. Sand bypassing would also directly impact wetlands due to the placement of discharge, outlet pipes and other sand transport pipelines in wetland areas. The jetties would indirectly affect estuarine wetlands by stopping the flow of sand into the inlet and Pamlico Sound, depriving the sound of new sediment needed to counteract erosion. The dredge-only alternative is practicable, and would have a less severe impact on estuarine wetlands. Therefore, DOI does not believe that the Corps has complied with this Executive Order's mandate.

Executive Order 13158 (Marine Protected Areas) defines a Marine Protected Area as "any area of the marine environment that has been reserved by Federal, State, territorial, tribal or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." The COE has stated that the project would not impact any designated Marine Protected Areas. Although, no Marine Protected Areas have yet been designated, the list of designated areas is currently being compiled by the National Oceanic and Atmospheric Administration. CHNS has been inventoried as a marine managed area that will likely be included in the list of Marine Protected Areas. The presence of jetties on these lands may not provide the level of protection that these DOI lands have and may prevent their designation as a Marine Protected Area.

III. Environmental Acceptability

The DOI finds the COE Preferred Alternative environmentally unacceptable for the following reasons:

1. Jetties would permanently eliminate or degrade 126 acres of land now providing fish and wildlife habitat and unique recreational values. As the amount of unspoiled barrier island beaches is constantly diminished by coastal development, the remaining habitat and recreational areas under Federal protection become ever more important. The COE has not proposed adequate compensation or mitigation to DOI for losses that have already occurred as a result of this project at Wanchese Harbor or for those losses projected to occur in the jetty area. A dredging-only alternative would not require permanent structures on DOI lands.

2. The COE preferred alternative produces, by design, the complete interruption of sand movement, both north and south, within the project area. The elimination of natural sand movement creates an unacceptable risk of severe shoreline recession (erosion) along several miles of both CHNS and PINWR on either side of the inlet. We do not believe that our concerns have been alleviated by the COE computer models that predict shoreline erosion. Beach erosion would be uncompensated during the 9 or 10 months which would occur between sand bypassing operations. In some years, bypassing may not occur, and no compensation would result.

Excessive erosion would, in turn, increase the occurrence of island overwashes (ocean water flows over the entire island creating flood conditions) above existing natural levels. Excessive erosion can occur gradually or as a result of a major storm event. Ocean overwashes harm vegetation by introducing saltwater to salt-intolerant plants, including waterfowl food in refuge impoundments. Overwashes destroy water control structures needed to maintain refuge impoundments, destroy other infrastructure and facilities of the refuge and seashore, and increase the likelihood of opening a new inlet. Ocean overwashes can block travel and any storm evacuation along NC Highway 12, the single highway in the vicinity of the inlet. Travel disruptions would likely result in requests for the NPS and FWS to permit additional construction along the beaches to protect the highway, such as the sandbag wall that was constructed on the refuge during the mid-1990s. The COE plans to mitigate excessive beach erosion by moving designated emergency sand sources to the beaches. However, these sand sources are finite and when they are exhausted, the importation of sand would be excessively expensive. Therefore, the real threat from long-term erosion exceeding COE predictions is that additional construction would be required on DOI land in order to “save” the jetties. A dredging alternative would allow natural movement of sand across the inlet and thereby minimize, to some degree, the risk of excessive erosion.

3. A fundamental goal of the COE jetties project is to prevent sand from moving through Oregon Inlet into Pamlico Sound, thereby diverting all sand to Pea Island and Bodie Island beaches. The complete exclusion of sand from entering Pamlico Sound would deprive estuarine shallows, mudflats, sandflats, tidal marshes, and areas of submerged aquatic vegetation within DOI boundaries of a recurring source of new sediment. Without steady inputs of new sand, these important components of the estuary-barrier island ecosystem are likely to be severely eroded by waves, thus adversely impacting fish and birds over a wide area. Adequate mitigation of erosional losses of these habitats and the food resources they provide is probably not possible. A

dredging alternative would greatly reduce these adverse impacts by allowing some sand to flow into Pamlico Sound.

4. The COE Sand Management Plan would require the periodic placement, in virtual perpetuity, of large quantities of sand on the beaches of DOI land at intervals of one or more years. This would create adverse environmental conditions on the beaches and nearshore waters and would permanently alter the habitat values of existing beaches. These sand placements would disrupt shorebird nesting, resting, and feeding. Each sand placement would eliminate beach invertebrates, small clams, worm, and crabs, that provide a valuable food source for shorebirds and fish. Beach disposal over many years may permanently eliminate the beach invertebrate community and produce severe long-term adverse impacts on breeding, migrating, and overwintering shorebirds. Among shallow-probing and surface-searching shorebirds, the pectoral sandpiper and solitary sandpiper feed almost exclusively on sandy beaches. The deeper-probing shorebirds such as the marbled godwit, willet, long-billed curlew, and whimbrel are most often found feeding on ocean beaches. With the jetties in place, costly sand bypassing would be required almost annually regardless of the condition or use of the navigation channel. Mitigation for this loss of food resources is not possible. Each placement would increase nearshore turbidity harmful to fish and other marine invertebrates. While a dredging alternative would involve some beach placement of sand, such placements are likely to be much smaller and cover less area with resultant minimized impacts. Furthermore, a dredging option would have the flexibility to suspend large-scale sand movement operations if the channel was maintained by natural tidal flows or the need for passage of large fishing vessels was reduced or eliminated in the future due to restrictions on ocean fishing.

5. The perpetual sand placements of the COE preferred alternative would diminish successful nesting by the threatened loggerhead sea turtle (*Caretta caretta*) and green sea turtle (*Chelonia mydas*). As beaches in private ownership are subject to ever greater development, the value of public, undeveloped beaches as sea turtle nesting habitat increases. During 1990-2000, 128 sea turtle nests were recorded within 10 miles of the inlet. The vast majority (109 nests) were recorded south of the inlet on PINWR, which is the area expected to experience the greatest erosion due to the jetties and to therefore require the most sand placements. The COE plan to delay bypassing operations until at least 250,000 cubic yards of sand have accumulated may leave certain stretches of beach,(e.g., erosion "hot spots," severely eroded and without suitable nesting sites above the high tide line). Furthermore, sand placements can create hard beaches in which sea turtles cannot dig nests and/or beaches prone to the formation of escarpments that prevent sea turtles from reaching suitable nesting sites. Even a permanent program of sea turtle nest monitoring and relocation program would not ensure continued reproductive success, since some nests would be missed and destroyed by burial while replacement nest sites may be less suitable than sites selected by nesting females. Juveniles of these two sea turtle species and other sea turtles that feed on estuarine plants may be adversely affected by a reduction in SAV distribution and abundance resulting from reduced sand inflows caused by the jetties. A dredging alternative would minimize adverse impacts by allowing some natural movement of sand into Pamlico Sound and along the beaches, and by requiring the movement of smaller sand volumes.

6. While the COE preferred alternative would not jeopardize the continued existence of piping plovers (*Charadrius melodus*) from either the Atlantic Coast population (threatened year round) or the Great Lakes population (endangered in breeding areas; threatened in migratory and overwintering areas), it would: create stress during sand bypassing; eliminate beach habitat as existing uplands are removed by the jetties and SMP; reduce habitat value, as the areas adjacent to and protected by the jetties become densely vegetated due to lack of natural overwash; disrupt nesting by the Atlantic Coast birds; eliminate invertebrate food resources on the beaches; and eliminate food resources in estuarine sandflats and mudflats. In addition to benefitting these birds by requiring less artificial sand movement, a dredging alternative would preserve the sandy tip at the southern end of Bodie Island and allow some natural overwash over the sandy flanks of the inlet.

7. The jetties would prevent some larval marine organisms from reaching estuarine nursery areas in Pamlico Sound, thus adversely affecting reproduction of important fisheries resources. Larvae blocked from entering the estuary would die. Even a relatively small reduction in reproductive success, when compounded over many decades, is likely to result in declines in marine fisheries stocks that already face heavy fishing pressure. Mitigation for jetty-induced declines in major commercial fisheries could be attempted with expensive fish hatchery operations, but the likelihood of success is very low. In sharp contrast, a dredging alternative would not interfere with the natural intake of ocean water from the margins of the inlet, areas in which larval organisms appear to congregate prior to being pulled through the inlet on the flood tide. Therefore a natural movement pathway for these marine organisms would be preserved.

8. The jetties are likely to prevent the normal release of water that accumulates in Pamlico Sound during major storms. Under natural conditions, as dramatic changes occur in wind direction, Oregon Inlet can act as a natural, self-adjusting safety valve by widening to release storm waters blown from Pamlico Sound to the ocean. After the water is released, the inlet gradually returns to its former width that is typically controlled by the normal ebb and flow of tides. With jetties in place, the inlet would be unable to widen. Instead, water pushed toward the ocean would overwash the islands from the sound to the ocean. The adverse impacts of unnatural overwashes from the sound are identical to those of overwashes from the ocean previously mentioned. The wind-driven surge of water toward the ocean, the storm surge ebb, can also create new inlets. The dredging alternative provides clear environmental advantages over jetty construction in reducing unnatural island overwashes from the sound. With dredging, the inlet would be able to perform its natural function of releasing accumulated storm water and reduce the danger of unnatural inlet formation.

9. The management of the FWS and NPS to preserve land shaped by natural forces in order to conserve fish and wildlife resources would be forever subordinated to the need to operate and maintain the dual jetty system. For example, a DOI policy of allowing the natural migration of barrier islands would preserve wide, natural beaches without the need for expensive beach nourishment actions. Such a policy would also benefit and preserve the natural resources of the national seashore and wildlife refuge. However, such a policy would conflict with COE

requirements for the land bases of the jetties to remain forever fixed in their present location. It is likely that the DOI would be forced to modify or abandon any policy that appeared to threaten the continued existence of the jetties.

IV. Issues of National Significance

The DOI finds that the issues associated with the COE selection of the jetties alternative are of national importance for the following reasons

1. The dual jetty system with the required SMP would be constructed on land set aside by the Federal government to preserve as an area controlled by natural forces and to provide public recreation and to conserve, manage, and restore fish, wildlife, and their habitats. These lands have been set aside for the enjoyment of the American public and for future generations to come. To compromise the management and existence of these public lands is an issue of national importance.

2. While the precise long-term impacts of the proposed jetties cannot be predicted, many distinguished scientists have stated that the project poses a serious threat to the biological and geological integrity of the inlet and the adjacent barrier islands. During the late 1970s and early 1980s, the prestigious members of the Inman Panel produced a series of reports on the serious environmental consequences that could be expected after jetty construction. At the end of 1991, Dr. Robert Dolan, a coastal geologist at the University of Virginia, and other consultants of the DOI, stated that the jetties would have significant and unavoidable large-scale impacts on the inlet and adjacent barrier islands. Many of these impacts could not be mitigated. The professional opinions of such individuals deserve serious consideration. At the very least, these well reasoned opinions, supported by scientific literature, create an overriding concern that major components of the barrier island ecosystem would be put at risk of permanent and irreversible degradation. While precise impacts are uncertain, the risks are real and cannot be denied. The complete rejection of the conclusions of these coastal experts by the COE in selecting the jetty alternative is an issue of national importance.

3. Oregon Inlet represents the single access point for migratory fish to Albemarle Sound and northern Pamlico Sound and their respective tributaries. Passage through the inlet by adult migratory anadromous or estuarine-dependent species, including alewife, American shad, Atlantic menhaden, Atlantic sturgeon, blueback herring, hickory shad, red drum, striped bass, and weakfish, is an obligatory component of their life cycle. This critical passage allows these species to conduct spawning in inland rivers (for anadromous species) or estuaries, and allows juveniles and adults from other stocks access to wintering habitat in the sounds. Passage through the inlet by larvae and post-larvae of near or offshore spawners (Atlantic croaker, bluefish, spot, summer flounder) is also obligatory, as doing so provides access to estuarine nursery areas. Pamlico Sound is the most important national nursery area for summer flounder and weakfish. The jetties interference with these critical migratory pathways for the species listed above is highly likely, and the inability of these species to reach their designated Essential Fish Habitats is likely to produce an eventual decline in abundance and production of these fish stocks.

Any reduction in larval passage through Oregon Inlet would not be compensated by entrance through other inlets because northern Pamlico Sound is, more or less, hydrodynamically isolated by bluff shoals from western Pamlico Sound and larvae entering through Hatteras and Ocracoke Inlets colonize nurseries in western Pamlico Sound. There would also be no compensation due to increased survival and growth of entering larvae/juveniles because nursery areas are already under-colonized and there is little movement between them. Furthermore, there is no evidence of any density-dependent growth or survival in the nursery areas. Therefore, if 50 percent fewer larvae passed through Oregon Inlet, as a result of blockage by the jetties, it is most likely that at least a 50 percent reduction in fish production would occur. Several of these species (possibly Atlantic sturgeon, definitely striped bass, summer flounder, and weakfish) are recovered or recovering from historical overfishing, and jetty construction could jeopardize their present status.
The species whose migrations and habitat use would be affected by the proposed jetties constitute a significant portion of east coast fisheries economic value, and the fishermen angling within or using the inlet for transit to/from the ocean contribute substantially to the national economy. Therefore, the potential impacts of jetty construction of major fisheries resources are issues of national importance.

4. The COE has failed to provide the DOI with the information necessary to reassure DOI decisionmakers that the jetties would not violate Congressional mandates under which it must operate. The extremely dynamic nature of barrier islands, current uncertainty about the magnitude of future sea level rise, and the magnitude and frequency of major storms make predictions of acceptable accuracy impossible. Therefore, by requesting permission to build the jetties on DOI land, the COE is potentially asking the DOI to violate its legal responsibilities. This is an issue of national importance.

5. The DOI believes that the COE preferred alternative will cause potentially damaging impacts to the unique and irreplaceable trust resources of the Outer Banks. We contend that these impacts are unacceptable. The technology with which the COE expects to preserve the ecological integrity of the project area has not been, and in fact, cannot be, tested prior to implementation. Jetty proponents may claim that the adverse impacts can be undone if COE assumptions prove false. However, an attempted reversal of past actions of such massive proportions is now occurring in the Florida Everglades and along Assateague Island. While the outcome of these tremendous remedial efforts is uncertain, the huge environmental and financial costs are clear. Furthermore, these restoration efforts are taking place only after years of degradation. Similar delays would likely occur at Oregon Inlet. Once the jetties are in place, it will be difficult to remove them. This would remain an issue of national importance.

ACTIONS TAKEN TO RESOLVE DIFFERENCES

The history of efforts to ensure safe and reliable navigation in the Oregon Inlet area is long and complex, extending from the late 1960s to the present. During this time, the DOI has repeatedly informed the COE of its concerns about the serious environmental effects of the proposed jetties,

the inconsistencies of the jetties with DOI legal responsibilities, and the availability of a dredging alternative that would pose substantially less risk to the entire project area. A summary of the agencies' interactions is presented in the chronology of events associated with the project which is a separate document and should be referenced for further details.

Four issues have been at the heart of the impasse between the DOI and the COE. First, the 1970 authorizing legislation mandated construction of the jetties and provided the COE with no perceived flexibility to implement a non-structural alternative such as dredging. Second, the DOI has never agreed with the COE on the ability to predict the degree and nature of the impacts of the dual jetty system and SMP on the natural resources of Bodie Island, Pea Island, and Pamlico Sound. Third, the DOI has never agreed with the COE assertion that acceptable mitigation measures can be implemented for any adverse environmental consequences that should arise after construction of the jetties. Finally, the fourth and most fundamental issue of disagreement involves the degree of risk that the dual jetty system would create for the entire inlet-barrier island ecosystem. We contend that under NEPA, the COE has the responsibility to consider, evaluate, and select if appropriate, any reasonable alternative to the proposed action. The DOI believes that the risk of project induced environmental degradation is very high, and that lands which were set aside to conserve fish and wildlife resources and to provide for the enjoyment of the American public should not be put at risk. The COE has countered these concerns with assurances that it can maintain the status quo at an acceptable level. Furthermore, the COE promises to devise and implement additional corrective measures, if necessary. Therefore, in the opinion of the COE, the project area is not at risk. The DOI has consistently advised the COE that the project purpose can be achieved with a dredge-only alternative.

DEPARTMENT OF THE INTERIOR RECOMMENDATIONS FOR FUTURE ACTION

The DOI has concluded that construction of the dual jetty system and implementation of the SMP would result in substantial and unmitigable environmental harm to lands of national importance under its jurisdiction, and would therefore be environmentally unacceptable. The COE preferred alternative would be contrary to laws governing our management of these lands, pursuant to the National Wildlife Refuge System Improvement Act of 1997 and National Park Service Organic Act of 1916. Specifically, this alternative is not compatible with the purposes for which PINWR was established and would impair the resources and values of CHNS. Therefore, DOI recommends that the COE select the dredging-only alternative at the 14-foot depth or other appropriate depth, consistent with the National Wildlife Refuge System Improvement Act of 1997, National Park Service Organic Act of 1916, and other applicable laws.

The DOI stands ready to assist the COE in fulfilling these aspects of planning for safe, and reliable navigation through Oregon Inlet.