State, Territory, and Commonwealth Beach Nourishment Programs

A National Overview

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Ocean Service
Office of Ocean & Coastal Resource Management

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State, Territory, and Commonwealth Beach Nourishment Programs: A National Overview

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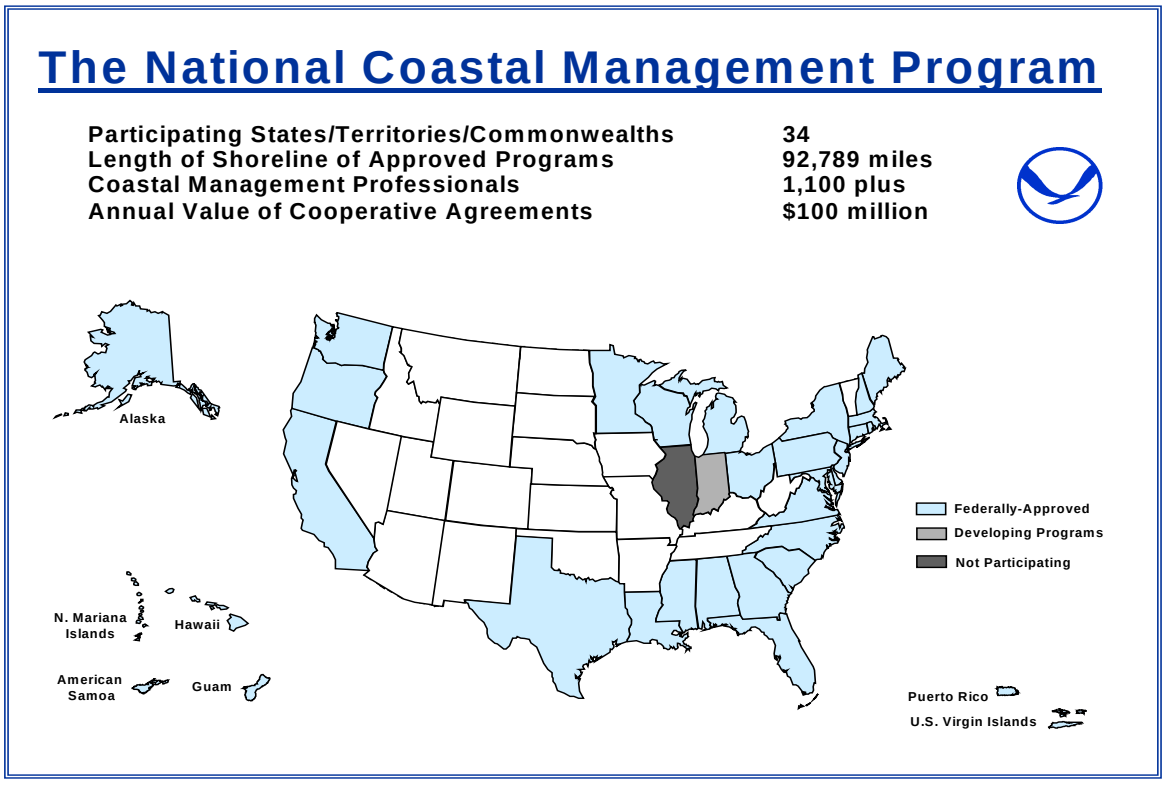
FORWARD

In 1972, the Congress enacted the Coastal Zone Management Act (CZMA) to address increasing stresses on the nation's coastal areas. Administered by the National Oceanic & Atmospheric Administration (NOAA), the CZMA created a partnership of federal and state government to reduce conflicts between land and water uses in the coastal zone, protect fragile coastal resources, and provide for economic development. To this end, the CZMA seeks a balance between preservation and economic development, and promotes the wise use of the valuable resources of the nation's 95,000 miles of shoreline.

Under the CZMA partnership, the federal government and participating states share the responsibility for effectively managing coastal areas and resolving conflicts between competing uses. State, commonwealth, and island territories are on the front line, developing and implementing coastal zone management programs which are designed to meet their individual needs, but also take into account the broader national interest in wise management of coastal resources. NOAA promotes and supports the joint federal-state interest in coastal management by: assisting states with development and implementation of programs; providing federal funds for implementing these programs; ensuring that state CZM interests are represented at the federal level and that the federal interest is adequately represented at the state level; providing technical assistance; and, participating in the development of national coastal land, water, and resource policy. This document is one in a series, developed by the Office of Ocean and Coastal Resource Management (OCRM), that will provide a general analysis and state-by-state summary of coastal zone management program policies used to address coastal resource management issues in the United States.



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EXECUTIVE SUMMARY

Beach nourishment is the process of placing sand on an eroding beach to provide a buffer against wave action and flooding or to improve the recreational value of the beach. A beach nourishment project once completed, typically lasts between three and ten years depending upon the site, project plan, and number and intensity of storms (Weggel, 1995). Beach nourishment is one of the more controversial coastal management techniques in use today. Without question, it is expensive. Estimated 10 year costs to maintain nourished beaches along developed shorelines range from $3.3 million to $17.5 million per mile (Trembanis and Pilkey, 1999). Many tout nourishment as the only way to revive and maintain urban coastal tourist and recreational economies, such as those in Miami Beach, Florida, and Ocean City, Maryland, which are dependent on wide coastal beaches. However, critics contend that beach nourishment is an unreliable management option because of its uncertain longevity and long-term maintenance costs and the fact that the benefits of beach nourishment projects may be inequitable, benefiting only coastal landowners and businesses at the expense of federal or state taxpayers' money.

Section 1 of this report provides an overview of the problem of beach erosion, various means of addressing this problem, and discusses issues regarding the use of beach nourishment. Section 2 of the report provides an overview of state, territorial, and commonwealth coastal management policies regarding beach nourishment and attendant funding programs. Appendix B provides individual summaries of all 33 beach nourishment programs and policies.

1. INTRODUCTION

1.1 Human Interaction With Natural Coastal Processes

The Natural Shoreline

Marine shorelines are dynamic, constantly changing in response to the forces of rain, wind, and wave action. These natural forces erode inland and coastal sources of sand, transporting it to the near shore area. Once the eroded sand reaches coastal waters it moves along the shoreline and is exchanged back and forth between onshore beaches and dunes and offshore sand bars. This process of erosion and sand movement is exacerbated by seasonal and episodic climatic events as well as long-term sea level changes.

Human Interference

For the most part, our modern culture's propriety for building static structures in a dynamic coastal environment has been based upon the belief that the forces of nature can be tamed through structural engineering. This theory and its implementation has manipulated, but not controlled the forces which dictate the movement of our beaches. Humans have constructed large systems of dams and inland navigational structures on our rivers and hardened the coastal shoreline with seawalls, both of which interfere with the natural supply of sand. Harbors and channels have been dredged to provide for marine navigation, with little thought given to the use of clean dredged material as a resource for maintaining the natural beach system. In the past, dredged sediments were derisively referred to as "spoils" and were simply dumped in deep offshore waters or in upland disposal facilities where they were no longer available to replenish coastal sand beaches.

We have significantly modified the natural coastal shoreline by siting high density permanent residential, second home, resort, commercial and industrial development along it. In the past, settlers built small-scale expendable structures along shorelines, in part, out of respect for coastal storms and the natural movement of the shoreline. Postwar development has increased the concentration of both people and structures along the coasts and at the same time our arrogance that proper engineering will protect us and our permanent structures. It is this intense development juxtaposed to the coast which creates the "coastal erosion" problem. Where a beach and dune system naturally changed shape or even moved further inland through time without concern, this process now threatens humans who have located resorts, houses, and businesses along these constantly changing areas. Despite the reality that we cannot control these processes, coastal population and development continue to increase along with the recreational demand on the limited number of public beaches.

1.2 Alternative Means of Managing Beach Erosion

Overview of Alternatives
Until recently, erosion protection methods were classified into two categories: structural and non-structural. Structural erosion protection includes both “hard” and “soft” shoreline stabilization methods.

- Hard Structural Stabilization: construction of seawalls, bulkheads, groins, jetties or other solid structures.
- Soft Structural Stabilization: beach nourishment, dune creation and restoration, sand scraping and dune reshaping.
- Non-Structural: land use controls, construction setbacks, and relocation or strategic retreat.

Hard Structural Stabilization
Some of the first efforts to manage beach erosion involved hard structures made of stone, concrete, or wood. Groins, jetties, and breakwaters are either employed to trap sand or to reduce wave energy at a specific location. Seawalls and bulkheads are used to armor a segment of the shoreline so as the fix the shoreline in a permanent location. Research over time has found that these approaches are not without negative consequences. Groins and similar structures effectively trap sand, but deprive down shore beaches of sand. Thus, redirecting rather than solving the problem. Vertical seawalls tend to exacerbate erosion of adjacent unarmored beaches and, in the long run, may not be strong enough to stand up to the forces of the ocean. This type of structure may not effectively protect the beach or the structures built on the beach. As a result, many coastal programs discourage the use of hard structures and several prohibit their use. While hard structures may not be the preferred means of managing erosion, they may be the only means of protecting expensive public investments such as navigational channels or coastal roads that cannot feasibly be relocated further inland when threatened by coastal erosion.

Soft Structural Stabilization
The last several decades have seen an upsurge in the use of soft approaches to erosion management. This method seeks to manage the natural beach and dune system by replenishing the sand supply through beach nourishment using sand from on shore and offshore sources. These soft approaches also include efforts to manage coastal dunes as an integral part of the beach system with dune creation, restoration, and reshaping to reduce the impact of sand movement on coastal structures. While these approaches are aesthetically pleasing compared to hard structures and preferable because they mimic natural processes, they remain susceptible to the forces of the ocean.

Non-Structural Approaches
Non-structural approaches to erosion such as land use controls, attempt to address the problem by managing the placement of structures within the shoreline area that is likely to erode within a set period of time (25-30 years). Coastal construction setback programs, which limit new development in these types of high hazard areas, are used by many coastal programs.

Limiting post-storm redevelopment in areas subject to severe erosion, is an example of a broader strategy of coastal retreat. Retreat programs favor removing or relocating structures further back from the eroding shoreline rather than repeatedly repairing storm damaged structures and hardening the shoreline. The National Park Service has implemented a retreat policy for years for the barrier islands of the Cape Hatteras National Park. More recently, the Park Service has relocated the Cape Hatteras Lighthouse inland, rather than armoring the beach in front of it. Land use controls are effective at preventing the future coastal erosion problems in undeveloped and low density coastal areas, but they are less effective in addressing erosion problems in highly developed and urban shorelines where the extent of public and private investments may limit the fiscal and physical ability to retreat.

1.3 Issues Regarding Beach Nourishment

Costs and Benefits

Beach nourishment projects are very expensive due to the high cost of moving sand from a borrow site to the beach and the subsequent costs involved in maintaining the beach. Generally, the project site must be renourished on a periodic basis (e.g. every 3 to 7 years). For example, the beach at Cape May, New Jersey, has been renourished 10 times between 1962-1995, at a total cost of $24,669,771(Duke University Program for the Study of Developed Shorelines). Ocean City, New Jersey's beach has been renourished 22 times between 1952-1995 at a total cost of more than $83,104,502 (Duke University Program for the Study of Developed Shorelines). Trembanis and Pilkey have estimated the 10 year cost of maintaining nourished beaches along the developed shorelines of New Jersey, North Carolina, South Carolina, and Florida using 1996 costs per mile and frequency of renourishment. This analysis showed that the average cost per mile across all four states would be $5.9 million per mile; with New Jersey having the highest cost of $17.5 million per mile and South Carolina having the lowest cost of $3.3 million per mile.

Project Longevity

The efficacy of beach nourishment varies greatly from project to project. In some areas, nourishment provides only short-term benefits, while other areas like Miami Beach, have experienced long-term benefits. In several cases, the rebuilt beach has quickly eroded to pre-project profiles due to major storm events. In some cases, emergency renourishment projects are required which further increase long-term costs. One example is the 1982 nourishment of the beach in Ocean City, New Jersey which cost $2.5 million but lasted only two and a half months. Reasons for such discrepancies in performance can include poor project design, unanticipated coastal storm events, or use of incompatible sand grain size. The unknown life of the rebuilt beach and the resulting need for maintenance renourishment are the principle causes of uncertainty in determining the long-term costs and benefits of such projects. As a result, more effort is being devoted to understanding the physical processes which govern erosion and accretion and to developing specific performance measures which can be used to define and measure beach nourishment project goals over the long-term.

Sand Sources

One of the major obstacles in performing beach nourishment operations is finding an available large supply of suitable sand. Several states have undertaken research to identify offshore sand resources. For example, in 1992, New Jersey established the Cooperative Study for Offshore Beach Replenishment Sands. This study identifies and characterizes beach sand source areas located in federal waters. The sites are evaluated for possible use as additional sand source areas for New Jersey beach replenishment projects. As of 1998, eight target areas have been delineated and are under environmental review by the Minerals Management Service (Schmidt, 1998).

Other states, such as California and Florida, are placing emphasis on the beneficial use of dredged sediments from navigation projects as a source of sand. Florida was one of the first states to recognize that Federal inlet dredging and beach renourishment projects were not integrated and that dredged materials were often disposed of in offshore areas that did not support the nourishment of beaches near such inlets.

In the case of California, the U.S. Navy, at the urging of local and regional governments as well as the California Coastal Commission, agreed to place 7 million cubic yards of sand from a dredging project on to the beaches of San Diego County. Unfortunately, the sand to be used for beach nourishment was found to contain munitions and chemical contaminants and was deemed unsuitable for use. This is an example of how the beneficial use of dredged materials must be carefully evaluated and planned in order to avoid problems in the long run.

Public Access

In cases where large amounts of public funds are expended to rebuild coastal beach and dune systems, the public should be able to access the nourished beach area. This right should include convenient perpendicular access at well-marked access points and the provision of adequate support facilities such as parking, shuttle services, restrooms, and food services. Ideally, private coastal development fronting the restored beach should also be designed to provide for access to the beach for the general public, while avoiding structural designs which impede visual and physical access to the coast.

Environmental Effects

Beach nourishment projects can have serious long and short-term environmental effects at: the beach where the nourishment takes place; the borrow site; and, nearby areas of the water column and the water bottom. Potential negative effects include: disturbance of species' feeding patterns; disturbance of species' nesting and breeding habitats; elevated turbidity levels; changes in near shore bathymetry and associated changes in wave action; burial of intertidal and bottom plants and animals and their habitats in the surf zone; and, increased sedimentation in areas seaward of the surf zone as the fill material redistributes to a more stable profile (National Research Council, 1995). Of particular concern are the impacts to endangered species such as sea turtles and shorebirds which use the beach as nesting areas.

Effects on Landside Development

Another concern is that beach nourishment may provide an incentive to develop in coastal high hazard areas subject to hurricane and other types of coastal storm

damage. Beach nourishment could induce development in high hazard areas by giving landowners and local officials a false sense of security and protection from storm waves and wind. Beach nourishment may also spur efforts to redevelop storm damaged or low density urban shorelines at higher densities. Such redevelopment may temporarily benefit the local landowners, businesses and governments, but it may also alter the ability of the public to access and use the beach. Taxpayers may also be exposed to greater liability in the form of disaster assistance when responding to storm damage.

1.4 OCRM Beach Nourishment Policies

Given the high cost and the environmental issues related to beach nourishment, OCRM's policy regarding beach nourishment is one of caution. OCRM's position is that all available alternatives to the problem of beach erosion, particularly the option of land use controls and retreat, need to carefully be examined within the context of a long-term analysis of costs and benefits. This analysis must articulate both public and private benefits associated with each alternative.

OCRM's policy regarding the use of funds available to states under Section 306A of the Coastal Zone Management Act of 1972, as amended, is that such funds can not be used for hard stabilization structures and beach nourishment. This policy is derived from the legislative history of the Act and scientific and public policy considerations regarding such techniques. The legislative history of the Act (H.R. Report. No. 1012, 96th Cong., 2d Sess., 45 (1980), prohibits the expenditure of 306A funds "...To finance large-scale erosion-prevention structures which are capital-intensive with little long-term effect." As a matter of policy, OCRM does not find it prudent to fund beach nourishment projects, given the limited amount of section 306 funds and the high cost of such projects including the anticipated maintenance costs. However, OCRM does allow states to spend section 306A funds for planning beach nourishment projects in certain limited instances. For further information on these policies see OCRM's 306A Guidance dated March 2, 1999.

2. STATE, TERRITORY, & COMMONWEALTH PROGRAMS

2.1 Policies on Beach Nourishment

Summary

Of the thirty-three states surveyed, twenty-one have beach nourishment policies and one is in the process of developing policies (see Table 1). The twenty-one states with some type of policy are AL, CA, CT, DE, FL, GA, HI, LA, MA, MS, NH, NJ, NY, NC, NMI, OH, PA, RI, SC, TX and, VA. The one state currently developing policies is the Virgin Islands. The remaining eleven states have no formal nourishment policies. It is important to note that states were identified as having beach nourishment policies if they explicitly referred to beach nourishment, beach creation, or structural/non-structural erosion control activities (dependent upon the individual state's regulatory definitions). It should not be assumed that a state without formal beach nourishment

policies, cannot and does not regulate beach nourishment activities under other coastal management policies or environmental regulatory programs. For specific information on individual state regulatory authorities, please refer to appendix B.

Ten out of the thirty-three states have a continuing funding program for beach nourishment. These states include: CT, DE, FL, HI, LA, MA, MI, MS, NJ, and VA. Nine states (CA, GA, NH, NC, NY, OH, PA, SC and TX) fund projects on a project-by-project basis, whereas fourteen do not have a source of state funding (see Table 1). There appears to be a strong correlation between state policies and funding mechanisms: twenty-seven of the thirty-three states have either beach nourishment policies and corresponding funding programs or do not have beach nourishment policies and do not have a state funding program. The remaining six states have either policies with no funding program or no policies with a funding program. For example, Rhode Island has a state beach nourishment policy, but no dedicated state funding mechanism and Maryland has a state funding program for beach nourishment but they do not have a state beach nourishment policy.

Permit Requirements

The types of permits required by states for beach nourishment projects are varied. New York and Delaware both have policies that regulate beach nourishment projects as shore protection structures which require a permit. However, New Jersey regulates nourishment as a non-structural shoreline protection measure. All other states that allow beach nourishment, review it under their general permit regulations, treating it is as an alteration to shoreline features, dredged material disposal or construction below the mean high tide line. For example, Connecticut's Coastal Management Program regulates nourishment under, "General Permits for Dredging, Erection of Structures and Placement of Fill."

There are varying definitions of beach nourishment among state coastal management programs regarding whether it is a structural or non-structural form of erosion control. New York State laws (N.Y. Envtl. Conserv. Law §43 and N.Y. Exec. Law §42) and regulations (N.Y. Comp. Codes R. & Regs. tit. 6, §505 and N.Y. Comp. Codes R. & Regs. tit. 19 §600) define beach nourishment as a structural erosion protection measure that requires a permit. Conversely, the California Resources Agency Shoreline Erosion Protection Policy states that, "Shoreline erosion protection projects should use non-structural solutions such as beach nourishment as the recommended alternative unless it is not feasible."

Sand Sources

Twenty-nine states, territories, and commonwealths regulate sand mining activities. Five of these states (CA, MS, NJ, NY, RI) explicitly allow near shore sand mining for the purpose of obtaining sand for beach nourishment projects. In California, sand mining for the purpose of beach nourishment is allowed, providing there is no feasible, less environmentally damaging alternative. Mississippi's policy prohibits near shore sand mining unless the material is being obtained for beach nourishment. Likewise, New Jersey's policy gives priority to sand mining for beach nourishment projects, provided the extraction site is acceptable.

Table 1 - State, Territory, & Commonwealth Beach Nourishment Program Summary

STATE	Beach Nourishment Policy	Related Policies	State Funding Program
Alabama	Y	a b c d e	N
Alaska	N	a b e	N
American Samoa	N	a b e	N
California	Y	a b c d e	C
Connecticut	Y	b c d e	Y
Delaware	Y	a b c d e	Y
Florida	Y	b c d e	Y
Georgia	Y	a b c d e	C
Guam	N	a b c e	N
Hawaii	Y	b c d e	Y
Louisiana	Y	a b c d	Y
Maine	N	a b c d	N
Maryland	N	a b c	Y
Massachusetts	Y	a b c d e	Y
Michigan	N	a b c d	N
Minnesota	N	a b e	N
Mississippi	Y	a b c	Y
New Hampshire	Y	a b c d e	C
New Jersey	Y	a b c d e	Y
New York	Y	a b c d e	C
North Carolina	Y	a b c d e	C
Northern Mariana Is.	Y	a b e	N
Ohio	Y	a b c d e	C
Oregon	N	a b c e	N
Pennsylvania	Y	a b e	C
Puerto Rico	N	a b c e	N
Rhode Island	Y	a b c d e	N
South Carolina	Y	b c d e	C
Texas	Y	a b d e	C
Virgin Islands	D	a b e	N
Virginia	Y	a b c	Y
Washington	N	a b c e	N
Wisconsin	N	a b c e	N

Beach Nourishment Policy: Yes (Y), No (N), Developing (D). **Related Policies**: Near Shore Sand Mining (a), Dredge and Fill (b), Sand Scraping/Dune Reshaping (c), Dune Creation/Restoration (d), Public Access (e).
State Funding Program: Yes (Y), No (N), Case-by-Case Funding (C). ***Note -** A designation of "Yes" to the Beach Nourishment Policy means that the state may have one or several policies dealing with permitting requirements, preference statements, or technical guidance. The designation of "Yes" does not however, reflect the level of complexity and/or detail of state policies.

Use of Dredged Materials to Nourish Beaches

While the majority of states, territories, and commonwealths require a permit for all dredging activities, only twelve actually recommend use of dredged materials specifically in policy language, for beach nourishment projects. Of these twelve states, six (CA, CT, FL, NJ, NC, RI) include specific sand compatibility requirements in their use policies. The other six states (LA, MS, NH, NY, VA, TX) just recommend beneficial use of the dredged materials. Though no sand compatibility requirements are specifically stated within Virginia's policy, the Secretary of Natural Resources is responsible for determining whether the dredged material is suitable for beach nourishment.

Although many states do not explicitly state in their coastal management program policy language that suitable dredged material should be used for beach nourishment projects, it may be that case that beneficial use is supported in policy guidance language. The Massachusetts Coastal Zone Management Program, is one example of this. Their Ports Policy #1 states, “Ensure that dredging and disposal of dredged material minimize adverse effect on water quality, physical processes, marine productivity and public health.” However, the policy guidance language that supports this policy states that, “…Clean sandy dredged material should be used for beach nourishment, if a suitable site can be identified.” This is applicable to all dredging projects that are publicly funded and is encouraged for all projects that are privately funded. On average, there are 25 publicly funded, mostly small, maintenance dredging projects that use dredged material for beach nourishment in Massachusetts per year.

In California, their requirements are that dredged material must be suitable in quantity, size, distribution and chemical constituency in order to be used for beach nourishment. Uncontaminated dredged sediments with 75% sand or greater are encouraged for beach nourishment in New Jersey. In Connecticut, their policy allows the reuse of dredged materials for, "Beach nourishment depending on quality of sand; minimizing water quality impacts; fill beach slope to maintain same natural beach slope; and, limit destruction to dune vegetation and shorebird nesting and breeding habitat."

Sand Placement

Sand placement is an important element of beach nourishment project design and can effect the performance of the renourished beach. However, only six states' (CA,FL, NC, OH, RI, SC) policies include specific regulations as to where the sand should be placed. Florida's policy takes into account the effect dredging has on long shore sediment transport and requires, “(a) All construction and maintenance dredging of beach-quality sand be placed on down-drift beaches; or if placed elsewhere, an equivalent quality and quantity of sand from an alternate location be placed on these beaches; and, (b) On an average annual basis, a quantity of sand should be placed on the down drift beaches equal to the natural net annual long shore sediment transport." North Carolina's policy states that, "Clean, beach quality material dredged from navigation channels within the active near shore, beach or inlet shoal systems must not be removed permanently from the active near shore, beach or inlet shoal system unless no practical alternative exists. Preferably, this dredged material will be disposed of on the ocean beach or shallow active near shore area where environmentally acceptable and compatible with other uses of the beach."

2.2 State Beach Nourishment Funding Programs

As more states are beginning to use beach nourishment as a shoreline protection measure, funding is becoming a bigger issue. States must provide for the continuing costs associated with this cyclical process. For example, Florida Statute 161.091 was substantially revised in 1998 to create a continuing funding mechanism for beach preservation, restoration and renourishment. The Ecosystem Management and Restoration Trust Fund was allocated $10 million in fiscal year 1998-1999; $20 million in fiscal year 1999-2000; $30 million in fiscal year 2000-2001 and each fiscal year thereafter. Though South Carolina does not have a continuous funding program, the state spends an average of $3 million annually on a case-by-case basis for beach nourishment projects.

Relationship to Landside Coastal Policies

One of the concerns associated with beach nourishment is that it may provide an incentive to develop in coastal hazard areas. As a result, states with optimal conditions for beach nourishment have opted to create specific guidelines that must be followed to ensure that funded projects will meet statewide hazard management objectives. One example is Florida's Ecosystem Management and Restoration Trust Fund, which is used to carry out the proper state responsibilities in a long-range, statewide beach management plan for erosion control, beach preservation, and storm and hurricane protection. Another example is Maryland's Ocean Beach Replenishment Fund, which requires beach nourishment projects be part of an integrated plan for providing storm and flood protection in order to receive funding.

Cost Sharing

One of the issues surrounding beach nourishment is the equity issue of who receives the benefit of beach nourishment and who actually pays for the cost of the project. There is considerable disagreement over the use of federal dollars for beach nourishment in cases other than primary navigation projects. Currently (1999), the federal formula for cost sharing shore protection projects is 65% federal, 35% local; the responsibility of the remaining project costs are divided among state, local and private funds. Individual state funding programs handle this cost share division differently.

The State of Florida determines those beaches which are critically eroding and in need of nourishment, and authorizes appropriations to pay up to 75% of the actual costs of repair. The local government in which the beach is located is responsible for the balance of such costs. It is the intent of the Legislature to cost-share projects equally between the state and local sponsors. New York provides another example of cost share division. There, the non-federal portion is usually shared 70% state, 30% county/municipality. State law does allow anywhere from a 50/50 split between the state and county/municipality, to a 70/30 split. The result is usually: 65% federal, 24.5% state, 10.5% county/municipality.

Public Access

Many coastal programs require that public access be a part of any publicly restored and maintained beach project. Twenty-six states have some form of public access

requirements and CA, CT, NJ, and NC, all have developed explicit policies requiring public access to beaches that have been nourished using public funds. Remaining states without public access policies directly related to beach nourishment, may only contain general, overarching, public access policies that are applicable to its complete program.

California's Shoreline Erosion Protection Policy states that, “Public access is provided to the shoreline areas where the erosion protection project is to be carried out unless the area is unsafe." Connecticut requires public access as a condition in permitting new beach stabilization structures. New Jersey's Standards Relevant to Beach Nourishment state that, "Public access to the nourished beach be provided in cases where public funds are used to complete the project." Finally, North Carolina's Shoreline Erosion Policy requires the following for state involvement (funding or sponsorship) in beach restoration or sand nourishment projects, “(a) The entire restored portion of the beach be in public ownership; and, (b) The local government must provide adequate parking, public access and services for public recreational use of the restored beach."

3. CONCLUSIONS AND RECOMMENDATIONS

This report has provided a look into the Nation’s coastal states, territories, and commonwealths’ beach nourishment programs and policies. It has attempted to summarize how states plan for, permit and fund beach nourishment activities.

The report must be read with this in mind; each one of the 33 individual states despite all having coastlines in common, all have varied issues, geography, and resource concerns. Coastal erosion is certainly a predominant and concurrent issue that all 33 programs have and will continue to face in the future. States that have more of an erosion concern such as Florida and other East Coast states with coastal barrier beaches, tend to have more comprehensive approaches to beach nourishment projects with established policies and funding mechanisms for dealing with it. In turn, states with less of a coastal erosion concern, such as Minnesota, do not have a formal beach nourishment policy or a funding program.

Based upon the information contained within this report, it is OCRM’s view that most, states, territories, and commonwealths have some mechanism and/or policy in place that fittingly addresses their own degree of erosion. This is not to say that further planning, development, and improvement are not recommended. States need to take a comprehensive look at their state specific needs and issues in order to develop a long-term beach management program, which examines the benefits and costs of various management options. This planning process should involve stakeholder interests which include but are not limited to: tourism and recreation; economics; engineering; society and community; and, the environment.

It is recommended that states that undertake a lot of dredging on an annual basis that do not have a recommendation/policy/viewpoint on the beneficial use of clean, suitable

dredged material from navigation projects for beach nourishment purposes, review their position or lack of one. The need for beach nourishment in many cases can be met with the end-product of many navigation projects, saving in time spent on finding a sand source for nourishment and disposal costs for navigation. Beneficial use may not be ideal for every nourishment scenario, but it is an option worth investigating for meeting long-term needs.

Alternative options to beach nourishment for addressing coastal erosion problems such as land use controls, construction setback lines, and retreat policies all need to be considered in long-term planning strategies. This is particularly true in cases where a rapidly eroding shoreline is sparsely developed and where the long-term cost of maintaining a nourished beach is extremely high. OCRM recognizes that the coastal erosion problem cannot feasibly be solved by using alternative policy options alone. In some cases, beach nourishment may be the only method that will protect critical infrastructure and coastal communities.

State planning efforts to address coastal erosion problems will be effective only if they define their long-term goals, carefully consider the costs and benefits of all aforementioned options, and constantly seek-out new solutions. It is with all of these planning elements in mind that the Nation's coastal states, territories, and commonwealths will be able to address this critical coastal zone management task. Therefore, it is recommended that all states review the adequacy of their beach management, nourishment policies and funding programs during the next update of their section 309 enhancement grant strategies.

APPENDIX A

**Survey Instrument Used to Collect
Beach Nourishment Program Information**

[STATE]
BEACH RENOURISHMENT PROGRAM SURVEY

1.0 State Renourishment Policy
1.1 Yes/No/Developing
1.2 Policy Citation and Description

2.0 Related Policies
2.1 Near Shore Sand Mining Regulations
2.2 Dredge and Fill Regulations
2.3 Sand Scraping/Dune Reshaping Regulations
2.4 Dune Creation/Restoration Regulations
2.5 Public Access Regulations

3.0 Beach Renourishment Funding Program
3.1 Yes/No/Developing
3.2 Amount of State Funding
3.3 Cost Share Requirements
3.4 Summary of Projects Funded (1995-98)

4.0 Recent State Documents on Renourishment
4.1 Title
Abstract

4.2 Title
Abstract

5.0 Important Issues Regarding Renourishment

5.1 [Issue]

5.2 [Issue]

APPENDIX B

Synopsis of State, Territory, and Commonwealth Beach Nourishment Policies, Laws, Regulations, Guidelines, Publications, and Major Issues

ALABAMA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 Alabama has a coastal management program encouragement policy for beach nourishment.

1.2 Policy Citation and Description

Alabama Coastal Area Management Plan, January 1999. Section 4, Erosion Policy Statement. This policy encourages: the beneficial use of sand and sediment for beach nourishment purposes when dredging for ports, harbors, and waterways; the development of a comprehensive shoreline management plan to reduce and manage erosion; the use of beach sand bypass systems in dredged areas where hardened shoreline stabilization structures exist; and, to develop strategies and plans that work within the littoral system and that meet coastal infrastructure needs.

Alabama Department of Environmental Management (ADEM) Rules and Regulations - Division 8 Coastal Area Management Program. Ala. Admin. Code r. 335-8-1-.09. This requires that all federally permitted/licensed beach nourishment projects are consistent with the policies of the Alabama Coastal Area Management Plan.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Alabama Coastal Area Management Plan, January 1999. Section 4, Mining and Mineral Resource Extraction Policy Statement. This policy encourages mining operations, and directly related development, engaged in the extraction and/or processing of construction sand, industrial sand, gravel, and other minerals to avoid hydrologically sensitive areas, including oyster reefs, submerged grassbeds and other productive shallow water areas, with the exception of those activities related to beach nourishment and shoreline stabilization.

ADEM Rules and Regulations - Division 8 Coastal Area Management Program. Ala. Admin. Code r. 335-8-2-.08. No person shall remove primary dune or beach sands and/or vegetation or otherwise alter the primary dune system, construct any new structure, or make any substantial improvement to any existing structure, on, beneath or above the surface of any land located between mean high tide and the construction control line. The mining of sand from the area between the construction control line and mean high tide is prohibited under these program rules.

2.2 Dredge and Fill Regulations

ADEM Rules and Regulations - Division 8 Coastal Area Management Program. Ala. Admin. Code r. 335-8-2-.02. This regulation prohibits dredging and filling activities in close proximity to existing natural oyster beds and existing submerged grass beds. In order for an activity to be permitted or certified it must meet water quality standards and

the dredging and/or filling of adjacent and non-adjacent wetlands must meet stringent regulations.

2.3 Sand Scraping/Dune Reshaping Regulations
ADEM Rules and Regulations - Division 8 Coastal Area Management Program. Ala. Admin. Code r. 335-8-2-.08. No person shall remove primary dune or beach sands and/or vegetation or otherwise alter the primary dune system, construct any new structure, or make any substantial improvement to any existing structure, on, beneath or above the surface of any land located between mean high tide and the construction control line. As such, sand scraping and dune reshaping is prohibited under these program rules.

2.4 Dune Creation/Restoration Regulations
ADEM Rules and Regulations - Division 8 Coastal Area Management Program. Ala. Admin. Code r. 335-8-2-.08. No person shall remove primary dune or beach sands and/or vegetation or otherwise alter the primary dune system, construct any new structure, or make any substantial improvement to any existing structure, on, beneath or above the surface of any land located between mean high tide and the construction control line. However, properly designed beach and dune nourishment projects which add appropriate beach quality sand materials to the beach and dune system seaward of the construction control line are considered to be beneficial to the overall health of the system. Dune enhancement projects which utilize clean beach quality sand from upland sources normally require, and are regularly granted, written authorization from the ADEM Coastal Programs. This authorization is conditioned to minimize vehicular access and also to ensure that damage to vegetation is repaired and sand fencing is placed to help stabilize the dunes.

Alabama Coastal Area Management Plan, January 1999. Section 3, Beach and Dune System Policy Statement. Dune creation and expansion and removal of fixed structures that contribute to shoreline erosion is encouraged. The maintenance of the natural attributes of beach and dune systems in the Alabama coastal areas and assurance of adequate public access is encouraged.

2.5 Public Access Regulations
Alabama Coastal Area Management Plan, January 1999. Section 3, Shoreline Resources Policy Statement. It is the policy of the Management Program to encourage increased shoreline public access to the coastal waters for commercial and recreational users. Section 3, Beach and Dune Systems Policy Statement. It is the policy of the Management Program to preserve and enhance the public access to those beaches that are important for shoreline stability, recreational potential, and tourism.

3.0 Beach Nourishment Funding Program

3.1 No, there is no state nourishment funding program, but the Army Corps of Engineers is encouraged to place sand on downdrift side when dredging inlets at Perdito Pass and Dauphin Island at Government Cut.

3.2 Amount of State Funding
Unknown

3.3 Cost Share Requirements
Unknown

3.4 Summary of Projects Funded (1995-98)
1) Dauphin Island
1996, beach nourished as a federal navigation project.
Cost: $55,000 - Federally funded

*Source: Duke University Program for the Study of Developed Shorelines Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

ALASKA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a beach nourishment policy. Man-induced erosion has yet to become a major problem because of the small percentage of inhabited coastline. In areas already developed, structural solutions to erosion may be most appropriate for economic and social reasons since these areas may not be able to accommodate the non-structural solutions which would otherwise be preferred. In areas where development is imminent or anticipated, either structural or non-structural solutions may be applied depending on circumstances and conditions (Alaska Coastal Management Program, Shoreline Erosion Planning Process).

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Standards of the Alaska Coastal Management Program. Alaska Admin. Code tit. 6, §80.110(b) Mines and Mineral Processing. Allows sand and gravel extraction from coastal waters, intertidal areas, barrier islands and spits only where no feasible and prudent alternative exists to meet the public need for the sand or gravel.

2.2 Dredge and Fill Regulations
Standards of the Alaska Coastal Management Program. Alaska Admin. Code tit. 6, §80.040(2) Coastal Development. The discharge of dredged or fill material into coastal waters must, at minimum, comply with the standards contained in Parts 320-323, Title 33, Code of Federal Regulations.

2.3 Sand Scraping/Dune Reshaping Regulations
Not applicable.

2.4 Dune Creation Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Standards of the Alaska Coastal Management Program. Alaska Admin. Code tit. 6, §80.060(b) Recreation. Districts and state agencies shall give high priority to maintaining and where appropriate, increasing public access to coastal water.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Not applicable.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Alaska Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

AMERICAN SAMOA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a policy regarding beach nourishment.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Am. Samoa Code Ann. §18.0205. Provides that all land from the highwater line seaward is included within the park system and shall be administered by the Director of Parks and Recreation.

Am. Samoa Code Ann. §18.0208. Provides that no one may remove an attraction on park property and that violation of the rule is a class B misdemeanor with fines up to $500 and/or 6 months imprisonment.

Am. Samoa Code Ann. §15.0302. Promulgated by Director of Parks and Recreation, prohibits removal of sand and gravel. Department of Public Safety is authorized to enforce statute by investigating alleged offenses and referring them to the Attorney General's Office.

2.2 Dredge and Fill Regulations
Am. Samoa Admin. Code §26.0220 F.1.b. Coastal Management Program Administrative Rules. Activities regulated in wetlands by a land use permit include: placing fill; filling, dumping, or depositing of any soil, stones, sand, gravel, mud, aggregate of any kind or garbage either directly indirectly, on any coastal wetlands; and the dredging, excavating or removal of soil, mud, gravel, flora fauna or aggregate of any kind from any coastal wetlands.

2.3 Sand Scraping/Dune Reshaping Regulations
Not applicable.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Am. Samoa Admin. Code. §226.0220 G. Coastal Management Program Administrative Rules. This regulation states that: (1) recreation opportunities and shorefront public access shall be improved and increased for the public; (2) public access shall be maintained, improved and increased in accordance with the Department of Parks and Recreation Act, including physical access where feasible shall be provided to shorefront

areas suitable for recreation and visual access to the ocean shall be maintained where feasible; and, (3) public land shall be managed to maintain physical and visual public access.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
There is one man-made beach at the Rainmaker Hotel in Pago Pago Harbor. (Private)

4.0 Recent State Documents on Nourishment

4.1 The American Samoa Coastal Management Program funded a report completed by Oceanit Laboratories in 1996 which investigated and made recommendations on shoreline erosion mitigation at Utulci Beach, a public beach in the Pago Pago Harbor area. On of the recommendations for this area was beach nourishment.

5.0 Important Issues Regarding Nourishment

5.1 On-Shore Sand Mining
The taking of beach sand for personal use is a large problem. Sand mining is an on-going practice which is culturally acceptable, in some areas this activity has caused serious erosion problems. Compliance and enforcement problems are being addressed with revisions of the Administrative Rules and enforcement and monitoring manual.

CALIFORNIA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has beach nourishment policies.

1.2 Policy Citation and Description

Cal. Code Regs. tit. 14, §13000-14000. California Coastal Commission (CCC) Regulations. Statewide CCC permit program for any development within the coastal zone. Development broadly defined as the . . . discharge or disposal of any dredged material; grading, removing, dredging, mining or extraction of any materials; change of density or intensity of use of land . . . The CCC favors beach nourishment to reduce shoreline recession rates, due to adverse impacts associated with large coastal protective structures.

Cal. Pub. Res. Code § 30233(b). California Coastal Act. Dredge spoils suitable for beach nourishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

California Resources Agency's Policy for Shoreline Erosion Protection. This policy is not a statewide policy, it is only applicable for those agencies that are part of the Resources Agency. Shoreline erosion protection projects should use non-structural solutions such as beach nourishment as the recommended alternative, or as part of the recommended alternative, unless it is not feasible. Beach nourishment is encouraged to protect against erosion when: (a) it does not conflict with significant living marine resources; (b) it will not result in adverse effects elsewhere on the coast; and (c) measures are included in the project to maintain the affected beaches in a nourished state.

Cal. Gov't Code §66632. San Francisco Bay Conservation and Development Commission (BCDC). This statute gives the BCDC authority to review and issue permits for projects that will place fill, extract materials, or make any substantial change in use of any water, land, or structure, within the area of the Commission's jurisdiction.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Cal. Pub. Res. Code § 30233 (a)(6). California Coastal Act. Permits mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas, providing there is no feasible less environmentally damaging alternative.

2.2 Dredge and Fill Regulations

Cal. Pub. Res. Code § 30233 (a), (b). California Coastal Act. Dredging is permitted where there is no less environmentally damaging alternative and where mitigation measures have been provided to minimize adverse environmental effects. Dredge

spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

California Resources Agency's Policy for Shoreline Erosion Protection. This policy is not a statewide policy, it is only applicable for those agencies that are part of the Resources Agency. All dredged or excavation material removed within the coastal zone or nearshore waters, which is suitable in quantity, size, distribution and chemical constituency, is to be discharged (a) directly onto a natural beach in an appropriate manner for effective beach nourishment and in a manner to protect significant natural resources and the public use of such resources at those locations; or (b) when beach nourishment is not needed or appropriate at the time of dredging, the sand should be deposited at locations for eventual use for beach nourishment, provided that suitable locations are available and steps are taken to protect both significant natural resources and the public use of such resources at those locations.

Cal. Gov't Code §66650. San Francisco Bay Plan, Part IV Development of the Bay and Shoreline - Dredging 1-11. These are the BCDC's enforceable policies for permitting of dredging activities within the San Francisco Bay area.

2.3 Sand Scraping/Dune Reshaping Regulations
Yes, under land form alteration and habitat protection policies.

2.4 Dune Creation/Restoration Regulations
Yes, under land form alteration and habitat protection policies.

2.5 Public Access Regulations
Cal. Pub. Res. Code § 30211. California Coastal Act. Development shall not interfere with the public's right of access to the sea where acquired through use or legislative authorization, including, but not limited to, the use of dry sand and rocky coastal beaches to the first line of terrestrial vegetation.

California Resources Agency's Policy for Shoreline Erosion Protection. This policy is not a statewide policy, it is only applicable for those agencies that are part of the Resources Agency. Public access is provided to the shoreline areas where the erosion protection project is to be carried out unless the area is unsafe.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment. However, the State of California does fund beach nourishment projects on a case-by-case basis. Very few beach nourishment projects actually receive state funds, and the legislative procedure can take up to 18 months.

Cal. Harb. & Nav. Code §65-67.4 Department of Boating and Waterways (DBW). Administers "Shoreline Erosion Funds" which provides funds to state agencies and

local governments for construction of shoreline protective devices and beach nourishment on public beaches and park lands.

Cal. Harb. & Nav. Code §65-67.4 Department of Parks and Recreation (DPR): Coastal Erosion Protection. a) Beach Nourishment Projects: Replenish, restore or renourish beachfronts. b) Shoreline Stabilization: DPR adopted the Coastal Erosion Policy to discourage armoring in state beachfront parks, avoid construction of new permanent facilities in areas subject to coastal erosion and to promote use of expendable or movable facilities in areas subject to erosion.

California Coastal Commission - Beach Sand Mitigation Fund. Permit conditions attached to the requests for shoreline armoring which require fees to go into a regional fund to pay for placement of sand on the beach within the same littoral cell area through offshore dredging or sand transport from inland sources. The program has limited funds that are for use as mitigation in the cell or sub-cell where the impacts occurred.

3.2 Amount of State Funding

Varies from year to year depending on the number of projects approved by the State legislature. Very few beach nourishment projects receive state funds.

3.3 Cost Share Requirements

CA Department of Boating and Waterways: Shoreline Erosion Funds - State 75%, Local 25%.

Department of Parks and Recreation: Coastal Erosion Protection. Joint Federal, State, and Local.

California Coastal Commission: Beach Sand Mitigation Program. There is no cost sharing component to this program. These funds must be used for an actual nourishment project, not for planning or design. They can be used for the local cost-share portion of a federal or state project.

3.4 Summary of Projects Funded (1995-98)

Surfside Beach / Sunset Beach Project, 1995-1996. This project was cost shared with the Army Corps of Engineers, the state provided 2.685 million dollars towards the project.

Seal Beach Project, 1999. State funds - 960,000 dollars.
San Diego Regional Beach Sand Project, 1999-2000. This project will nourish 13 San Diego County Beaches with 13 million cubic yards of sand from 7 offshore borrow sites. Total cost is expected to be $14 million. This project was developed from the 1997 San Diego County and Homeporting Project (originally appropriated 4.7 million dollars), which was intended to be the primary sand source.

3.5 Other Public Agency Funding Sources

Local Governments: Recreational beach use.

State Organizations: (California Department of Transportation). Coastal development mitigation.

Federal Organizations: (U.S. Army Corps of Engineers). Commercial boating, coastal development protection and coastal development mitigation

Non-Profit Organizations: (Re-SAN DIEGO). Recreational beach use.

4.0 Recent State Documents on Nourishment

4.1 Title Preliminary Findings and Recommendations for the Santa Monica Mountains/Malibu Regional Cumulative Assessment Project (ReCAP) November 1998

Abstract
Chapter 5: Shoreline Armoring. Beach Nourishment Opportunities. As much of the ReCAP project area is already developed and armored, beach nourishment may provide the best long-term solution to protecting beaches. Preliminary Recommendation: LCP Planning for the City of Malibu and Los Angeles County should include policies to establish periodic nourishment of key beaches vulnerable to wave damage.

4.2 Title California's Ocean Resources: An Agenda for the Future

Abstract
Chapter 5C: Shoreline Erosion. The physical configuration of the California shoreline is dynamic and constantly changing due to coastal erosion. The rate of this erosion is determined by natural events, such as rough seas, high tides, nearshore currents, rainfall and runoff, landslides, and earthquakes, as well as human developments that restrict the sources of sand for beaches. Historically, most beaches in California were relatively narrow, but varied depending on the factors influencing erosion. In the last 20 years, the State has suffered major public and private property losses from severe erosion in such coastal areas as Marin, Santa Cruz, San Luis Obispo, Santa Barbara, Los Angeles, Orange and San Diego counties. The challenges for the State of California are to better understand its eroding coastline and to improve its assessment of how natural and economic resources can be protected.

4.3 Title SANDAG Shoreline Preservation Strategy.

Abstract
Proposes an extensive beach building and maintenance program for the critical shoreline erosion problems in the region as well as a number of actions to support this program. The Strategy contains a comprehensive set of recommendations on the beach building program, and on financing and implementation.

4.4 Title The Economic Value of California's Beaches. By: Drs. Philip King and Michael Potepan.

Abstract
This study found that: (a) the state's beaches contribute over $27 billion to the state's economy; (b) residents and tourists made over 575 million visits to California beaches in 1995; (c) beach-related spending supports more than 500,000 jobs, over 3.5% of state employment; and (d) Californians value their beaches at $17.5 billion in 1997 dollars.

5.0 Important Issues Regarding Nourishment

5.1 San Diego County Beaches and Nourishment Efforts

The U.S. Navy was dredging in San Diego Bay to create a deepwater berth for a nuclear-powered aircraft carrier. This became known as the U.S. Navy's Homeporting Project. In response to pleas from coastal communities, the Navy had agreed to place 7 million yards. of dredged sand on north county beaches rather than disposing of it five miles off Point Loma. Homeport was viewed as the "chance of a lifetime" for the denuded beaches still recovering from the 1982-83 El Nino storms. The project was to cost $14.33 million.

Unfortunately, sediment samples from the area to be dredged did not reveal that the sediments contained munitions. Once the dredging began and the munitions were discovered, efforts to screen the sand before using it to nourish the beach failed, and munitions still made their way onto the beach. As a result, the dredged material had to be disposed of at an EPA approved offshore disposal area.

5.2 Los Angeles Basin Contaminated Sediments and Disposal

Los Angeles County's coastline includes two of the nation's largest commercial ports and several major marina complexes and small-vessel harbors. Maintenance of authorized depths in existing channels and berthing areas and expansion and modernization of ports, harbors, and marinas, requires periodic dredging in virtually all of these facilities. Some of the sediments dredged from these harbors contain elevated levels of heavy metals, pesticides, and other contaminants. In most cases, the concentrations of these contaminants do not approach hazardous levels. However, the sediments contain enough contaminants that they are not suitable for unconfined ocean disposal.

Additionally, the State's Bay Protection and Toxic Cleanup Program has identified bays and estuaries containing areas with contaminated sediments. Remediation of these sites may require dredging and disposal of this material. Disposal of any contaminated dredged materials requires special management, such as placement in a confined aquatic disposal site, capping, or disposal in an upland site. Additionally, some ports and harbors have considered other management techniques, such as treatment and beneficial re-use.

Recently, the ports and harbors have delayed or canceled several dredging projects because of contaminated sediment issues. The regulatory agencies evaluated disposal options for these projects on a case-by-case basis without the benefit of a regional perspective on management alternatives, cumulative impacts, and long-term solutions to prevent re-contamination of sediment. This approach has lead to public concern over the ecological and human health implications of contaminated dredged material disposal. To resolve these issues, the regulatory and resource agencies, ports and harbors, environmental groups, and other interested parties agreed to establish a task force. The mission of this Contaminated Sediment Task Force is to prepare a Contaminated Sediment Long-Term Management Strategy for the Los Angeles region.

5.3 California Beach Nourishment Programs

Many programs have been established in California with regards to beach nourishment. This illustrates the growing interest in the state regarding beach nourishment as an erosion management strategy. Several programs that should be mentioned include:

1) Opportunistic Sand Program. Carlsbad (San Diego County) started this program in order to provide a quick permit response for placing terrestrial and aquatic sources of sandy material at specified feeder beaches as source material for the littoral cell. The program details quantities, qualities, testing requirements, placement restrictions, etc. for this sediment.

2) California Coastal Coalition (CalCoast). An organization of coastal cities formed to bring coastal issues to the attention of the sate legislature.

3) Los Angeles County. Los Angeles County, Division of Beaches and Harbors has started a beach nourishment task force.

4) BEACON. BEACON is a beach nourishment group for Santa Barbara and Ventura Counties that has been active for many years.

5) Shoreline Erosion Committee of the San Diego Association of Governments (SANDAG). This organization formed to study shoreline issues, and to develop and implement solutions to regional erosion problems. The guiding principles for local decisions on replenishment are: a commitment to a unified approach; address local needs and maximize positive regional impact; and, encourage cooperation and coordination and complete a regional sand program by spring 2000. Right now, SANDAG has a commitment from the Navy for 14 million to undertake a regional sand program to replace the program the Navy terminated. They are supporting a detailed environmental review effort and hope to use offshore sources of sand for a spring 2000 regional beach nourishment effort.

6) Orange County Beach Task Force.

CONNECTICUT
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

Conn. Gen. Stat §22a-90 to 22a-112. Connecticut Coastal Management Act (CCMA). Conn. Gen. Stat §22a-92(b)(2)(F). Coastal Hazard Areas: Development to minimize hazards to life and property and promote nonstructural solutions to flood and erosion except where structural alternatives are necessary to protect existing inhabited structures, infrastructure and water-dependent uses.

Conn. Gen. Stat §22a-92(b)(2)(J). Coastal Hazard Areas: Maintain natural relationship between eroding and depositional coastal landforms; minimize adverse impacts of erosion and sedimentation on coastal land uses through nonstructural mitigation; structural solutions are permissible when necessary and unavoidable for protection of infrastructure, water-dependent uses, existing inhabited structures, and where not feasible, less environmentally damaging alternative and where all reasonable mitigation measures and techniques minimize adverse environmental impacts.

Conn. Gen. Stat §22a-92(c)(1)(B). Tidal Wetlands: Disallows any filling of tidal wetlands and nearshore, offshore and intertidal waters for the purposes of creating new lands from existing wetlands or coastal waters unless adverse impacts on coastal resources are minimal.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Not applicable.

2.2 Dredge and Fill Regulations

Conn. Gen. Stat §22a-92 (b)(1)(D), 22a-92(c)(1)(D), 22a-359(a) as referenced by 22a-92(a)(2). CCMA. Coastal Structures and Filling: requires that all structures in tidal wetlands and coastal waters are designed, constructed and maintained to minimize adverse impacts on coastal resources, circulation and sediment patterns, flooding and erosion, and to reduce to the maximum extent practicable the use of fill; filling of tidal wetlands and nearshore for the purpose of creating new land is disallowed; and, the commissioner of environmental protection shall regulate dredging and the placement of fill.

Conn. Gen. Stat §22a-359 to 22a-363f. Structures, Dredging and Filling: regulates dredging and erection of structures and the placement of fill in the tidal and coastal waters to prevent or alleviate shore erosion, preserve wildlife habitat, development of adjoining uplands, etc. Requires state permit for placement of structures, fill or

dredging below High Tide Line (HTL) consistent with CCMA policies. Incorporates regulation of commercial excavation of in-water sand and gravel, which requires $2.00/cubic yard royalty payment. Activities that may be consistent include:
a) Filling along beach/dune for beach nourishment depending on quality of sand, minimizing water quality impacts, fill beach slope to maintain same natural beach slope, and limit destruction to dune vegetation/shore bird nesting/breeding habitat;
b) Disposal of appropriate dredged material for beach nourishment or dune management.

Conn. Gen. Stat §22a-92 (c)(1)(C), 22a-92(c)(1)(D), 22a-92(c)(1)(E), 22a-383 as referenced by 22a-92(a)(2). All of these citations are part of Connecticut's Coastal Management Program Policies on Dredging and Navigation.

2.3 Sand Scraping/Dune Reshaping Regulations
Yes, but only as part of beach/dune nourishment/filling.

2.4 Dune Creation/Restoration Regulations
Conn. Gen. Stat §22a-92(b)(2)(C). Beaches and Dunes: Encourage the restoration and enhancement of disturbed or modified beach systems.

2.5 Public Access Regulations
Connecticut Coastal Management Program. Part IV. Coastal Policies and Use Guidelines. Coastal Recreation and Access. Public access is encouraged and required as a condition in permitting new beach stabilization structures.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment. Conn. Gen. Stat §25-69 to 25-95. State Assistance. Flood and Erosion Control Program.

3.2 Amount of State Funding
Flood and Erosion Control Program funds $1.5 million annually in projects, but not much beach nourishment.

3.3 Cost Share Requirements
Beach nourishment is mostly an Army Corps of Engineers activity, but the state does provide some matching funds.

Conn. Gen. Stat §25-71. The state is authorized to pay for the total cost of flood and erosion control projects benefiting state property, 66% of the cost of such projects benefiting municipal property and 33% of the cost of such projects benefiting private property.

3.4 Summary of Projects Funded (1995-98)
Savin Rock Beach - West Haven Beach Nourishment/Revegetation/Rock Armoring Project, state funded project. Restored sand to .25 mi of Savin Rock Beach using 71,500 cubic yards of sand, 700 tons of armoring stones. Cost: $2.29 million (State 2/3 + Local 1/3); cost of dune revegetation was $55,000
*****Source: Tina Bernd-Cohen

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

DELAWARE
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

Regulations Governing Beach Protection and Use of Beaches. Part 4. Activities Requiring a Permit or Letter of Approval from the Division. 4.03: Construction of Beach Erosion Control/Shore Protection Structures/Facilities Seaward of the Building Line. A permit is required for beach nourishment projects. 4.07: Mitigating Measures. Allows beach nourishment to be used as a form of mitigation.

Division of Soil and Water Conservation: Shoreline and Waterway Management Section. Responsible for beach preservation projects, such as major beach Nourishment along oceanfront communities. Key programs include:
1) Dune Maintenance Program - conducts dune construction and maintenance on all public beach lands including repairing coastal storm damage to dunes, planting dune grass, erecting dune fence, and constructing and maintaining pedestrian and vehicular dune crossings; and, 2) Technical Engineering Program - monitors the condition of the state's beaches through surveys designed to measure actual sand losses. This work element has supplied critical data needed to determine beach nourishment needs and has been a basis for federal assistance for sand replacement in declared disasters in Delaware.

The Division also coordinates with the U.S. Army Corps of Engineers on all federal shoreline protection studies and projects and oversees the operation of the Sand Bypass Facility at Indian River Inlet. The facility is designed to maintain the coastline on the north side of the inlet and protect the coastal highway and bridge approach at that location. It operates by excavating (dredging) sand accumulated on the beach south of the inlet jetty and pumping it to the north side beach to replace that which is lost annually due to normal erosion processes and storm occurrences.

2.0 Related Policies

2.1 Near Shore sand Mining Regulations

Del. Code Ann. tit. 23, §1707. Establishes guidelines for sand removal; with the exception of gravel.

Del. Code Ann. tit. 7, §6805. A permit is required to alter, dig, mine, move, remove or deposit any substantial amount of beach or other materials, or remove a significant amount of vegetation on any beach seaward of the Building Line which may affect enhancement, preservation or protection of beaches.

2.2 Dredge and Fill Regulations
Del. Code Ann. tit. 23, §1706. No sand shall be dug, mined, removed or carried away from any public or private beach extending from mean high watermark to the Ocean Highway between Rehoboth and the Maryland state line.

2.3 Sand Scraping/Dune Reshaping
Del. Code Ann. tit. 7, §6803. Allows construction, reconstruction and maintenance of dunes when necessary in order to prevent and repair damages from erosion of public beaches.

2.4 Dune Creation/Restoration
Del. Code Ann. tit. 7, §6803. Allows construction, reconstruction and maintenance of dunes when necessary in order to prevent and repair damages from erosion of public beaches.

2.5 Public Access Regulations
Del. Code Ann. tit. 7, §4701(c). Publicly owned beaches and shorelines shall be managed and maintained to assure adequate and continued public access to these areas within the carrying capacity of the resource.

3.0 Beach Nourishment Funding Program

3.1 There is state funding program for beach nourishment. Del. Code Ann. tit. 7, §6808 establishes the Beach Preservation Fund.

3.2 Amount of State Funding
By law, the balance of the Fund must be at least $1 million at the beginning of the fiscal year.

3.3 Cost Share Requirements
The state provides through bond bills (for construction activities) and general bonds (hotel and accommodation tax). Local: individual towns may pay a portion of the cost and may also be reimbursed by the state for the contribution.

3.4 Summary of Projects Funded (1995-98)
Rehoboth Beach/Dewey Beach/Bethany/South Bethany/Fenwick Island Nourishment Project 1998 - Storm and Erosion - 20,033 ft. public beach + 4,478 ft. private beach nourished. Cost: $5.492,236 (15.8% Federal; 81.3%State; 2.9% Local) - an additional $1,141,109 was spent by private interests for nourishment of their own property.

4.0 Recent State Documents on Nourishment

4.1 Title Delaware's Environment: Protecting Our Valuable Lands.
Abstract
The section entitled "Delaware's Goal: Protecting Coastal Areas" addresses the question: What is Delaware doing to protect its coastal areas? Delaware is conducting

beach nourishment projects which replenish sand to eroding beaches and is working with the U.S. Army Corps of Engineers to develop and implement long-term solutions to the state's most critical erosion problems. The state also regulates coastal construction to protect dunes and maintains dunes and beaches using volunteers to assist in planting beach grass to capture drifting sand and build up dunes. A study is being conducted on coastal vulnerability and construction standards. DNREC administers the Coastal Zone Act and is in the process of developing regulations to assist the department in those responsibilities. The Act prohibits any new heavy industry in the Coastal Zone and regulates manufacturing and bulk product transfers. By participating in the federal Coastal Zone Management Program, the State has been able to develop a more coordinated and comprehensive system for managing its coastal resources.

4.2 Title Erosion Control: Non-structural Alternatives. A Shorefront Property Owner's Guide

Abstract
This publication is designed to help waterfront property owners evaluate their specific situation and select the erosion response which can best protect property and benefit the environment. The most commonly used techniques for erosion control have been the installation of physical structures such as bulkheads or rip-rap.

5.0 Important Issues Regarding Nourishment

5.1 Essential Fish Habitat Program

Delaware is concerned that the Essential Fish Habitat program might conflict with their Coastal Management Program's policy of beach nourishment. They have developed a demonstration project that the state is contributing $50,000 towards.

FLORIDA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

Fla. Stat. ch. 161.041. Permits required. A coastal construction permit is required for any physical activity undertaken specifically for shore protection purposes or artificial nourishments.

Fla. Stat. ch. 161.082. Review of innovative technologies for beach nourishment. The department is directed to periodically review innovative technologies for beach nourishment and, on a limited basis authorize, through the permitting process, experimental projects that are alternatives to traditional dredge and fill projects to determine the most effective and less costly techniques for beach Nourishment.

Fla. Stat. ch. 161.088. Declaration of public policy respecting beach erosion control and beach restoration and nourishment projects.

Fla. Stat. ch. 161.101. State and local participation in authorized projects and studies relating to beach management and erosion control.

Fla. Stat. ch. 161.091. Beach management; funding; repair; and maintenance strategy. Ecosystem Management and Restoration Trust Fund is used to carry out the proper state responsibilities in a long-range statewide beach management plan for erosion control; beach preservation, restoration, and nourishment; and storm and hurricane protection. The department strategy includes: (a) Maximizing the infusion of beach-quality sand into the system; (b) Extending the life of beach nourishment projects and reducing the frequency of Nourishment; and, (c) Promoting inlet sand bypassing to replicate the natural flow of sand interrupted by inlets and ports.

Fla. Stat. ch. 161.141. Property rights of state and private upland owners in beach restoration project areas. If an authorized beach restoration, beach nourishment, and erosion control project cannot reasonably be accomplished without the taking of private property, the taking must be made by the requesting authority by eminent domain proceedings.

Fla. Stat. ch. 161.142. Declaration of public policy relating to improved navigation inlets. While there is a need for maintaining navigation inlets, inlets alter the natural drift of beach-quality sand resources, which often results in these sand resources being deposited around shallow outer-bar areas instead of providing natural nourishment to the downdrift beaches. Therefore: (a) All construction and maintenance dredging of beach-quality sand should be placed on the downdrift beaches; or, if placed elsewhere, an equivalent quality and quantity of sand from an alternate location should be placed

on the downdrift beaches; (b) On an average annual basis, a quantity of sand should be placed on the downdrift beaches equal to the natural net annual longshore sediment transport.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Not applicable.

2.2 Dredge and Fill Regulations
Dredging and filling activities are regulated under Fla. Admin. Code. R. 62.312-0.80.

2.3 Sand Scraping/Dune Reshaping Regulations
Fla. Admin. Code Ann. r. 62B-33.003. No person shall conduct any excavation seaward of the coastal construction control line or 50-foot setback except as provided in the Act and this Chapter. No person shall remove any beach material, or otherwise alter existing ground elevations, drive any vehicle on, over, or across any sand dune or the vegetation growing thereon, seaward of the coastal construction control line or 50-foot setback except as provided in the Act or this Chapter, or as otherwise provided by law.

2.4 Dune Creation/Restoration Regulations
Fla. Stat. ch. 161.041. Permits required. A coastal construction permit is required for any physical activity undertaken specifically for shore protection purposes or artificial nourishments.

2.5 Public Access Regulations
Fla. Stat. ch. 161.55. Public Access. Development or construction can not interfere with public access unless a comparable alternative accessway is provided.

3.0 Beach Nourishment Funding Program

3.1 Yes, there is state funding for beach nourishment.

Fla. Stat. ch. 161.091. The Ecosystem Management & Restoration Trust Fund provides funding for beach preservation, restoration and nourishment.

Fla. Stat. ch. 161.101. State and local participation in authorized projects and studies relating to beach management and erosion control. The state, through the department, shall determine those beaches which are critically eroding and in need of restoration and nourishment and may authorize appropriations to pay up to 75 percent of the actual costs for restoring and renourishing a critically eroded beach. The local government in which the beach is located shall be responsible for the balance of such costs.

3.2 Amount of State Funding

Fla. Stat. ch. 161.091. The Ecosystem Management & Restoration Trust Fund is a continuing funding mechanism for preservation and repair of the state's beaches: $10 million in fiscal year 1998-1999; $20 million in fiscal year 1999-2000; $30 million in fiscal year 2000-2001 and each fiscal year thereafter.

3.3 Cost Share Requirements

Fla. Stat. ch. 161.101. It is the intent of the Legislature to cost-share projects equally between the state and local sponsors.

3.4 Summary of Projects Funded (1995-98)

1) Sand Key Phase IV Beach Restoration Project. Directed by the Army Corps of Engineers to restore sand to 2.5 mi of Sand Key and Belleair Beach and to "touch-up" Indian Rocks Beach, Indian Shores, Redington Shores and North Redington Beach. Cost: $22.8 million (Federal 50%; State 33%; Pinellas County 17%).

2) Marco Island, 1995. Cost: $11,400 (State/Local).

3) Vanderbilt Beach, 1995 - Navigation. Cost: $115,500 (Federal).

4) Vanderbilt/Park Shores/Naples, 1996 - Storm and Erosion - 29,692 ft. nourished. Cost: $10 million (Federal).

5) Wiggins State Park, 1995 - Navigation.

6) Bonita Beach, 1995 - 4,035 ft. nourished. Cost: $1,133,000 (State/Local).

7) Sanibel, 1995 - 3,640 ft. nourished.

8) South Seas Plantation, 1995 - 25,480 ft. nourished.

9) Venice Beach, 1996 - Storm and Erosion - 9,880 ft. nourished.

10) Upham Beach, 1996 - Storm and Erosion - 2,080 ft. nourished. Cost: $2.2 million (Federal).

11) Treasure Island, 1997 - Storm and Erosion. Cost: $2 million (Federal).

12) Panama City Beach, 1996 - Navigation. Cost: $272,223 (Federal).

13) Panama City Beach, 1997-98 - Emergency - 93,080 ft. nourished. Cost: $33 million.

14) Cape Canaveral, 1997 - Dredging for beach nourishment project. Cost: $4.6 million.

*Source: Duke University Program for the Study of Developed Shorelines

Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 Title Florida Assessment of Coastal Trends**,** Section B: Disruption of Coastal Physical Processes - Miles of renourished beaches

Abstract
The Florida Coastal Management Program (FCMP) has added an important management tool -Florida Assessment of Coastal Trends (FACT), which is a compendium of various indicators of coastal health.

4.2 Title Statewide Strategic Beach Management Plan.

Abstract
The department is currently preparing a statewide strategic beach management plan and moving towards a regional approach to planning nourishment activities. The strategic plan will use sub-regions chosen for their coastal uniqueness and continuity as the basic planning unit and will provide over all direction to the state program. The Long Range Budget Plan will implement the strategic plan.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

GEORGIA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 Yes, Georgia has polices regarding beach renourishment.

1.2 Policy Citation and Description
The Georgia Shore Protection Act. Ga. Code Ann. §12-5-230. The Georgia Shore Protection Act outlines the permitting process and requirements for beach nourishment activities and the mechanism for funding such projects. A permit is required for all shoreline engineering activities which include beach restoration or renourishment and artificial dune construction. A permit will be issued only if the activity will not impair the values and functions of the sand-sharing system including the coastal sand dunes, beaches, sandbars, and shoals.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Georgia's Surface Mining Act regulates all surface mining in Georgia, including the Coastal Zone. Dredging or ocean mining of materials are not directly regulated by state authority, except that sand and gravel operations are subject to the Shore Protection Act.

2.2 Dredge and Fill Regulations
Dredge and fill activities are regulated under the Coastal Marshlands Protection Act, Ga. Code Ann. §12-5-286. Erecting structures, dredging, or filling marsh areas requires a Marsh Permit and where the activity is carried out on state-owned tidal water bottoms, a Revocable License from the Coastal Resources Division may also be required.

2.3 Sand Scraping/Dune Reshaping
Under the Shore Protection Act, a permit is required for any activity that alters the natural topography of the sand dunes, beaches, and bars.

2.4 Dune Creation/Restoration
Under the Shore Protection Act, a permit is required for artificial dune construction.

2.5 Public Access Regulations
There are no state-level public access regulations, however, the Coastal Resources Division provides technical assistance to develop model ordinances for coastal access that can be used by local governments when developing local zoning ordinances.

3.0 Beach Nourishment Funding Program

3.1 As stated in §12-5-241 of the Georgia Shore Protection Act, "From appropriations of the General Assembly made to the Department of Natural Resources for such purposes, the Department shall be authorized to provide state grants to local units of government for any one or more of the following purposes: dune stabilization programs; beach restoration and renourishment; and, construction or removal of shoreline engineering activities.

3.2 Amount of State Funding

No information was available on amounts of state funding for beach renourishment programs.

3.3 Cost Share Requirements

No information was available on cost share requirements for beach renourishment programs.

3.4 Summary of Projects Funded (1995-98)

1995 - Tybee Island Renourishment, 342,000 cubic yards of material placed. (cost unknown).
1997 - Sea Island Renourishment, 500,000 cubic yards of material placed. (cost unknown).
*Source: Georgia's Ocean Beaches.
Http://www.ganet.org/dnr/coastal/georgia_sound/habitat.html. 01/03/00.

4.0 Recent State Documents on Nourishment

4.1 No information on state renourishment documents was found.

5.0 Important Issues Regarding Nourishment

5.1 Shoreline erosion of beaches in coastal Georgia is of a paramount concern on 19 out of the 88 miles of shoreline. Beach restoration, renourishment techniques, artificial dune construction, and construction and maintenance of groins and jetties are preferable to shoreline stabilization activities (constructed revetments) since stabilization structures separate land from sea by maintaining the shoreline at its present position.

GUAM
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The territory does not have a policy regarding beach nourishment. Coastal erosion is not a major issue for Guam because of soil types and because of barrier/fringe/patch reef system of protection.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Guam Gov't Code §13417(a)(1). Guam Territorial Seashore Protection Act. This statute requires that any person wishing to perform any development within a seashore reserve obtain a permit from the Guam Territorial Seashore Protection Commission. The definition of development includes: the discharge of disposal of any dredged material or of any gaseous liquid, solid, or thermal waste; and, grading, removing, dredging, mining, or extraction of any materials.

2.2 Dredge and Fill Regulations
Guam Environmental Protection Agency (GEPA)
Guam reviews and approves all dredging operations both nearshore and up-river.
a) Requires "building permits" and Environmental Protection Plan requirements for earth moving/alteration and other activities with anticipated impacts
b) Administers soil erosion and sediment control regulations. EA or EIS for wide range of development activities.
c) Approval of disposal and/or use of dredged materials and other spoils from the ocean environment.

Guam Gov't Code §13417(a)(1). Guam Territorial Seashore Protection Act. This statute requires that any person wishing to perform any development within a seashore reserve obtain a permit from the Guam Territorial Seashore Protection Commission. The definition of development includes: the discharge of disposal of any dredged material or of any gaseous liquid, solid, or thermal waste; and, grading, removing, dredging, mining, or extraction of any materials.

2.3 Sand Scraping/Dune Reshaping Regulations
Guam Gov't Code §13417(a)(1). Guam Territorial Seashore Protection Act. This statute requires that any person wishing to perform any development within a seashore reserve obtain a permit from the Guam Territorial Seashore Protection Commission. The definition of development includes: the discharge of disposal of any dredged material or of any gaseous liquid, solid, or thermal waste; and, grading, removing, dredging, mining, or extraction of any materials.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Guam Coastal Management Policy - D.7. Public Access. The public's right of unrestricted access shall be ensured to all non-federally owned beach areas and all territorial recreation areas, parks, scenic overlooks, designated conservation areas and their public lands; and agreements shall be encouraged with the owners of private and federal property for the provision of releasable access to and use of resources of public nature located on such land. Guam Gov't Code §13416-17, 62011, 18005, 13980-2, 13450-56.

3.0 Beach Nourishment Funding Program

3.1 There is not a state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Not applicable.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Guam Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

HAWAII
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has beach nourishment policies.

1.2 Policy Citation and Description

Haw. Rev. Stat. §205A. Hawaii Coastal Zone Management Act. Shoreline Erosion Policies and Priorities: Hawaii has two major policies regarding the prevention and mitigation of shoreline erosion, as follows:
1) Erosion is controlled through shoreline use regulations as noted in the management network to preclude development that might suffer erosion damage.
2) Where this is not possible, structural and non-structural improvement measures are utilized. Non-structural techniques, such as sand replenishment, are used whenever possible as appropriate. Structural techniques such as seawalls and revetments are most often used where development of the shoreline has occurred or where valuable public beaches are endangered by erosion.

Haw. Rev. Stat. §171. The Beach Restoration Statute passed the State Legislature in 1999. This Act provides for the development of a Beach Restoration Plan by the Department of Lands and Natural Resources and creates a Beach Restoration Special Fund for beach nourishment.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Not applicable.

2.2 Dredge and Fill Regulations

Haw. Rev. Stat. §205A-26(3)(A). Seeks to minimize where reasonable dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough or lagoon.

2.3 Sand Scraping/Dune Reshaping Regulations

Haw. Rev. Stat. §205A. Hawaii Coastal Zone Management Act.
1) Counties required to hold public hearing on variance applications except for stabilization of shoreline erosion by the moving of sand entirely on public land.
2) Enforcement guidelines to remove/correct any structure/activity prohibited within setback area without variances approval. Additional conditions for setback variance approval: Moving sand from one location to another both seaward of setback if it will not adversely affect beach processes, diminish size of public beach and will stabilize eroding shoreline.
3) The Department of Lands and Natural Resources manages state-owned beaches seaward of shoreline.

2.4 Dune Creation/Restoration Regulations

Haw. Rev. Stat. §205A. Hawaii Coastal Zone Management Act.
Structural and Non-Structural Implementation Techniques: Creation of sand dunes and berms allowed as non-structural methods of erosion prevention and mitigation.

2.5 Public Access Regulations

Haw. Rev. Stat. §205A-26(3)(C). Seeks to minimize where reasonable any development which would reduce or impose restrictions on public access.

3.0 Beach Nourishment Funding Program

3.1 Haw. Rev. Stat. §171. The Beach Restoration Statute passed the State Legislature in 1999. This Act provides for the development of a Beach Restoration Plan by the Department of Lands and Natural Resources and creates a Beach Restoration Special Fund for beach nourishment.

Beach Erosion Control Program (33 U.S.C. 426 et. Seq.) Allows USACE to carry out non-structural mitigation projects either on State or County lands at the request of these governments, or on Federal lands.

Capital Improvements Program. Funds available for non-structural improvements by State and local agencies.

3.2 Amount of State Funding

$250,000 was appropriated in 1999.

3.3 Cost Share Requirements

Haw. Rev. Stat. §171. The Beach Restoration Statute does not include matching requirements.

Beach Erosion Control Program (33 U.S.C. 426 et. Seq.). Requires match funds from the appropriate level of government for projects undertaken on State or County lands.

Capital Improvements Program. Local projects funded on a matching basis with state funds.

3.4 Summary of Projects Funded (1995-98)

1) One Army Corps of Engineers continuing authorized beach nourishment project for beach erosion control.
2) Two small beach nourishment projects (approximately 10,000 cubic yards each) were completed in 1999 Haleiwa Beach Park on Oahu and Kikiola Beach (private) on Kauai.

4.0 Recent State Documents on Nourishment

4.1 Title The Hawaii Coastal Erosion Plan.

Abstract
This document was completed by the DLNR in 1999. This comprehensive document examines the coastal erosion problem in HI; reviews various management approaches to address these problems, and prescribes a detailed list of recommendations, including several related to beach nourishment.

5.0 Important Issues Regarding Nourishment

5.1 Significant issues include finding sand sources with suitable grain size, environmental impacts of the sand mining, and cost (See The 1999 DLNR Coastal Erosion Management Plan for more information).

LOUISIANA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description
La. Admin. Code tit. 43, §709 A. Coastal Management Regulations. Non-structural methods of shoreline stabilization should be used whenever possible.

La. Admin. Code tit. 43, §723 A (2)(i). Coastal Management Regulations. A permit is required for shoreline modification projects.

La. Admin. Code tit. 43, §723 A (2)(n). Coastal Management Regulations. A permit is required for activities which impact barrier islands and beaches.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
La. Admin. Code tit. 43, §711 K, N. Coastal Management Regulations. Surface mining should be done using the best practical techniques to minimize adverse environmental impacts. To the maximum extent practicable, only materials that are free of contaminants and compatible with the environmental setting should be used as fill.

La. Admin. Code tit. 43, §723 A (2)(f). Coastal Management Regulations. A permit is required for sand mining activities.

2.2 Dredge and Fill Regulations
La. Admin. Code tit. 43, §707 B. Coastal Management Regulations. Dredged spoil should be used beneficially to improve productivity or create new habitat, reduce or compensate for environmental damage done by dredging activities, or to prevent environmental damage.

La. Admin. Code tit. 43, §723 A (2)(a). Coastal Management Regulations. Requires a permit for dredging or filling and discharges of dredged or fill material.

2.3 Sand Scraping/Dune Reshaping Regulations
La. Admin. Code tit. 43, §723 A (2)(i). Coastal Management Regulations. A permit is required for shoreline modification projects.

La. Admin. Code tit. 43, §723 A (2)(n). Coastal Management Regulations. A permit is required for activities which impact barrier islands and beaches.

2.4 Dune Creation/Restoration Regulations
La. Admin. Code tit. 43, §711 F. Coastal Management Regulations. Requires restoration and revegetation of areas modified by surface alteration activities.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is a state funding program for beach nourishment.

Federal Authority: 1990 CWPPRA (public law 101-646).

La. Admin. Code tit. 49, §214.40. Coastal Resources Trust Fund.

3.2 Amount of State Funding
Unknown.

3.3 Cost Share Requirements
CWPPRA funding 75%

Coastal Restoration Trust Fund meets 25% match.

3.4 Summary of Projects Funded (1995-98)
1) Isles Dernieres, 1996. Cost: $450,000 (State/Local).

*Source: Duke University Program for the Study of Developed Shorelines.
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Louisiana Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

MAINE
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a policy for beach nourishment.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Me. Rev. Stat. Ann. Tit. 38, §480. Maine Natural Resources Protection Act (NPRA). Any dredging, bulldozing, removing or displacing of soil, sand, vegetation or other materials within the coastal sand dune system and coastal wetlands require a NRPA permit.

2.2 Dredge and Fill Regulations
Me. Rev. Stat. Ann. Tit. 38, §480. Maine Natural Resources Protection Act (NPRA). Any dredging, bulldozing, removing or displacing of soil, sand, vegetation or other materials within the coastal sand dune system and coastal wetlands require a NRPA permit. Filling, including adding sand or other material to a sand dune requires a NRPA permit.

Guides for Municipal Shoreland Zoning Ordinances. Section 11. Land Use Standards. Erosion and Sedimentation Control (E). All filling, dredging and other earth-moving activities should be done in a way that prevents erosion.

2.3 Sand Scraping/Dune Reshaping Regulations
Guides for Municipal Shoreland Zoning Ordinances. Section 11. Land Use Standards. Erosion and Sedimentation Control (E). All grading and other earth-moving activities should be done in a way that prevents erosion.

Me. Rev. Stat. Ann. Tit. 38, §480. Maine Natural Resources Protection Act (NPRA). Any dredging, bulldozing, removing or displacing of soil, sand, vegetation or other materials within the coastal sand dune system and coastal wetlands require a NRPA permit. Filling, including adding sand or other material to a sand dune requires a NRPA permit. Coastal Sand Dune Rules do apply also.

2.4 Dune Creation/Restoration Regulations
NRPA Permit by Rule Standards Ch. 305:15,-10,-11. Dune restoration/construction and beach nourishment projects must use sand with texture and color characteristics consistent with natural sand texture and color and minimize damage to existing dune vegetation and follow configuration and alignment of adjacent dunes as closely as possible.

Me. Rev. Stat. Ann. Tit. 38, §480. Maine Natural Resources Protection Act (NPRA). Any dredging, bulldozing, removing or displacing of soil, sand, vegetation or other materials within the coastal sand dune system and coastal wetlands require a NRPA permit. Filling, including adding sand or other material to a sand dune requires a NRPA permit.

Sand Dune Law 38: Regulates dune restoration. State and local dune restoration projects have occurred.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment.

3.2 Amount of State Funding
None.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
1) Camp Ellis, 1996 - Navigation. Cost: $1,180,000 (Federal)

*****Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

See also " A Dredged Material Management Study for Coastal Maine and New Hampshire" New England Division, Army Corps of Engineers.

4.0 Recent State Documents on Nourishment

4.1 Title A Sand Budget for Saco Bay, Maine. Maine Geological Survey (1995)

5.0 Important Issues Regarding Nourishment

5.1 The most significant issues include complex beach dynamics and the fact that many shorefront property owners' property extends to "low tide" which limits the expenditure of state and federal funds for nourishment.

MARYLAND
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a beach nourishment policy.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Md. Code Ann., Nat. Res. §7-6A07. Requires a permit for near shore sand mining.

2.2 Dredge and Fill Regulations
Md. Code Ann., Nat. Res. §9-202. Requires a license to dredge or fill on state wetlands.

2.3 Sand Scraping/Dune Reshaping Regulations
Md. Code Ann., Nat. Res. §8-1105.1. Allows sand scraping/dune reshaping if for storm control, beach erosion and sediment control or maintenance projects to benefit the Beach Erosion Control District.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is a state funding program for beach nourishment.

Md. Code Ann., Nat. Res. §8-1105.2, 8-1105.3. Ocean Beach Replenishment Fund. Established the Ocean Beach Replenishment Fund to be used for: (1) bulkhead construction; (2) dune restoration or construction; (3) beach replenishment; and, (4) land acquisition. Such projects must be part of an integrated plan for providing storm and flood protection and are to be cost-shared with local jurisdictions on a 50%-50% basis of the non-federal costs (other than land acquisition for which the state assumes 100%).

Shoreline Improvement Loan Fund Program. The purpose of this program is to allow the State to make grants up to 75% of the total cost allowing local governments to undertake projects on shoreline areas they own within the Chesapeake Bay Critical Area for abatement of eroding shoreline.

3.2 Amount of State Funding
Approximately $1 million per year from the Ocean Beach Fund.

3.3 Cost Share Requirements
As noted in 3.1 above.

3.4 Summary of Projects Funded (1995-98)
1) The Ocean City Beach Replenishment and Hurricane Protection Project. The project was constructed in two phases: Phase I: established a wide, gradually rising beach and level berm area. It was completed in September 1988 and funded by State government, Ocean City, and Worcester County. Phase II: included 1.8 miles of steel bulkhead protecting the boardwalk and 7 miles of dunes and berm to provide hurricane protection up to the Delaware boundary line. It was jointly funded by the State, Ocean City, Worcester County and the U.S. Army Corps of Engineers. State funding for Phase I, Phase II, and continued maintenance of the Project comes from the Ocean Beach Replenishment Fund. The beach is to be replenished every four years to retain its 100 year storm protection level and ensure federal involvement in case of a major storm.

4.0 Recent State Documents on Nourishment

4.1 Title Maryland Geological Survey

Abstract
Non-energy resources and shallow geological framework of the inner continental margin off Ocean City, Maryland / by Darlene V. Wells. -- [Baltimore]: Dept. of Natural Resources

5.0 Important Issues Regarding Nourishment

5.1 State Assumption of Federal Permit Program. Section 404 of the federal Clean Water Act of 1972 governs the deposition of dredged or fill materials in navigable waters, and activities which may directly impact wetlands. It also provides for states to assume the authority to issue Section 404 permits in nontidal wetlands adjacent to non-navigable waters. In Maryland, all activities that may affect nontidal wetlands must be evaluated by both the U.S. Corps of Engineers and the state, and both federal and state permits are issued for approved activities.

In the 1989 enacting legislation for the State nontidal wetland program, the General Assembly declared Maryland's intention to evaluate the possibility of the State assuming the authority to issue Section 404 permits. To assist the state with proceeding with assumption of the Section 404 Program, the Environmental Protection Agency identified several changes that needed to be made to the state's nontidal wetlands program. Unsuccessful legislation containing these modifications was introduced by the Schaefer Administration in the 1994 Session. In the 1995 Session, the Glendening Administration proposed similar legislation, Senate Bill 649/House Bill 820 (both failed).

Following the defeat of the legislation authorizing State assumption of the Section 404 Program, the Baltimore District of the USACE developed and issued a State Programmatic General Permit for activities conducted in tidal and nontidal wetlands in the State, effective July 1, 1996. Under the general permit, activities with minimal individual and cumulative environmental impacts, as specified by the criteria and terms of the general permit are eligible for authorization through a joint permit application process. Additionally, under the general permit, State and federal resource agencies have the opportunity to review and comment on any application and the Corps retained discretion to require an individual permit on a case-by-case basis.

5.2 Identification of Future Borrow Sites. The Maryland Geologic Survey, in partnership with the State of Delaware and the Department of the Interior, Minerals Management Service, conducted a study to identify and assess potential offshore borrow sites for future replenishment.

MASSACHUSETTS
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

MA Coastal Zone Management Program Policies. Coastal Hazard Policy #1. Preserve, protect, restore, and enhance the beneficial functions of storm damage prevention and flood control provided by natural coastal landforms, such as dunes, beaches, barrier beaches, coastal banks, land subject to coastal storm flowage, salt marshes, and land under the ocean.

2.0 Related Policies

2.1 Near Shore Sand Mining

MA Coastal Zone Management Program Policies. Ocean Resources Policy #3. Accommodate offshore sand and gravel mining needs in areas and in ways that will not adversely affect shoreline areas due to alteration of wave direction and dynamics, marine resources and navigation. Mining of sand and gravel, when and where permitted, will primarily be for the purpose of beach nourishment.

2.2 Dredge and Fill Regulations

MA Coastal Management Program Policies. Port Policy # 1. Ensure that dredging and disposal of dredged material minimize adverse effects on water quality, physical processes, marine productivity and public health.

MA Coastal Management Program Policies. Ocean Resources Policy #3. Accommodate offshore sand and gravel mining needs in areas and in ways that will not adversely affect shoreline areas due to alteration of wave direction and dynamics, marine resources and navigation. Mining of sand and gravel, when and where permitted, will primarily be for the purpose of beach nourishment.

Mass. Gen. L. ch. 91, §1-63. Public Waterfront Act. Mass. Regs. Code tit., 310, §9 Waterways Regulations. Applies to projects conducted below the mean high tide line.

Mass. Gen. L. ch. 131, §40. Wetlands Protection Act . Mass. Regs. Code tit., 310, §10. Wetlands Regulations. Proposed projects must the meet performance standards of the wetlands protection act.

Mass. Gen. L. ch. 132A, §12,13, 16-18. Ocean Sanctuaries Act. Mass. Regs. Code tit., 302, §5. Ocean Sanctuaries Regulations. Proposed projects within the five designated ocean sanctuaries are subject to these regulations.

Mass. Gen. L. ch. 21A, §2. Areas of Critical Environmental Concern. Mass. Regs. Code tit., 301, §12. Proposed projects with designated Areas of Critical Environmental Concern are subject to these regulations.

Mass. Gen. L. ch. 21. Mass. Regs. Code tit., 314, §9. Water Quality Certification Program. Proposed projects involving dredging of fill below the mean high water line are subject to these regulations.

2.3 Sand Scraping/Dune Reshaping Regulations
The Massachusetts Coastal Zone Management Program policies do not directly address this issue in detail. However, this activity has been found to be inconsistent with the performance standards for coastal dunes under the Wetlands Protection Act by the Massachusetts Department of Environmental Protection, Mass. Gen. L. ch. 131, §40. And Mass. Regs. Code tit., 310, §10.28.

2.4 Dune Creation/Restoration Regulations
Mass. Gen. L. ch. 131, §40. Wetlands Protection Act . Mass. Regs. Code tit., 310, §10. Wetlands Regulations. Proposed projects must the meet performance standards of the Wetlands Protection Act.

2.5 Public Access Regulations
Mass. Gen. L. ch. 91, §1-63. Public Waterfront Act. Mass. Regs. Code tit., 310, §9 Waterways Regulations. Applies to projects conducted below the mean high tide line.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment. The Rivers and Harbors Program implements beach restoration projects.

3.2 Amount of State Funding
The funding amount varies from year to year.

3.3 Cost Share Requirements
Cost Share requirements vary depending on the sponsor of the project and the owner(s) of the land.

3.4 Summary of Projects Funded (1995-98)
1) Quincy Shore Beach (Wollaston Beach), 1996. Cost: $663,000 (State/Local).

2) Long Beach, Barnstable, 1986, 90,00 cu yards. 1999, 60,0000 cu yards. Funding: Private.

3) Dead Neck Island, Barnstable. 1986, 115,000 cu yards. 1998, 100,000 cu yards. Funding: private.

4) Great Island, Barnstable. 1986, 80,000 cu yards. Funding: private.

*There are an additional 25 dredging projects a year in Massachusetts where clean, compatible dredged material is used for beach nourishment.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

MICHIGAN
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a policy regarding beach nourishment.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
1994 Mich. Pub. Acts 324.637. Natural Resources & Environmental Protection Act, Sand Dune Mining. This statute covers the permitting of sand dune mining.

2.2 Dredge and Fill Regulations
1994 Mich. Pub. Acts 324.303. Natural Resources & Environmental Protection Act, Wetlands Protection. This statute covers the permitting of dredge and fill activities in wetlands.

Mich. Admin. Code r. 281.23. Environmental Areas. This regulates dredging, filling, grading, or other alterations of soil in environmental areas.

Mich. Admin. Code r. 322.1008. Submerged Lands Rules - Permits. This regulates dredging filling, or placing spoil or other materials on bottomlands.

2.3 Sand Scraping/Dune Reshaping Regulations
1994 Mich. Pub. Acts 324.353. Natural Resources & Environmental Protection Act, Sand Dunes Protection and Management. This statute gives local units of government the opportunity to protect and manage critical dune areas. An application for a permit must be filed with the local government for activities within a critical dune area.

2.4 Dune Creation/ Restoration Regulations
1994 Mich. Pub. Acts 324.353. Natural Resources & Environmental Protection Act, Sand Dunes Protection and Management. This statute gives local units of government the opportunity to protect and manage critical dune areas. An application for a permit must be filed with the local government for activities within a critical dune area.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
1) Port Sanilac - Lake Huron, 1996 - Mitigation. (Federal).

2) Lexington - Lake Huron, 1996 - Mitigation. (Federal).

3) New Buffalo - Lake Michigan, 1995 - Unknown - 1,500 ft. renourished. Cost: $97,850 (Federal).

4) Saint Joseph - Lake Michigan, 1995 - Mitigation - 2,500 ft. renourished. Cost: $190,557 (Federal).

5) Saint Joseph - Lake Michigan, 1995 - Mitigation - 1,300 ft. renourished. Cost: $317,432 (Federal).

6) Saint Joseph - Lake Michigan, 1996 - Mitigation. (Federal).

7) Holland - Lake Michigan, 1995 - Mitigation - 1,000 ft. renourished. Cost: $96,181 (Federal).

8) Holland - Lake Michigan, 1996 - Mitigation. (Federal).

9) Grand Haven - Lake Michigan, 1995 - Mitigation - 1,500 ft. renourished. Cost: $139,680 (Federal).

10) Grand Haven - Lake Michigan, 1996 - Mitigation. (Federal).

11) Muskegon - Lake Michigan, 1996 - Mitigation. (Federal).

12) White Lake - Lake Michigan, 1995 - Mitigation - 3,900 ft. renourished. Cost: $219,960 (Federal).

13) Pentwater - Lake Michigan, 1995 - Navigation - 2,500 ft. renourished. Cost: $77,108 (Federal).

14) Ludington - Lake Michigan, 1995 - Mitigation - 2,900 ft. renourished. Cost: $184,955 (Federal).

15) Arcadia - Lake Michigan, 1995 - Navigation - 1,000 ft. renourished. Cost: $25,519 (Federal).

16) Arcadia - Lake Michigan, 1996 - Navigation. (Federal).

17) Leland - Lake Michigan, 1995 - Navigation - 1,700 ft. renourished. Cost: $69,086 (Federal).

18) Leland - Lake Michigan, 1996 - Navigation. (Federal).

19) Grand Traverse - Lake Superior, 1995 - Navigation - 1,600 ft. renourished. Cost: $76,442 (Federal).

20) Big Bay - Lake Superior, 1995 - Navigation - 6,700 ft. renourished. Cost: $57,867 (Federal).

21) Little Lake - Lake Superior, 1995 - Navigation - 1,300 ft. renourished. Cost: $46,963 (Federal).

22) Ontonagon - Lake Superior, 1995 - Navigation - 6,720 ft. renourished. Cost: $242,076 (Federal).

23) Ontonagon - Lake Superior, 1996 - Navigation. (Federal).

*****Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Michigan Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

MINNESOTA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The State of Minnesota does not have policies specific to beach renourishment. The North Shore of Lake Superior is unlike the shores of the other great lakes and coastal waters of the U.S. and its territories. Minnesota does not have a definition of "beach" in its laws pertaining to land use or protected waters management. The state relies on the definition of Beds of Protected Waters and the Ordinary High Watermark to manage the protection of waters. The Minnesota Shoreland Management Act, Minn. Stat. §103F.201-103F.221, and the Statewide Standards for Management of Shoreland Areas, Minn. R. 6120.2500 both govern the use of lands adjacent to lakes and rivers and any shoreland alterations. In addition, the North Shore Management Plan, Minn. R. 6120.2800, contains specific standards to guide the management of the Lake Superior shoreland area, including standards for shoreline alterations. Counties and municipalities adopt and administer the state standards as part of their official land use controls and any activity that will involve the movement of more that 10 cubic yards of earth by excavating or filling within the shore impact zone must first be authorized by a local government grading and filling permit.

1.2 Policy Citation and Description
Minnesota has no beach nourishment policies.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Sand and gravel operations in Minnesota require county/city permits. The Division of Minerals in Minnesota has developed a "Handbook for Reclaiming Sand and Gravel Pits in Minnesota", its purpose is to provide technical information about reclaiming sand and gravel pits. No specific information on near shore sand mining was found.

2.2 Dredge and Fill Regulations
Dredge and fill activities are governed under the Protected Waters Permit Program, Minn. Stat. §103G.201-103G.315, and Water Permits regulations, Minn. R. 6115.0010-6115.0810. This statute and regulation limit excavation from the beds of protected waters, regulate the nature, degree and purpose of excavations, and control the deposition of material excavated from protected waters in order to protect against adverse effects. The regulatory limit for this Permit Program on Lake Superior is the vegetation line above the beach. Therefore, all beach nourishment activities are regulated pursuant to this program.

2.3 Sand Scraping/Dune Reshaping
Not applicable. See response 1.1.

2.4 Dune Creation/Restoration
Not applicable. See response 1.1.

2.5 Public Access Regulations
Minnesota's Outdoor Recreation System Statue, Minn. Stat. §86A.02, provides for specific programs to be implemented that will provide shorefront access. Minnesota's abundant outdoor recreational opportunities are to be made available to all citizens of Minnesota now and in the future.

3.0 Beach Renourishment Funding Program

3.1 Minnesota has no beach nourishment funding program.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Not applicable.

4.0 Recent State Documents on Nourishment

4.1 Not applicable.

5.0 Important Issues Regarding Nourishment

5.1 Not applicable.

MISSISSIPPI
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

Mississippi Coastal Program. Chapter VIII. Section 2. Part III. H. Dredged Material Disposal. All dredged material should be viewed as a potentially reusable resource. For example, materials suitable for beach replenishment should be used immediately for such purposes or stockpiled in existing disposal areas for later use.

Mississippi Coastal Program. Chapter VIII. Section 2. Part III. L. Other Mineral Extraction. Sand mining is allowed in order to obtain materials for beach nourishment projects.

Mississippi Coastal Program. Chapter VIII. Section 2. Part III. O. Filling Other Than Dredged Material Disposal. Fill material should be non-toxic and either stabilized or of sufficient size as to not be displaced during typical storm tides. Beach nourishment does not require stabilization.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Mississippi Coastal Program. Chapter III. Section 2. Miss. Code Ann. §49-27-5. A permit is required for removal of sand from coastal wetlands.

Mississippi Coastal Program. Chapter VIII. Section 2. Part III. L. Other Mineral Extraction. Prohibits extraction of sand from coastal wetlands within 1,500 ft. of tidal marshes or within one mile of the base of live reefs, unless obtaining material for beach replenishment.

2.2 Dredge and Fill Regulations

Mississippi Coastal Program. Chapter III. Section 2. Miss. Code Ann. §49-27-5.
A permit is required for dredging and filling in coastal wetlands.

Mississippi Coastal Program. Chapter VIII. Section 2. Part III. H. Dredged Material Disposal. All dredged material should be viewed as a potentially reusable resource. For example, materials suitable for beach replenishment should be used immediately for such purposes or stockpiled in existing disposal areas for later use.

2.3 Sand Scraping/Dune Reshaping Regulations

The Harrison County Sand Beach Department has sand scraping/dune reshaping regulations.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is a state funding program for beach nourishment. Funds from the Seawall Tax are used to fund beach nourishment projects.

3.2 Amount of State Funding
Unknown.

3.3 Cost Share Requirements
Unknown.

3.4 Summary of Projects Funded (1995-98)
West Ship Island, 1996. Cost: $261,250 (State/Local).

*****Source: Duke University Program for the Study of Developed Shorelines.
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Mississippi Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

NEW HAMPSHIRE
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment. Shoreline erosion is a problem of limited scope since the state only has 10.2 miles of beachfront.

1.2 Policy Citation and Description

New Hampshire Coastal Program Policies - July 1988. Coastal Dependent Uses #14. Preserve and protect coastal and tidal waters and fish and wildlife resources from adverse effects of dredging and dredged disposal, while ensuring the availability of navigable waters to coastal-dependent uses. Encourage beach renourishment and wildlife habitat restoration as a means of dredge disposal whenever compatible.

N.H. Rev. Stat. Ann. §482-A. I. Fill and Dredge in Wetlands Act. This statute regulates activities that excavate, remove, fill, dredge or construct any structures in or on any bank, flat, marsh, or swamp in and adjacent to any waters of the state without a permit from the department.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

New Hampshire Coastal Program Policies - July 1988. Protection of Coastal Resources #3. Regulate the mining of sand and gravel resources in offshore and onshore locations so as to ensure protection of submerged lands, and marine and estuarine live. Ensure adherence to minimum standards for restoring natural resources impacted from onshore sand and gravel operations.

2.2 Dredge and Fill Regulations

N.H. Rev. Stat. Ann. §482-A. I. Fill and Dredge in Wetlands Act. This statute regulates activities that excavate, remove, fill, dredge or construct any structures in or on any bank, flat, marsh, or swamp in and adjacent to any waters of the state without a permit from the department.

New Hampshire Coastal Program Policies - July 1988. Coastal Dependent Uses #14. Preserve and protect coastal and tidal waters and fish and wildlife resources from adverse effects of dredging and dredged disposal, while ensuring the availability of navigable waters to coastal-dependent uses. Encourage beach renourishment and wildlife habitat restoration as a means of dredge disposal whenever compatible.

2.3 Sand Scraping/Dune Reshaping Regulations

N.H. Rev. Stat. Ann. §482-A.VII. Fill and Dredge in Wetlands Act. No person shall destroy, raze, reduce, alter, build upon or remove any sand or vegetation from any sand dune in this state without a permit from the department.

2.4 Dune Creation/Restoration Regulations

N.H. Rev. Stat. Ann. §482-A.VII. Fill and Dredge in Wetlands Act. No person shall destroy, raze, reduce, alter, build upon or remove any sand or vegetation from any sand dune in this state without a permit from the department.

2.5 Public Access Regulations

New Hampshire Coastal Program Policies - July 1988. Recreation and Public Access # 7. Provide a wide range of outdoor recreational opportunities including public access in the seacoast through the maintenance and improvement of the existing public facilities and the acquisition and development of new recreational areas and public access.

3.0 Beach Nourishment Funding Program

3.1 New Hampshire provides funding for beach nourishment on a case by case basis.

Hampton Channel and Beach Erosion Control. N.H. Rev. Stat. Ann. §216-B. Hampton Harbor is periodically dredged by the state and beach-quality sand is placed on Hampton Beach. The Army Corps of Engineers also periodically dredges the Hampton/ Seabrook Harbor entrance channel, but sand is not always used for beach nourishment. The most recent disposal on the beach was in 1999. Beach nourishment was also being contemplated for material dredged from the Piscataqua River in 1999.

3.2 Amount of State Funding

Unknown.

3.3 Cost Share Requirements

Federal: 60%, State and Local: 40%.

3.4 Summary of Projects Funded (1995-98)

Material is placed on Hampton Beach periodically from the Hampton Harbor Inlet dredging.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

NEW JERSEY
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

N.J. Admin. Code tit. 12 §5-3. Water Resource Development Act. Established funding for beach nourishment projects.

Beaches and Harbors Bond Act: PL 1978. C 157 and PL 1983. C 356. Responsible for the Comprehensive Shore Protection Master Plan and also for funding erosion control and beach nourishment projects stressing non-structural approaches to erosion.

N.J. Admin. Code tit. 7 §7E -4.42. Acceptable Conditions for Uses. Uncontaminated dredged sediments with 75 percent sand or greater are generally encouraged for beach nourishment (on ocean or open bay shores).

N.J. Admin. Code tit. 7 §7E -7.11. Standards Relevant to Beach Nourishment. Beach nourishment projects, such as non-structural shore protection measures are encouraged, provided that: 1) The particle size and type of fill material is compatible with the existing beach material to ensure that the new material will not be removed to a greater extent than the existing material would be by normal tidal fluctuations; 2) The elevation, width, slope and form of proposed beach nourishment projects are compatible with the characteristics of the existing beach; 3) The sediment deposition will not cause unacceptable shoaling in downdrift inlets and navigation channels; and 4) Public access to the nourished beach is provided in cases where public funds are used to complete the project.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

N.J. Admin. Code tit. 7 §7E -4.42. Acceptable Conditions for Uses. Sand and gravel extraction is discouraged. Priority will be given to sand extraction for beach nourishment, and extraction is conditionally acceptable.

2.2 Dredge and Fill Regulations

N.J. Admin. Code tit. 13 §9A-1 et. seq. Wetlands Act of 1970. A Department of Environmental Protection permit is required for dredging, filling, removing or otherwise altering or polluting coastal wetlands.

N.J. Admin. Code tit. 7 §7E -4.42. Acceptable Conditions for Uses. Coastal Zone Management rules for dredging and dredged material disposal.

N.J. Admin. Code tit. 12 §3-21, 3-22. Requires proper license to dig, dredge or remove any deposits of sand or other material from lands of the state under tidewaters. Gives the Board the authority to issue the license.

N.J. Admin. Code tit. 12 §6B-1 to 6B-8. Includes the state findings and declarations relative to dredging and dredged material disposal. Establishes the Dredging Project Facilitation Task Force, a priority list for dredging projects, and the Dredging/Dredged Material Management and Disposal Plan.

2.3 Sand Scraping/Dune Reshaping Regulations

N.J. Admin. Code tit. 7 §7E-3A. Standards for Beach and Dune Activities. Projects involving the mechanical redistribution of sand from the lower beach profile to the upper beach profile, or along the shore, are acceptable in accordance with certain standards.

2.4 Dune Creation/Restoration Regulations

N.J. Admin. Code tit. 7 §7E-7.11. Standards Relevant to Dune Management. Allows dune restoration, creation and maintenance projects as non-structural shore protection measures as long as they are carried out in accordance with Subchapter 3A, Standards for Beach and Dune Activities.

2.5 Public Access Regulations

N.J. Admin. Code tit. 7 §7E-7.11. Standards Relevant to Beach Nourishment. Public access to the nourished beach is provided in cases where public funds are used to complete the project.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment.

N.J. Admin. Code tit. 12 §5-3. Water Resource Development Act. Established funding for beach nourishment projects.

Beaches and Harbors Bond Act: PL 1978. C 157 and PL 1983. C 356, Funds erosion control and beach nourishment projects, stressing non-structural approaches to erosion.

N.J. Admin. Code tit. 13 §19-16.1. The "Shore Protection Fund" provides monies for shore protection projects associated with the protection, stabilization, restoration or maintenance of the shore with the current New Jersey Shore Protection Master Plan and may include the non-federal share of any state-federal project.

Minerals Management Service (U.S. Department of Interior) - New Jersey Geological Survey-NJDEP Cooperative Study for Offshore Beach Replenishment Sands Established 1992. Jointly funded. Identifies and characterizes beach sand source areas located in Federal waters. Sites are evaluated for possible development as additional sand source areas for NJ beach replenishment projects. To date, eight target areas in

Federal waters have been delineated and are under environmental review by the Minerals Management Service.

3.2 Amount of State Funding
$15 million/year is allocated for shore protection. The actual projects may include structural, as well as non-structural, shore protection measures.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
1) Sandy Hook, 1995 - Storm and Erosion - 16,368 ft. renourished. Cost: $19,673,000 (Federal).

2) Sandy Hook, 1996 - Storm and Erosion - 12,672 ft. renourished. Cost: $16,300,000 (Federal).

3) Ocean City, 1995 - 10,560 ft. renourished. Cost: $1,269,549 (State/Local).

4) Ocean City, 1995 - Storm and Erosion - 24,816 ft. renourished. Cost: $5,922,269 (Federal).

5) Cape May, 1995 - Storm and Erosion - 4,800 ft. renourished. Cost: $2,683,150 (Federal).

*****Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 Title The New Jersey Beach Profiling Network Annual Survey. Stockton State College.

Abstract
Stockton State College performs this survey two times a year, both of which are bound annually. It is a technical resource on the condition of beaches and is used mostly by researchers.

4.2 Title Characterization of Offshore Sediments in Federal Waters as Potential Sources of Beach Replenishment Sand - Phase I, New Jersey Geological Survey Open File Report OFR 95-I, Trenton, NJ.

Abstract
This report provides a historical overview of previous offshore studies where sand resource information might be found. Additionally, it reports on our analysis of shoreline and beach volume data form Stockton State College from 1987 to 1992, the first longitudinal analysis of sand volume and shoreline data for the state. Finally it outlines the initial work of our own seismic and vibracore data acquisition offshore Townsends Inlet. Prepared as part of New Jersey Geological Survey's Cooperative Agreement #14-35-0001-30666 with the Minerals Management Service, US Department of the Interior.

4.3 Title Characterization of offshore sediments in Federal waters as potential sources of beach replenishment sand - Phase II, Year 2 Final Report, New Jersey Geological Survey, Trenton, NJ.

Abstract
The volumetric analysis of the sand resource area offshore of Townsends Inlet is reported and discussed. A comparison of the cost of onshore and offshore sand extraction is provided, citing data from over 20 recent renourishment projects. Tables of identified offshore and onshore sand sources are included as well as a map of these areas. This report is on file at New Jersey Geological Survey, prepared as part of New Jersey Geological Survey's Cooperative Agreements #14-35-0001-30666 and #14-35-0001-30751 with the Minerals Management Service, US Department of the Interior.

4.4 Title Nearshore Ridges and Underlying Upper Pleistocene Sediments on the Inner Continental Shelf of New Jersey. Masters of Science Thesis, Rutgers University, New Brunswick, NJ. Peter C. Smith. 1996

4.5 Title Stratigraphic Relationships of Nine Core Samples Collected From Offshore Shoals Located in Federal Waters Off Atlantic City, NJ: Independent Study and Research. Rider University, Lawrenceville, NJ. Benjamin J. Lubchansky. 1999.

5.0 Important Issues Regarding Nourishment

5.1 Funding: State and Federal
The ratification of bill S-688/A-1676 has legislated a permanent increase in New Jersey's shore protection fund to $25 million a year.

5.2 Managing OCS Mineral Resources
Federal law PL 103-426; 43 U.S.C. 1337 (k)(2), removed procedural obstacles to obtaining OCS sand and authorized negotiation of agreements for rights to use OCS sand, gravel and shells for certain specified uses for a fee to be determined by the Secretary of Interior. The Secretary has delegated responsibility for managing OCS mineral resources to the Minerals Management Service. This law went into effect in October, 1994.

NEW YORK
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description
N.Y. Envtl. Conserv. Law §34. N.Y. Exec. Law §42. N.Y. Comp. Codes R. & Regs. tit. 6, §505. N.Y. Comp. Codes R. & Regs. tit. 19, §600. Divides erosion protection into structural and non-structural methods with preference given to non-structural methods. Beach nourishment is considered a structural erosion protection measure and is subject to several state laws and their associated regulation.

State of New York Coastal Management Program Document / FEIS. Policy 13
Beach nourishment that occurs as a result of beneficial disposal of dredged material is not held to the 30 year standard (of reasonably controlling erosion); it is recognized that beach nourishment is not the primary purpose of action and that placement of sand on the beach has benefits to natural protective features thus advancing other policies.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
State of New York Coastal Management Program Document / FEIS. Policy 15. Mining of borrow sites for beach nourishment must not adversely impact coastal processes and natural protective features so that erosion or flooding is exacerbated.

2.2 Dredge and Fill Regulations
N.Y. Envtl. Conserv. Law §34. Coastal Erosion Hazard Areas Act. N.Y. Comp. Codes R. & Regs. tit. 6, §505. Coastal Erosion Management Regulations. Activities allowed and permitted within natural protective features are dredging which is used for constructing or maintaining navigation channels, bypassing sand around natural and man-made obstructions, or artificial beach nourishment and deposition of clean sand or gravel within nearshore areas.

2.3 Sand Scraping/Dune Reshaping
Allowed, but DEC has placed requirements on beach dimensions - the beach must be 8 ft. high and 100ft. wide before scrapping is allowed. A permit is required.

State of New York Coastal Management Program Document / FEIS. Policy 17.
Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible. This includes the reshaping of bluffs and dunes in order to strengthen coastal landforms.

2.4 Dune Creation/Restoration

State of New York Coastal Management Program Document / FEIS. Policy 17. Non-structural measures to minimize damage to natural resources and property from flooding and erosion shall be used whenever possible. This includes the strengthening of coastal landforms by planting appropriate and stabilizing vegetation on dunes.

2.5 Public Access Regulations

State of New York Coastal Management Program Document / FEIS. Policy 19. It is the policy of the State to: Protect, maintain, and increase the level and types of access to public water-related recreation resources and facilities.

State of New York Coastal Management Program Document / FEIS. Policy 20. It is the Policy of the State that: Access to the publicly-owned foreshore and to lands immediately adjacent to the foreshore or the water's edge that are publicly-owned, shall be provided and it shall be in a manner compatible with adjoining uses.

Together, these policies provide for maintenance of existing access, and development of new access(including transportation to a site, services, and parking) for publicly funded beach nourishment projects.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment. Most beach nourishment projects are funded by the state legislature on a project by project basis. Local costs have been appropriated by county legislatures or, town/village boards on a project by project basis. There has been some limited action on the local level to create erosion taxing districts to raise funds to pay for local projects, or the local share of federal/state projects.

State Environmental Protection Fund (EPF), Title 11. This fund Provides several million dollars annually for a broad range of coastal projects, including the construction of small shore protection projects such as beach nourishment. However, as of 1999, no EPF monies have been used for this purpose.

3.2 Amount of State Funding

State funding is variable from year to year depending on the projects proposed.

3.3 Cost Share Requirements

The formula for cost sharing Federal shore protection projects is: 65% federal; 24.5% state, 10.5% local. The non-federal portion is usually shared: 70% state; 30% county/municipality. State law allows a 50/50 split between the state and county/municipality, however, this it not usually the case. For state/local projects the cost share is 70/30, unless funded by the Environmental Protection Fund, in which case the cost share is 50/50.

3.4 Summary of Projects Funded (1995-98)

1) West Hampton Beach, 1997 - Storm Damage Protection - 12,000 ft. nourished. Cost: $30,700,000 initially, plus $7 million every 3 years for 30 years of nourishment (Federal/State/Local).

2) Great Gunn Beach (Great South Beach, Fire Island), 1995 - Navigation and Erosion Protection. Cost: $160,000 (Local).

3) Smith Point County Park (Great South Beach, Fire Island), 1996 - Emergency Erosion Protection - 1,000 ft. nourished with 190,000 c.y of material from an upland source. Cost: $2,400,000 (Local- Suffolk County).

4) Water Island (Great South Beach, Fire Island), 1996 - Navigation and Erosion Protection - 1,000 ft. nourished. Cost: $470,000 (Local/Private).

5) Hempstead Beach (Long Beach Island), 1996 - Navigation Disposal - 3,000 ft. nourished. Cost: $3,060,750 (Federal/State/Local).

6) Rockaway Beach, 1996 - Navigation Disposal - 4,000 ft. nourished. Cost: $2,400,000 (Federal/State/Local).

7) Rockaway Beach, 1996 - Storm Damage Protection - 6.2 mi. nourished. Cost: 22,500,000 (Federal/State/Local).

8) Coney Island, 1995 - Storm Protection Project - 18,340 ft. nourished. Cost: $9,270,000 (Federal/State/Local).

9) Gilgo Beach, 1996 - Navigation and Erosion Protection. Cost: $3,000,000 (Federal/State).

10) Shinnecock Inlet, 1997 - Navigation and Erosion Protection - 3,000 ft. nourished. Cost: $1,850,000 (State/Local- Suffolk County)

11) Shinnecock Inlet, 1998 - Navigation and erosion Protection - 3,500 ft. nourished with 405,000 c.y. of sand. Cost: $2,950,000 (69% Fed/31% State).

12) Dune Road, Shinnecock Inlet, 1995 - Emergency Erosion Protection - 1,435 and 1,359 c.y. on dune. Cost: $25,000 (State) .

13) Dune Road, Shinnecock Inlet, 1996 - Emergency Erosion Protection - 1,000 ft. of dune nourished. Cost: $1,200,000 (State).

14) Quogue, 1996 - Emergency Erosion Protection - 91 ft. of dune nourished. Cost: $6,000 (Private).

15) Moriches Inlet, 1998 - Navigation and Erosion - 2,200 ft. of nearshore placement. Cost: $679,000 (69% Federal/ 31% State).

16) Fire Island Pines, 1996 - Erosion Protection - 7,000 ft. nourished with 5000,000 c.y. Cost: $3,000,000 (Private Erosion Control District Project).

17) Jones Inlet Dredging, 1996- Erosion Protection- 458,000 c.y. placed on Long Island Beach. Cost: $2,913,800 (100% federal).

*Source: Fred Anders, NY DOS

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 Beneficial Reuse of Dredged Material

Dredged material is viewed as an important resource. Rather than dispose of dredged material, it can be used in a variety of productive, beneficial ways to serve the people of New York State. One use of dredged material has been as nourishment for beaches. Placing this material on beaches not only extends the beaches' recreational and erosion and flood protection functions, but it also clears channels of potentially dangerous shoals and accumulations. However, the dredged sediments may be contaminated and dangerous to reuse. The Division of Coastal Resources is providing financial assistance to communities under Title 11 Environmental Protection Fund for the beneficial reuse of dredged material in waterfront revitalization and development projects.

5.2 Nourishment Funding

Currently, there are several nourishment projects that are proposed for Long Island. One is for a $60 million temporary nourishment of 12 miles of Fire Island Beach. The second is the $9.5 million temporary nourishment 3,500 ft. west of Shinnecock Inlet. Long Beach is a project with a 50 year life, awaiting construction funding. Initial project cost is 67.6 million, for beach nourishment and construction of a few groins. The state is also proposing to implement sand bypassing at inlets to reduce the rate of shoreline erosion.

5.3 Sand Bypassing

Routine sand bypassing has the potential to significantly reduce erosion rates along many shorelines in New York by eliminating detrimental effects caused by jetties and other shoreline protection structures. This process mechanically picks up sand from one side of an inlet or shore protection structure, where there is a sand excess, and deposits it on the other side of the inlet or protection structure, where there is a sand deficit. Periodic sand bypassing by New York State, related to inlet dredging, has successfully reduced erosion impacts at Jones Island and other sites in New York.

The immediate focus is to reestablish longshore transport of sand to mitigate erosion impacts caused by jetties and inlets on the south shore of Long Island, without detriment to inlet navigation. The Division of Coastal Resources is working with local governments and other state and federal agencies to implement a permanent sand bypassing system at each inlet. This requires investigation of environmental parameters, coastal processes, and design of a cost-effective system.

Following successful implementation of routine sand bypassing along the south shore, the Division of Coastal Resources plans to identify other coastal sites where sand bypassing would be beneficial to restore eroded beaches affected by publicly built structures.

NORTH CAROLINA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has policies regarding beach nourishment.

1.2 Policy Citation and Description

N.C. Admin. Code tit. 15A, r. 7M.1100. General Policy Guidelines for the Coastal Area. Policy on Beneficial Use and Availability of Materials Resulting from the Excavation or Maintenance of Navigation Channels. Certain dredged material disposal practices may result in removal of material important to the sediment budget of ocean and inlet beaches. This may, particularly over time, adversely impact important natural beach functions especially during storm events and may increase long term erosion rates. Ongoing channel maintenance requirements throughout the coastal area also lead to the need to construct new or expanded disposal sites as existing sites fill up. This is a financially and environmentally costly undertaking. In addition, new sites for disposal are increasingly harder to find because or competition from development interests for suitable sites. Therefore, it is the policy of the State of N.C. that material resulting from the excavation or maintenance of navigation channels be used in a beneficial way wherever practical:

A) Clean, beach quality material dredged from navigation channels within the active nearshore, beach or inlet shoal systems must not be removed permanently from the active nearshore, beach or inlet shoal system unless no practical alternative exists. Preferably, this dredged material will be disposed of on the ocean beach or shallow active nearshore area where environmentally acceptable and compatible with other uses of the beach.
B) Research on the beneficial use of dredged material, particularly poorly sorted or fine grained materials, and on innovative ways to dispose of this material so that it is more readily accessible for beneficial use is encouraged.
C) Material in disposal sites not privately owned shall be available to anyone proposing a beneficial use not inconsistent with paragraph (a) of this Rule.
D) Restoration of estuarine waters and public trust areas adversely impacted by existing disposal sites or practices is in the public interest and shall be encouraged at every opportunity.

N.C. Admin. Code tit. 15A, r. 7M.0201-.0202. General Policy Guidelines for the Coastal Area. Shoreline Erosion Policies. The replenishment of sand on ocean beaches can provide storm protection and a viable alternative to allowing the ocean shoreline to migrate landward threatening to degrade public beaches and cause the loss of public facilities and private property. Experience in N.C. and other states has shown that beach restoration projects can present a feasible alternative to the loss or massive relocation of oceanfront development. In light of this experience, beach restoration and sand Nourishment and disposal projects may be allowed when:

A) Erosion threatens to degrade public beaches and to damage public and private properties.
B) Beach restoration, Nourishment or sand disposal projects are determined to be socially and economically feasible and cause no significant adverse environmental impacts.
C) The project is determined to be consistent with state policies for shoreline erosion response and state use standards for Ocean Hazards, Public Trust Waters, Areas of Environmental Concern and the relevant rules and guidelines of state and federal review agencies.

When these conditions can be met, the Coastal Resources Commission supports, within overall budgetary constraints, state financial participation in Beach Erosion Control and Hurricane Wave Protection projects that are cost-shared with the federal government and affected local governments pursuant to the federal Water Resources Development Act of 1986 and the N.C. Water Resources Development Program (G.S. 143-215.70-73).

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

N.C. Admin. Code tit. 15A, r. 7H.0106, 7H.0208. Submerged lands mining rules for estuarine and public trust waters.

N.C. Admin. Code tit. 15A, r. 7M.1201 - .1202. General Policy Guidelines for the Coastal Area. Ocean Mining Policies for federal and state waters (applicable for federal consistency).

2.2 Dredge and Fill Regulations

N.C. Admin. Code tit. 15A, r. 7H.1500. Coastal Management. A General permit allows excavation within existing canals, channels, basins and ditches in estuarine and public trust waters for the purpose of maintaining previous water depths.

N.C. Admin. Code tit. 15A, r. 7K.0401. Coastal Management. The USACE is exempt from permit requirements regarding maintenance of federal navigation channels. This includes dredging and disposal of dredged materials in AEC's.

N.C. Admin. Code tit. 15A, r. 7M.1100. General Policy Guidelines for the Coastal Area. It is the policy of the state that material resulting from the excavation or maintenance of navigation channels be used in a beneficial way wherever practical.

2.3 Sand Scraping/Dune Reshaping Regulations

N.C. Admin. Code tit. 15A, r. 7H.1800. N.C. Coastal Management. A General permit allows beach bulldozing needed to reconstruct or repair frontal and/or primary dune systems.

2.4 Dune Creation/Restoration Regulations

N.C. Admin. Code tit. 15A, r. 7M.0202. General Policy Guidelines for the Coastal Area. Dune creation is allowed as a temporary measure to counteract erosion, but only to the extent necessary to protect property for a short period of time until threatened structures may be relocated or until the effects of a short-term erosion event are reversed.

2.5 Public Access Regulations

N.C. Admin. Code tit. 15A, r. 7M.0201 -.0202. Shoreline Erosion Policies.
The following are required with state involvement (funding or sponsorship) in beach restoration or sand nourishment projects: (a) the entire restored portion of the beach shall be in permanent public ownership; and (b) it shall be a local government responsibility to provide adequate parking, public access and services for public recreational use of the restored beach.

3.0 Beach Nourishment Funding Program

3.1 There is no program per se, but state does help finance USACE beach protection/nourishment projects. Funding assistance from the state is coordinated by the state Division of Water Resources.

3.2 Amount of State Funding

Totals (1995-98): Nourishment: $6,183,174, Feasibility Study - Dare Co.: $517,388
USACE Feasibility Study: $500,000 (Dare Co. contribution in cash and in-kind services).

Direct State Expenditures (1995-98):

1995	Nourishment (Carolina Beach): $871,174.
	Feasibility Study (Dare Co.): $115,826.
1996	Feasibility Study (Dare Co.): $100,000.
1997	Nourishment (Kure Beach): $3,664,000.
	Feasibility Study (Dare Co.): $200,013.
1998	Nourishment (Carolina Beach): $1,148,000.
	Nourishment (Wrightsville Beach): $500,000.
	Feasibility Study (Dare Co.): $517,388.

3.3 Cost Share Requirements

State: 75%, Local: 25%

3.4 Summary of Projects Funded (1995-98)

1) Pea Island, 1995 - Navigation - 2,000 ft. renourished. Cost: $1,725,242 (Federal).

2) Ocracoke Island, 1995 - Navigation. Cost: $149,489 (Federal).

3) Topsail Island, 1995 - Navigation - 389 ft. renourished. Cost: $277,749 (Federal).

4) Topsail Island, 1997 - Navigation.

5) Carolina Beach, 1995 - Storm and Erosion - 11,600 ft. renourished. Cost: $3,281,211 (Federal). This beach is renourished every 3-4 years, as is Wrightsville Beach.

6) Bald Head Island, 1996 - 13,000 ft. renourished. Cost: $2,860,000 (Local/Private).

7) Kure Beach, 1997 - Storm and Erosion, Initial Construction - 18,000 ft. renourished. Beach will be renourished every 3-4 years.

*Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost. Please note that the above list does not include all beach disposal of material dredged from navigation channels.

**This does not include all materials dredged from navigation channels.

4.0 Recent State Documents on Nourishment

4.1 Title 1998 Legislative Research Commission Report on Coastal Beach Movement Issues.

Abstract
No information available.

5.0 Important Issues Regarding Nourishment

5.1 Critical Issues Summary
The major issues affecting beach nourishment in North Carolina right now are as follows:
A) potential sand sources
B) cost
C) changes in federal policy towards funding

NORTHERN MARIANA ISLANDS
BEACH NOURISHMENT PROGRAM SURVEY

1.0 State Nourishment Policy

1.1 The commonwealth does have a policy regarding beach nourishment.

1.2 Policy Citation and Description
Coastal Resources Rules & Regulations of 1990. Section 9 C. (vi)(a)(1)(f) Standards for CRM Permit Issuance - Shoreline Highest Use Priorities. Activities related to the prevention of beach erosion through non-structural means.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Coastal Resources Rules & Regulations of 1990. Section 8 Coastal Resources Management Permit Process. All persons proposing to conduct any activities affecting or which may affect the coastal resources of the Commonwealth must apply for a Coastal Resources Management (CRM) permit. Section 9 C.(v)(a)(3). Standards for CRM Permit Issuance - Shoreline Management Standards. The taking of sand, gravel, or other aggregates and minerals from the beach and near shore areas shall not be allowed. Section 9 C. (vi)(a)(4)(c) Standards for CRM Permit Issuance - Shoreline Unacceptable Uses. Unacceptable use priorities include the taking of sand for other than cultural usage, and mining of gravel and extraction of minerals, oil and gas, or other extractive uses.

Earth Moving Permit: Department of Public Works (DPW). Requires an “erosion and sedimentation prevention plan” as part of project design to avoid/mitigate erosion and sedimentation adverse impacts on coastal waters. Required for all development activities on surface and submerged lands. All earth moving activities within the trust territory of the Pacific Islands shall . . . prevent accelerated erosion/sedimentation . . . through design, implementation and maintenance of erosion and sedimentation control measures. (FEIS, p138).

2.2 Dredge and Fill Regulations
Coastal Resources Rules & Regulations of 1990. Section 8 Coastal Resources Management Permit Process. All persons proposing to conduct any activities affecting or which may affect the coastal resources of the commonwealth must apply for a Coastal Resources Management (CRM) permit. A permit is required for dredging and filling, discharge of dredged materials and shoreline modification.

2.3 Sand Scraping/Dune Reshaping Regulations
Not applicable, no dunes exist in the Commonwealth of the Northern Mariana Islands.

2.4 Dune Creation/Restoration Regulations
Not applicable, no dunes exist in the Commonwealth of the Northern Mariana Islands.

2.5 Public Access Regulations
Coastal Resources Rules & Regulations of 1990. Section 9 C. (vi)(a)(1)(a) Standards for CRM Permit Issuance - Shoreline Highest Use Priorities. Public recreational uses of beach area, including the creation of public shoreline parks and construction of structures enhancing access and use.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding for beach nourishment. There was one USACE beach nourishment project undertaken in 1992 after a super typhoon.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Not applicable.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Northern Mariana Islands Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

OHIO
BEACH NOURISHMENT PROGRAM SURVEY

1.0 State Nourishment Policy

1.1 Yes, Ohio has policies regarding beach nourishment.

1.2 Policy Citation and Description
Shore Erosion Statute. Ohio Rev. Code Ann. §1507.04. A permit is required before undertaking construction of a beach, groin, or other structure to arrest or control erosion, wave action, or inundation along the Lake Erie shoreline in Ohio.

2.0 Related Policies

2.1 Near Shore sand Mining Regulations
A permit or lease for removal of sand and gravel and other mineral resources from the bed of lake Erie is required to be obtained from the Director of the Department of Natural Resources under state statute, Ohio Rev. Code Ann. §1505.07.

2.2 Dredge and Fill Regulations
Dredge and fill activities are regulated through section 401 water quality standards, Ohio Admin. Code §3745-32-01, through the Permit for Removal of Substances from the Public Trust Land of Lake Erie, Ohio Rev. Code Ann. §1505.07,and the Submerged Lands of Lake Erie Lease regulations, Ohio Rev. Code Ann. §1501-6-01. Ohio Rev. Code Ann. §1505.01 was revised to include language authorizing the Geological Survey to manage sand and gravel and other mineral resources from and under public trust lands. Ohio Rev. Code Ann. §1505.071 recognizes the need to manage sand and gravel resources on public trust lands and requires a permit or lease for dredging which will not return sand and gravel to the littoral system. Ohio Rev. Code Ann. §1505.99 increases the fine for violating O.R.C. §1505.07 or 1505.071 and clarifies that fines collected shall be paid into the geologic mapping fund.

The Ohio Coastal Management Program, in its program document policies, states that sand and gravel sized sediments should be returned to the littoral system downdrift of the point of dredging. All sand and gravel dredged from nearshore areas and from stream mouths, marina facilities and entrance channels during construction or maintenance should be returned to the nearshore zone down drift of the channel.

2.3 Sand Scraping/Dune Reshaping
Regulations for sand scraping and dune reshaping activities were not found. However, these activities if conducted for purposes of erosion control, may be regulated under the Shore Erosion permitting requirements.

2.4 Dune Creation/Restoration

Regulations for dune creation and restoration were not found. However, these activities if conducted for purposes of erosion control, may be regulated under the Shore Erosion permitting requirements.

2.5 Public Access Regulations

The legislative intent of the Natural Areas and Preserves statute states that, " Wherever possible and consistent with such preservation and protection of the land, the articles of dedication of a natural area or preserve shall provide for public access in order that the maximum benefit be obtained for the uses and purposes stated in this section." Ohio Rev. Code Ann. §1517.05

3.0 Beach Renourishment Funding Program

3.1 Yes, the State of Ohio has a funding mechanism for erosion control projects under the Shore Erosion Law. Ohio Rev. Code Ann. §1507.05

3.2 Amount of State Funding

The Shore Erosion law requires that the permit fees raised from granting permits for construction of beaches, groins, or other structures be administered by the Department of Natural Resources. These funds are to be used in part to fund erosion protection projects on Lake Erie shores. Ohio Rev. Code Ann. §1507.05. Information on annual funding amounts was not found.

3.3 Cost Share Requirements

Project costs are pro-rated on the basis of two-thirds the cost to the state and one-third the cost to the benefiting public agency.

3.4 Summary of Projects Funded (1995-98)

No information was found regarding beach nourishment projects funded in 1995-1998.

4.0 Recent State Documents on Renourishment

4.1 No information on state renourishment documents was found.

5.0 Important Issues Regarding Renourishment

5.1 No information on important issues regarding renourishment was found.

OREGON
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have a beach nourishment policy.

1.2 Policy Citation and Description
Oregon Statewide Planning Goals and Guidelines. Goal 17: Coastal Shorelands. Or. Admin. R. 660-15. Promotes nonstructural solutions to erosion problems and calls for erosion stabilization structures to be designed to minimize adverse impacts. Implementation is impeded by lack of known design standards to minimize adverse impacts.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Oregon Statewide Planning Goals and Guidelines. Goal 18: Beaches and Dunes. Or. Admin. R. 660-15. Foredunes can only be breached to replenish sand supply in interdune areas or on a temporary basis as an emergency.

2.2 Dredge and Fill Regulations
Or. Rev. Stat. §196.800-196.990 and Or. Admin. R. 141-85. Removal-Fill Permit (R/F). Regulates removal/fill/alteration of all materials within waters of the state on the Pacific Ocean to the line of non-vegetation. Mainly applicable to new shoreline stabilizations and repairs.

2.3 Sand Scraping/Dune Reshaping Regulations
Oregon Statewide Planning Goals and Guidelines. Goal 18: Beaches and Dunes. Or. Admin. R. 660-15. Allows foredunes to be breached only to replenish sand supply in intertidal areas or temporary emergencies. Grading or sand movement to maintain views/prevent sand inundation is allowed for structures in foredunes if the area is committed to development and a management plan is developed and adopted which provides for stabilization and other conditions.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Oregon Ocean Shores Act. Or. Rev. Stat. §390.600. Provides for public access to and recreational use of beaches.

Oregon Statewide Planning Goals and Guidelines. Goal 17: Coastal Shorelands. Or. Admin. R. 660-15. This goal requires local governments to inventory public access sites to shorelands and to retain or replace them should they be sold, exchanged or transferred.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Material from the dredging of Port Orford was recently used to improve Snowy Plover habitat. Material from the Brookings Harbor was used to nourish the beach adjacent to the south jetty.

4.0 Recent State Documents on Nourishment

4.1 Title Appraisal of Chronic Hazard Alleviation Techniques

Abstract
The 1994 study funded by the Department of Land Conservation and Development discusses beach nourishment as a site specific mitigation method to hazard mitigation.

5.0 Important Issues Regarding Nourishment

5.1 The small size of most of the local communities on the Oregon coast prevents them from providing the necessary local match for beach nourishment projects. The state
may need to develop sources of match to protect vital state transportation facilities.

PENNSYLVANIA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The commonwealth does have enforceable and encouragement policies regarding beach nourishment.

1.2 Policy Citation and Description

PA Coastal Zone Management Program. Procedures for Managing the Effects of Erosion. Techniques, such as beach nourishment and sand pumping, are non-structural alternatives that attempt to produce a satisfactory response in erosion reduction. Both procedures involve high annual costs, destroy the natural regimen and may have a severe impact on aquatic life. Such techniques are discouraged. However, in cases where structural alternatives are too costly in protecting a public facility or lands of high value, these non-structural techniques may have to be considered.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Commonwealth of Pennsylvania Coastal Zone Management Program. Guidance Document - March 31, 1999. Policy 2.1 Dredging and Spoil Disposal/Regulation. Ensures that the recovery of commercially valuable sand and gravel in the coastal zones will be regulated.

In addition, the Dam Safety and Encroachment Act 32 P.S. §693.1, the Clean Streams Law, 3 P.S. §691.1, and the Fish and Boat Act, 30 P.S. §200, protect the Commonwealth's submerged lands, water quality, and the commercial use of sand and gravel mined from Commonwealth's waters.

2.2 Dredge and Fill Regulations

Commonwealth of Pennsylvania Coastal Zone Management Program. Guidance Document - March 31, 1999. Policy 2.1 Dredging and Spoil Disposal/Regulation. Ensures that dredging and spoil disposal in the coastal zones will be regulated. Permits are required for activities in navigable water between the high and low water marks. Submerged lands License are required below low water marks. Permit conditions require that for dredging stream mouths, appropriate materials must be placed along the shoreline to maintain littoral processes. Groin construction permits require pre-filling of the updrift side, top prevent starvation and erosion of downdrift beaches.

2.3 Sand Scraping/Dune Reshaping Regulations

Not applicable.

2.4 Dune Creation/Restoration Regulations

Not applicable.

2.5 Public Access Regulations
There is a public right of lateral access along the shoreline. In several instances, local zoning ordinances require public access to the shoreline for new construction or substantial improvement. Permits for groins are conditioned to maintain lateral access.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment on a case by case basis

3.2 Amount of State Funding
State funding for beach nourishment has generally been as an annual capital expenditure, based on cost-share requirements, or a line-item expenditure for mitigation of damage to the beach material littoral drift system.

3.3 Cost Share Requirements
Unknown.

3.4 Summary of Projects Funded (1995-98)
1) Presque Isle State Park - Lake Erie,1995. Cost: $700,000 (50/50 F/S cost share).

2) Presque Isle State Park - Lake Erie,1996. Cost: $730,000 (50/50 F/S cost share).

3) Presque Isle State Park- Lake Erie, 1997. Cost $1,110,000 (50/50 F/S cost share).

4) Presque Isle State Park-Lake Erie, 1998. Cost $810,000 (50/50 F/S cost share).

5) Beach nourishment at North East Marina. Since 1997, a mitigation requirement requires that approximately 16,000 c.y. of beach sand trapped updrift of the harbor protection structure be placed along the shoreline downdrift of the marina. The PA Fish and Boat Commission performs the work, costs are not available. Several small dredging projects at Walnut Creek and Trout Run have also placed dredged material back in the littoral zone.

*Source: Information provided to OCRM by the commonwealth.

4.0 Recent State Documents on Nourishment

4.1 Title Presque Isle Peninsula. Erie, Pennsylvania Shoreline Erosion Project: Design Document

Abstract
Joint Army Corps of Engineers/State Plan 1985.

4.2 Title Presque Isle Operation and Maintenance Manual (1990).

Abstract
1) Requires studies of sand sources, sand transport: Yes
2) Guidelines on beach nourishment: Yes
3) Requirements on placement of beach quality sand on downdrift beaches

4.3 Title As of 1999, littoral drift studies are in various stages of completion for Presque Isle, North East Marina, and Shades Beach.

5.0 Important Issues Regarding Nourishment

5.1 Cost Effectiveness Concerning Presque Isle Park Project
CZM funded studies on Presque Isle Park, which part of a 3,202 acre sand peninsula attracting nearly 4 million visitors yearly. The COE and DEP have replenished these beaches for many years. In an effort to end the costly nourishment cycle, COE and DEP built a series of 59 large offshore rubble mound breakwaters to stabilize the portion of Presque Isle State Park exposed to direct wave attack. These structures appear to have reduced renourishment costs by 50%. This beachfront represents about 6% of the state's beachfront.

5.2 Interstate Federal Consistency Issues
The Conneaut Harbor structures in Ohio have interupted the movement of sand from west to east along the Lake Erie shoreline, thus increasing the erosion of Pennsylvania’s shoreline. The two state’s and OCRM are working together to restore some of the trapped sands to Pennsylvania’s beaches.

5.3 Section 309 study of Shoreline Protection Structures
The commonwealth’s CZM program is using Section 309 funds to study the optimal design of shoreline protection structures.

PUERTO RICO
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The commonwealth does not have a beach nourishment policy.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Bylaws to Regulate the Extraction of Materials from the Earth's Crust (1977). Removal of sand from dunes in coastal zone is allowed in some cases; however, this requires a permit.

PR Coastal Management Program Document. Chapter 3 Problems and Responses. Dunes Policy: prohibits extraction of sand, from dunes or any other source, on public or private property, without a permit from the Department of Environmental and Natural Resources.

2.2 Dredge and Fill Regulations
PR Coastal Management Program Document. Chapter 3 Problems and Responses. Coastal Waters Policy: Dredging, filling and dredged material disposal require a permit from the US Army Corps of Engineers.

2.3 Sand Scraping/Dune Reshaping Regulations
PR Coastal Management Program Document. Chapter 2. Overall Objectives and Policies. Policy 18.03. To avoid activities and land subdivision which could cause the deterioration or destruction of those natural systems essential for preserving the environment, such as dune systems.

2.4 Dune Creation/ Restoration Regulations
Not applicable.

2.5 Public Access Regulations
PR Coastal Management Program Document. Chapter 3 Problems and Responses. Beaches Policy: Shorefront development, governmental or private, should be if practical, designed to facilitate rather than obstruct shoreline access by the general public.

3.0 Beach Nourishment Funding Program

3.1 There is no commonwealth funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
Not applicable.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 Historical Problems with Near Shore Sand Mining
Historical enforcement problems; large-scale commercial operators extract more than permits allow and there are problems with illegal sand removals. Amendments in 1976 strengthened fines and created special fund to administer law. However, continued demand for sand sources by construction industry. USGS Marine Geology Program investigated submarine sand deposits and identified 3 sites. None of these sites were used as of 1992. Precipitated by restrictions on sand mining from beach/dune and continued demand by construction industry for sand sources.

There is no distinction between beaches and dunes in the extraction law. In the past, some beaches were stripped of virtually all their sand, which was then sold for use in construction. At present however, no outstanding commonwealth permits for sand extraction from beaches .

There does remain a problem of unauthorized extraction: but beaches are no longer a major resource for the unauthorized extractors, who now prefer river-mouth and other deposits." (Federal law may prohibit extraction of sand from submerged lands) (Final Environmental Impact Statement - Coastal Management Program for the Commonwealth of Puerto Rico, p.71).

* Please Note: The Puerto Rico Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

RHODE ISLAND
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment. State waters are classified into 6 categories based on current use of water and adjacent land. Types of activities permitted on shoreline feature depends on the designation the Coastal Resources Management Council (CRMC) has given the water body adjacent to the site. See section 1.3 for an explanation of the water types.

1.2 Policy Citation and Description

State Water Classification/Activities Permitted
(1) *Beaches and Dunes* and *Undeveloped Barrier Beaches* adjacent to Type 1 waters: All activities prohibited except: . . . nonstructural shoreline protection; beach nourishment; or protection, restoration, or improvement of a feature as natural habitat for plants and wildlife.
(2) *Moderately Developed Barrier Beaches* adjacent to Type 1 waters: All activities prohibited except: . . . nonstructural shoreline protection; upland dredged material disposal; beach nourishment; or protection, restoration, or improvement of a feature as natural habitat for plants and wildlife.
(3) *Developed Barrier Beaches* adjacent to Type 1 waters: Activities allowed: nonstructural shoreline protection; upland dredged material disposal; beach nourishment. Activities prohibited: structural shoreline protection facilities

RI Coastal Resources Management Program Policies. Section 110. Activity Matrices (being updated as of 1998). Indicates that while beach nourishment is an allowed activity in tidal waters, beaches and dunes, undeveloped barriers, moderately developed barriers and developed barrier islands adjacent to all classes of waters (1-6), this activity will require a Category B assent (full review). Also indicates that beach nourishment is prohibited in coastal wetlands adjacent to all classes of waters. Beach nourishment projects may also be allowed under Category A following criteria in Section 300.9(B)(5).

RI Coastal Resources Management Program Policies. Section 210.7 (C)(3). Shoreline Features: Dunes. Alteration of the foredune zone adjacent to Type 1 and 2 waters is allowed for nourishment projects.

RI Coastal Resources Management Program Policies. Section 300.2. Filling, Removing, or Grading of Shoreline Features. (B)(1) Nourishment is allowable on beaches and dunes adjacent to Type 1 and 2 waters where it will preserve or enhance the feature as a conservation area or natural buffer against storms. (C)(1) Nourishment projects may allow for removal or placement of sediments along jetties or groins.

RI Coastal Resources Management Program Policies. Section 300.7 (B)(1). Construction of Shoreline Protection Features. Section 300.7 (B)(3) Structural

shoreline protection may be allowed only after all reasonable and practical alternatives have been exhausted including relocation of the structure and nonstructural shoreline protection methods including beach nourishment.

RI Salt Pond Region SAMP. 1999. Maschaug to Point Judith Ponds. 930.1 (B)(5), (E)(1)(a) Requires the disposal of sand dredged materials to replenish the following adjacent beaches: Sand Hill Cove, East Matunuck, Charlestown Beach, Quonochontaug Barrier Beach. Prohibits, for beach restoration, mechanical removal or redistribution of the sand from the intertidal zone of the beach to increase the profile of the beach scarp; or construction of artificial dunes since they destabilize the beach, increase erosion along the beach and increase sedimentation in ponds Specifies design guidelines for beach restoration. Identifies priority areas for acquisition. 950 (2)(c), During post storm reconstruction, overwashed sand that is dredged for habitat restoration in the salt ponds must be placed on the adjoining ocean beach. (2)(d), Sand that is removed from paved roads must be returned to the adjacent ocean beach. (3) Beach replenishment is Council's method of choice for shoreline protection.

The Narrow River SAMP. 1999. 930.1 (A)(4)(a), (A)(4)(b), (A)(8), Suitable sand dredged from flood tidal deltas to support existing recreational use in the Narrow River shall be placed on the Narragansett Town Beach. (B)(4), Disposal of foreign dredged material is prohibited on the shoreline of the watershed unless a council approved beach replenishment program has been established.

1.3 Classification of Water Types

About 75% of Rhode Island's shoreline is in Type 1 or 2. Type 1 Waters: *Conservation Areas* - abut undisturbed shorelines or land that is unsuitable for development due to waves, flooding or erosion. Type 2 Waters: *Low Intensity Use Areas* - adjoin land dominated by low-intensity recreational and residential use. Type 3 Waters: *High Intensity Recreational Boating Areas* - abut marinas and other water dependent uses Type 4 Waters: *Multipurpose Areas* - abut land with water dependent commercial, industrial or recreational uses. Type 5 Waters: *Commercial and Recreational Harbors* - abut commercial and recreational harbors. Type 6 Waters: *Industrial Waterfronts & Commercial Navigational Channels* - abut industrial waterfronts and commercial navigational channels.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

RI Coastal Resources Management Program Policies. Section 300.2 (B)(1). Filling, removing or grading is prohibited on beaches, dunes, undeveloped barriers, coastal wetlands, cliffs, banks, and rocky shores adjacent to Type 1 and 2 waters unless the primary purpose of the alteration is to preserve or enhance a feature as a conservation area or a natural buffer against storms. (B)(4), Mining is prohibited on coastal features.

RI Coastal Resources Management Program Policies. Section 110. Activity Matrices (being updated as of 1998). Mining is prohibited in all categories of tidal waters. Prohibition does not include dredging of tidal waters for navigation channel maintenance, habitat restoration and beach nourishment.

An offshore sidescan sonar survey for potential offshore sand sources was completed for CRMC by the University of Rhode Island Department of Geology in 1998. The results identify possible borrow sites below the sand return depth off the coast of the Misquamicut barrier/headland complex and the Charlestown barrier/Green Hill headland. Thickness of the sand sheets needs to be determined.

2.2 Dredge and Fill Regulations

RI Coastal Resources Management Program Policies. Section 300.2 Filling, Removing, Grading of Shoreline Features. Prohibited on beaches, dunes, undeveloped barrier beaches, cliffs and banks, rocky shores, wetlands adjacent to Type 1 and 2 waters, unless the primary purpose is to preserve/enhance the feature as a conservation area or a natural buffer against storms.

RI Coastal Resources Management Program Policies. Section 300.9. Dredging and Dredge Material Disposal. Permit required for both dredging and disposal. (B)(3) Council encourages use of dredged material for beach nourishment, particularly for small volume projects. (B)(5) Beach nourishment projects may be allowed under category A assent provided the Executive Director determines (i) placement of materials for beach nourishment only; (ii) and proposal meets provisions for category A assents (110.1) and standards for dredged material disposal on beaches (300.9). (C)(2), (C)(3), (C)(4) Prerequisite approvals need to be obtained from RIDEM, USACE and EPA. (F)(5) Dredged material disposal on the beach is the preferred alternative if dredged materials are predominately clean, of compatible grain size and have other similar characteristics found in the naturally occurring sand. Material must be placed on downdrift side of jetties and meet fill regulations (300.2).

2.3 Sand Scraping/Dune Reshaping Regulations

RI Coastal Resources Management Program Policies. Section 210.7 (C)(3). Alteration of the foredune zone adjacent to Type 1 and 2 waters is allowed where the primary purpose is non-structural protection, restoration or improvement of a feature as a natural habitat for native plants and wildlife.

RI Coastal Resources Management Program Policies. Section 300.2 (B)(1). Filling, removing or grading is prohibited on beaches, dunes, undeveloped barriers, coastal wetlands, cliffs, banks, and rocky shores adjacent to Type 1 and 2 waters unless the primary purpose of the alteration is to preserve or enhance a feature as a conservation area or a natural buffer against storms.

2.4 Dune Creation/Restoration Regulations

RI Coastal Resources Management Program Policies. Section 210.7 (C)(3). Shoreline

Features: Dunes. Alteration of the foredune zone adjacent to Type 1 and 2 waters is allowed where the primary purpose of the project is non-structural protection, restoration or improvement of the feature as a natural habitat for native plants and wildlife.

2.5 Public Access Regulations
RI Coastal Resources Management Program Policies. Section 335(C)(4) [added in 1997]. Publicly funded beach nourishment projects must include a "public access" component.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
1) Sandy Point, 1996 - Navigation. Cost: $444,444 (Federal).

*****Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 Title RI CRMP: Beach Replenishment Section

Abstract
The RI CRMP will have a new section dealing exclusively with beach nourishment. New regulations will divide projects and associated requirements by volume of material and lateral distribution. The goal is to encourage both small (single property owner) and large scale (multiple property/area) beach replenishment projects by providing design guidelines and streamlined permitting, particularly for small projects that do not extend below the mean high water line.

4.2 Title Boothroyd. Jon C. and Klinger, Joseph P., 1998, A Sustainable Beach/Dune Replenishment Strategy for the Microtidal Barrier/Headland Coast of Southern Rhode Island: Sea Grant College Program Completion Report, University of Rhode Island, Kingston, RI

Abstract
At least four distinct geomorphic features and associated lithofacies were identified on the Rhode Island shoreface. The features, mapped as side-scan sonar facies are: 1) sheets of fine grained, rippled sand (Ss) on the upper shoreface; 2) swaths to sheets of coarse grained sand mantled by small dunes (Csd), with dune crests oriented parallel to the shoreline; 3) patches to extensive areas of boulder-to-cobble gravel (Glb) occurring as topographic highs; and 4) patches to extensive areas of cobble-to-pebble gravel covering large regions of the lower shoreface. Complex bathymetry is controlled by the glacial boulder and cobble facies (Glb). The closure depth for the south shore of Rhode Island was calculated to be 12 m below mean low water. All sand in the sand sheets (Ss) is within the closure depth and may be able to return to the beaches over periods of years, and thus is not suitable as a borrow source for beach replenishment. The coarse sand sheet (Csd) in depths below 12 meters may prove to be a source of beach replenishment material.

5.0 Important Issues Regarding Nourishment

5.1 Dredge/Replenishment Program

Rhode Island coastal ponds that have stabilized inlets have developed extensive flood-tidal deltas. These deltas as well as sedimentation basins in several ponds require periodic dredging for habitat restoration and maintenance of navigation channels. RI CRMC is endeavoring to establish an ongoing, periodic dredge/replenishment program for such areas where anthropogenic impacts (jetties, breakwaters, etc.) have resulted in increased sedimentation.

RI CRMC has funded and continues to work with the University of Rhode Island Department of Geology to identify potential offshore sediment source areas, near-shore disposal sites and beach replenishment design.

SOUTH CAROLINA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some beach nourishment policies.

1.2 Policy Citation and Description

Coastal Management Act. S.C. Code Regs. §48-39-10 to 48-39-360. This statute implements a direct permit program for beachfront development including any land disturbing activities within a narrow band of four "critical areas" including "the beach/dune system." Also it covers erosion control devices and all beach nourishment projects. Rule making authority for permitting in beach and dune critical areas includes definitions, erosion control policies and sand dune management policies.

Beachfront Management Act. S.C. Code Regs. §48-39-320B. In 1992, South Carolina adopted a state beachfront management plan which includes:
1) required studies of sand sources, sand transport
2) guidelines on beach nourishment
3) requirements on placement of beach quality sand on down drift beaches
4) Post Disaster Redevelopment Plans also required: 15 of 18 coastal communities have state approved plans.

Beachfront Management Act. S.C. Code Regs. §48-39-320B. Local Beachfront Management Plans are required to be adopted by July 1, 1992 based on State guidelines and approval/certification in order to be eligible to participate in state bonding programs for beach nourishment or other beach funding programs.

Coastal Management Regulations. S.C. Reg. 30-13(N)(2). Sand bags, sand scraping, and minor beach nourishment are allowable under "emergency orders" and within established guidelines.

Coastal Management Regulations. S.C. Reg. 30-11(B)(6) and 30-13(L)(3)(b). Places restrictions on beach nourishment during turtle nesting season.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Not applicable.

2.2 Dredge and Fill Regulations

S.C. Code Regs. §48-39-130. Critical areas permits are required for dredge and fill activities that take place in critical areas (tidelands, coastal waters, and the beach/dune system). Coastal Management Regulations. S.C. Reg. 30-12G. Contains specific project regulatory standards for dredging and filling.

2.3 Sand Scraping/Dune Reshaping Regulations
Coastal Management Regulations. S.C. Reg. 30-13. Emergency order with guidelines allows sand scraping and placement of sand bags in front of threatened structures. No formal permit is required.

2.4 Dune Creation/Restoration Regulations
Coastal Management Regulations. S.C. Reg. 30-13(L). Allowed with permit.

2.5 Public Access Regulations
Local beachfront management plans are required to develop guidelines that accomplish a beach access program to ensure full and complete access to the beach.

3.0 Beach Nourishment Funding Program

3.1 While the state provides funding for beach nourishment projects, there is no dedicated state funding program.

Beachfront Management Act. S.C. Code Regs. §48-39-320B. The state passed a $10 million Beach Restoration Fund in 1988. Subsequently, funds have been allocated as needed to provide state match required for beach nourishment projects.

3.2 Amount of State Funding
South Carolina spends and average of $3 million annually on nourishment.

3.3 Cost Share Requirements
There is no set policy. The local match requirement varies.

3.4 Summary of Projects Funded (1995-98)
1) Edisto Beach, 1995. Cost: $1.5 million (4/5 State; 1/5Local).

2) Greater Myrtle Beach, 1996-1998. Cost $54 million (2/3 Federal, 1/6 State, 1/6 Local).

3) Pawleys Island, 1997-1998. Cost $1 million (100% State).

*Source: Bill Eiser, SC OCRM

4.0 Recent State Documents on Nourishment

4.1 Title Beach Nourishment Needs in South Carolina. 1990. SC OCRM.

Abstract
This publication is the result of this organization's analysis of South Carolina's beach nourishment needs through the 90s. The case for beach nourishment is also made here.

4.2 Title How To Build A Dune (SC OCRM).

Abstract
A healthy sand dune is an oceanfront property owner's best defense against erosion. This pamphlet gives instruction regarding dune formation, including the use of sand fences, vegetation, and dune walkovers.

5.0 Important Issues Regarding Nourishment

5.1 Critical Issues Summary

Important nourishment issues in South Carolina include:
(1) the likelihood of continued federal participation in nourishment projects;
(2) the long-term availability of economically viable offshore sand resources for nourishment;
(3) the likelihood of developing a dedicated state funding source for nourishment;
(4) the possibility of charging a user fee for public sand placed on private beaches; and
(5) an equitable way of resolving competing local requests for use of the same sand resource.

TEXAS
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has some policies regarding beach nourishment.

1.2 Policy Citation and Description

Tex. Admin. Code. Tit. 31, §501.14(k)(1)(E). Non-structural response methods such as beach nourishment shall be preferred instead of structural erosion response methods.

Texas Coastwide Erosion Response Plan. Current Erosion Response Policies: State Policies. Policy 2: "Soft" methods of avoiding, slowing, or remedying erosion (such as shoreline vegetation, beach nourishment, and dune reconstruction) are preferred to the construction of hard or rigid shoreline protection structures. Policy 5: Suitable dredged material from commercially navigable waterways should be used beneficially to reduce and minimize erosion, provide shore protection, or benefit the sediment budget or littoral system. The state and local governments may enter into cost-sharing agreements with the Federal government to offset any additional costs from the beneficial use of dredged material.

Texas Coastwide Erosion Response Plan. Current Erosion Response Policies: Gulf Shorelines. Beach Nourishment: Beach nourishment is a method of shore protection that is encouraged by the state legislature. However, finding an economical sand source may be difficult in some gulf shore locations. For the most part, it may be cheaper for local communities to tie into existing Army Corps of Engineers dredging projects for a sediment source.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Tex. Admin. Code. Tit. 31, §501.14(j)(8). Mining of sand, shell, marl, gravel and mudshell on submerged lands shall be prohibited unless there is an affirmative showing of no significant impact on erosion within the coastal zone and no significant adverse effect on coastal water quality or terrestrial and aquatic wildlife habitat within any coastal natural resource area.

2.2 Dredge and Fill Regulations

Tex. Admin. Code. Tit. 31, §155.24(c)(15)(A)(iii). Requires that a draft environmental impact statement be prepared for projects involving dredging, excavating, filling or dredged material deposition. The statement must contain measures that will be taken to reduce adverse environmental impacts, such as keeping erosion at its lowest possible level.

Tex. Admin. Code. Tit. 31, §501.14(j)(4)(B)(i). Dredged material is a potentially reusable resource and must be used beneficially. Factors to be considered in determining whether the costs of the beneficial use are reasonably proportionate to the benefits include erosion prevention benefits.

Tex. Admin. Code. Tit. 31, §501.14(j)(4)(C)(i). Beneficial use of dredged materials includes projects designed to reduce or minimize erosion or to provide shoreline protection.

2.3 Sand Scraping/Dune Restoration Regulations
Not applicable.

2.4 Dune Creation/Restoration Regulations
Texas Coastwide Erosion Response Plan. Current Erosion Response Policies: Gulf Shorelines. Dune Construction and Restoration: In places where the dune system has been damaged or destroyed, restoration should be the focus. The *Dune Protection and Improvement Manual for the Texas Gulf Coast* (GLO, 1991) provides a comprehensive discussion of dune preservation and restoration techniques. [Tex. Admin. Code. Tit. 31, §15.1-15.10].

2.5 Public Access Regulations
Tex. Nat. Res. Code Ann. §61.011 et seq. Texas Open Beaches Act. Created to protect the public's right to "free and unrestricted" access to and from "the state-owned beaches bordering on the seaward shore of the Gulf of Mexico." Any physical barrier that would impede public access to the beach is prohibited. Government agencies are exempt from the physical barriers prohibition.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment.

Texas Coastwide Erosion Response Plan. Beach Maintenance Fund. The GLO administers the Beach Maintenance Fund, a state program that reimburses eligible cities and counties for local expenditures to clean and maintain Gulf beaches. Activities eligible for reimbursement under this program include beach nourishment. State hotel occupancy tax monies spent on beach maintenance can not be reimbursed by the Beach Maintenance Fund.

Coastal Management Program (CMP). Erosion response grant funding through the Texas CMP is administered through the Coastal Coordination Council (CCC). Upon federal approval of the CMP, Texas will receive an estimated $2.4 million per year in federal matching funds to implement the program and advance the program's goals and policies. Because of the focus on shoreline issues in the CMP policies, it is expected that the CMP grants program will help fund erosion response planning, design and construction projects.

House Bill 1536 Section 3. Amends Tex. Nat. Res. Code Ann. §5415e-2, by adding section 6A which allows the Texas Transportation Commission to enter into agreements with the Army Corps of Engineers to share the costs of projects making beneficial use of material dredged from the GIWW. Input into the Texas Transportation Commission's rulemaking from coastal landowners whose property is endangered by erosion will help ensure that erosion response projects such as beach nourishment receive high priority.

Tex. Nat. Res. Code Ann. §33.604. Coastal Erosion Response Account. This is an account in the general revenue fund that may be appropriated only to the commissioner to be used only for the purpose of implementing coastal erosion studies and projects.

3.2 Amount of State Funding
Unknown.

3.3 Cost Share Requirements
Unknown.

3.4 Summary of Projects Funded (1995-98)
1) Galveston, TX. 1994-95 - 18,720 ft. renourished. Cost: $6,077,000 (State/Local.

2) South Padre Island and Galveston Island. The Army Corps of Engineers has augmented the sediment budget by placing dredged sediment in water depths affected by wave action to form nearshore sediment berms. The purpose of the nearshore berms is to supply sediment to the shoreline via wave transport. Two nearshore berms have been constructed along the Texas Gulf coast, at South Padre Island and at Galveston Island. The berms are not monitored, so their effectiveness is unknown.

*Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

* Please Note: The Texas Coastal Management Program did not provide OCRM with comments on this beach nourishment survey.

VIRGINIA
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The commonwealth has policies regarding beach nourishment.

1.2 Policy Citation and Description

Va. Code Ann. §10.1-704. The use of dredged material for beach nourishment is a priority. The beaches of the commonwealth are given priority consideration as sites for the disposal of dredged material determined to be suitable for beach nourishment. The Secretary of Natural Resources is responsible for determining whether the dredged material is suitable for beach nourishment.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations

Va. Code Ann. § 62.1-190. Prohibits dredging, digging or otherwise removing sand from the beach.

2.2 Dredge and Fill Regulations

Va. Code Ann. §10.1-704. Use of dredged material for beach nourishment is a priority. The beaches of the Commonwealth are given priority consideration as sites for the disposal of dredged material determined to be suitable for beach nourishment. The Secretary of Natural Resources is responsible for determining whether the dredged material is suitable for beach nourishment.

Va. Code Ann. §28.2-1200. Submerged Lands Act. It is unlawful for any person to build, dump, trespass or encroach upon or over, or take or use any materials from the beds of the bays, ocean, rivers, streams, or creeks which are property of the Commonwealth, unless such act is performed pursuant to a permit issued by the VA Marine Resources Commission.

Va. Code Ann. §28.2-1300. Wetlands Act. The wetlands zoning ordinance requires that any person who desires to use or develop any wetland shall file an application for a permit directly with the wetlands board or with the VA Marine Resources Commission.

2.3 Sand Scraping/Dune Reshaping Regulations

Va. Code Ann. §28.2-1400. Coastal Primary Sand Dune Act and Coastal Primary Sand Dunes/Beaches Guidelines, Virginia Marine Resources Commission. Requires permits on coastal primary dunes and beaches for uses other than certain specified activities based on state standards and guidelines. There shall be no permanent alteration of, or construction on, coastal primary sand dunes which would impair the natural functions of the dune or physically alter the contour of the dunes or destroy vegetation. Exceptions can be permitted when necessary and consistent with the public interest and listed in 28.2- 13.25(3).

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Not applicable.

3.0 Beach Nourishment Funding Program

3.1 There is state funding for beach nourishment projects provided for in Va. Code Ann. §10.1-709. A fund shall be established to provide grants to local governments covering up to one-half of the costs of erosion abatement measures designed to conserve, protect, improve, maintain and develop public beaches. No grants to any locality shall exceed thirty percent of the money appropriated to such fund for the biennium unless otherwise provided for in the current general appropriations act. Money appropriated from such fund shall be matched equally by local funds. Federal funds shall not be used by localities to match money given from the fund. Localities may, however, combine state and local funds to match federal funds for purposes of securing federal grants.

3.2 Amount of State Funding
Unknown.

3.3 Cost Share Requirements
Unknown.

3.4 Summary of Projects Funded (1995-98)
1) Virginia Beach, 1995 - Storm and Erosion - 18,480 ft. renourished. Cost: $990,860 (Federal.

2) Virginia Beach, 1996 - Storm and Erosion - 18,480 ft. renourished. Cost: $1,100,000 (Federal).

3) Dam Neck Naval Base, 1996 - Storm and Erosion - 9,200 ft. renourished. Cost: $3,800,000 (Federal).

*****Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a particular project were obtained exclusively from that source, but that the source listed was the primary source.

4.0 Recent State Documents on nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

VIRGIN ISLANDS
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The territory's beach nourishment policy is currently under development.

1.2 Policy Citation and Description
V.I. Code Ann. tit. 12, §906(b). Virgin Islands Coastal Zone Management Act and Regulations. Emphasis is on nonstructural approach where erosion control is necessary, emphasizing maintenance of natural systems to check erosion. The Virgin Islands Coastal Management Program and Final Environmental Impact Statement, p. 140.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Coastal Land and Water Use Plan Guidelines. Beaches: Sand should not be removed from beaches. Sand Bottoms: Identify areas that are environmentally and economically viable for sand extraction. Use of sandy areas should be consistent with maintenance of adjacent reefs, beaches, grass beds, etc.

V.I. Code Ann. tit. 12, §911(a),(h). Virgin Islands Coastal Zone Management Act and Regulations Emphasis on permits required prior to development occupancy of trust lands or other submerged or filled land in the Virgin Islands and control of transporting sand or other aggregate.

V.I. Code Ann. tit. 12, §906(b)(7). Virgin Islands Coastal Zone Management Act and Regulations. Requires a permit to control mining of sand, gravel and coral…the objective is to accommodate offshore sand and gravel mining needs in areas and ways that will not adversely affect marine resources and navigation.

2.2 Dredge and Fill Regulations
Coastal Land and Water Use Plan Guidelines. Beaches: Dredging in bays with beaches should not be allowed, except under carefully planned and monitored conditions.

V.I. Code Ann. tit. 12, §911(a). Virgin Islands Coastal Zone Management Act and Regulations. A coastal zone permit is required prior to development (dredging and filling) or occupancy of trust lands or other submerged or filled land in the Virgin Islands.

2.3 Sand Scraping/Dune Reshaping Regulations
Not applicable.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations

V.I. Code Ann. tit. 12, §906(c)(6). The Virgin Islands Coastal Zone Management Act. It is a policy to ensure that development will not interfere with the public's right of access to the sea where acquired through customary use, legislative authorization or dedication, including without limitation the use of beaches to the landward extent of the shoreline.

V.I. Code Ann. tit. 12, §903(b)(6). The Virgin Islands Coastal Zone Management Act. To preserve what has been a tradition and protect what has become a right of the public by insuring that the public, individually and collectively, has and shall continue to have the right to use and enjoy the shorelines and to maximize public access to and along the shorelines consistent with constitutionally-protected rights of private property owners.

3.0 Beach Nourishment Funding Program

3.1 There is not a territorial funding program for beach nourishment.

3.2 Amount of State Funding

Not applicable.

3.3 Cost Share Requirements

Not applicable.

3.4 Summary of Projects Funded (1995-98)

After two major hurricanes in 1995 and 1998, hotel and resort owners in the territory continued to work on sand replenishment for various shorelines.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 Critical Issues: The Virgin Islands has no federal/territorial funding for beach nourishment. The territory needs to determine those beaches which are critically eroding and that are in need of nourishment.

WASHINGTON
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state has no policy regarding beach nourishment. Only one beach nourishment project has been done along the Pacific Ocean coastline. However, there are eroded areas along the Puget Sound and within the Strait of Juan de Fuca where small nourishment projects have been performed. The Washington Shoreline Management Guidebook (1994), does have a section entitled Beach Restoration and Enhancement that addresses aspects of smaller nourishment projects.

1.2 Policy Citation and Description

The Washington Shoreline Management Guidebook (1994), does have a section entitled Beach Restoration and Enhancement that addresses aspects of smaller nourishment projects.

2.0 Related Policies

*Note: Shorelands Guidelines undergoing revision in mid-1999.

2.1 Near Shore Sand Mining Regulations

Wash. Admin. Code §173-16-060(6). Washington Shoreline Management Act Guidelines. Use Activities - Mining: Local governments should strictly control or prohibit the removal of sand and gravel from marine beaches. When authorized, removal should be conducted in the least sensitive biophysical areas with adequate protection against siltation and erosion.

2.2 Dredge and Fill Regulations

Wash. Admin. Code §173-16-060(16). Washington Shoreline Management Act Guidelines. Use Activities - Dredging: Dredging should be controlled in order to minimize damage to existing ecological values and natural resources to both the area to be dredged and the area for deposit of dredged materials. Single purpose dredging to obtain fill material shall be discouraged.

2.3 Sand Scraping/Dune Reshaping Regulations

Of the 5 local jurisdictions with beach and dune shorelines, 4 prohibit primary dune grading and 1 permits it with limits.

2.4 Dune Creation/Restoration Regulations

Not applicable.

2.5 Public Access Regulations

Wash. Admin. Code §173-16-040(3)(b). All Master Programs must contain a public access element for assessing the need for providing public access to shoreline areas. Washington Shoreline Management Act Guidelines. Washington Coastal Zone Management Program seeks to increase public access to publicly owned areas of the

shore. However, in order to protect the resources and ecology of the shorelines, the state may restrict or prohibit public access onto areas which cannot be maintained in a natural condition under human use.

3.0 Beach Nourishment Funding Program

3.1 Washington does not have a state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
There are eroded areas along the Puget Sound where beach nourishment projects have been performed; several of these are local beach /park improvement projects funded with 306 and 306a funds under the CZMA.

4.0 Recent State Documents on Nourishment

4.1 Title The Shoreline Management Guidebook. Department of Ecology.

Abstract
Beach restoration and enhancement is one of several topics discussed.

5.0 Important Issues Regarding Nourishment

5.1 The Department of Ecology is using Section 309 funds to examine beach nourishment issues in Puget Sound. The report will include recommendations for improved management of such projects.

WISCONSIN
BEACH NOURISHMENT PROGRAM

1.0 State Nourishment Policy

1.1 The state does not have policies regarding beach nourishment.

1.2 Policy Citation and Description
Not applicable.

2.0 Related Policies

2.1 Near Shore Sand Mining Regulations
Wis. Stat. §30.20. Regulates removal of material from beds of navigable waters.

2.2 Dredge and Fill Regulations
Wis. Stat. §30.12 and 30.20. Prohibits dredging, filling and dredged material disposal under certain circumstances. Filling above the high water mark or behind an approved bulkhead line to nourish a beach does not require a DNR permit.

2.3 Sand Scraping/Dune Reshaping Regulations
Wis. Stat. §30.19 and 144.30(9). Regulates grading or removing of top soil of the banks of navigable coastal water.

2.4 Dune Creation/Restoration Regulations
Not applicable.

2.5 Public Access Regulations
Wis. Stat. §70.41 and 236.16(3). Requires public access to all navigable waters.

3.0 Beach Nourishment Funding Program

3.1 There is no state funding program for beach nourishment.

3.2 Amount of State Funding
Not applicable.

3.3 Cost Share Requirements
Not applicable.

3.4 Summary of Projects Funded (1995-98)
1) Black River - Lake Superior, 1995 - Unknown - 800 ft. renourished. Cost: $44,383 (Federal).

*Source: Duke University Program for the Study of Developed Shorelines
Explanation of the funding category: this does not mean that all the funds used for a

particular project were obtained exclusively from that source, but that the source listed was the primary source. For example, most federally funded projects are given authorization by Congress but local governments may still pay for 25% of the cost.

4.0 Recent State Documents on Nourishment

4.1 No information available.

5.0 Important Issues Regarding Nourishment

5.1 No information available.

APPENDIX C

Federal Laws Regarding Placement of Dredged Materials on Beaches

Public Law 94-587
Water Resources Development Act of 1976

Section 145. The Secretary of the Army, Acting through the Chief of Engineers, is authorized upon request of the state, to place on the beaches of such state, beach-quality sand, which has been dredged in construction and maintaining navigation inlets and channels adjacent to such beaches, if the Secretary deems such action to be in the public interest and upon payment of the increased cost thereof above the cost required for alternative methods of disposing of such sand.

Public Law 99-662
Water Resources Development Act of 1986

Section 933. Cost sharing for disposal of material on beaches. Section145 of the Water Resources Development Act of 1976 (33 U.S.C. 426) is amended by inserting “by such state of 50 percent” after “upon payment.”

Public Law 100-676
Water Resources Development Act of 1988

Section 35. Placement of dredged beach quality sand on beaches. Section 145 of the Water Resources Development Act of 1976 (33 U.S.C. 426) is amended by adding at the end of thereof the following new sentence: “In carrying out this section, the Secretary shall give consideration to the state’s schedule for providing its share of funds for placing such sands on the beaches of such State and shall, to the maximum extent practicable, accommodate such schedule.”

Public law 102-580
Water Resources Development Act of 1992

Section 207. Cost-sharing for disposal of dredged materials on beaches. Section 145 of the Water Resources Development Act of 1976 (33 U.S.C. 426) is amended by striking the last sentence and inserting the following new sentences: “At the request of the state, the Secretary may enter into an agreement with a political subdivision of the State to place sand on the beaches of the political subdivision of the state under the same terms and conditions required in the first sentence of this section; except that the political subdivision shall be responsible for providing any payments required under such sentence in lieu of the state. In carrying out this section the Secretary shall give consideration to the schedule of the state, or the schedule of the responsible political subdivision of the requesting state, for providing its share of funds for placing such sand on the beaches of the state or the political subdivision and shall, to the maximum extent practicable, accommodate such schedule.”

Section 145 of Public Law 94-587 (as Amended)

The secretary of the Army , Acting through the Chief of Engineers, is authorized upon request of the tate, to place on the beaches of such state, beach-quality sand, which has been dredged in construction and maintaining navigation inlets and channels adjacent to such beaches, if the Secretary deems such action to be in the public interest and upon payment by such state of 50 percent of the increased cost thereof above the cost required for alternative methods of disposing of such sand. At the request of the state, the Secretary may enter into an agreement with a political subdivision of the state to place sand on the beaches of the political subdivision of the state under the same terms and conditions required in the first sentence of this section in lieu of the state. In carrying out this section, the Secretary shall give consideration to the schedule of the state or the schedule of the responsible political subdivision of the requesting state, for providing its share of funds for placing such sand on the beaches of the state or political subdivision and shall, to the maximum extent practicable, accommodate such schedule.

APPENDIX D

Federal Laws Regarding FEMA Disaster Relief Policies for Beaches

Code of Federal Regulations
Sec. 206.226 Restoration of damaged facilities.

(a) Assistance under other Federal agency (OFA) programs. (1) Generally, disaster assistance will not be made available under the Stafford Act when another Federal agency has specific authority to restore facilities damaged or destroyed by an event which is declared a major disaster.
(h) Beaches. (1) Replacement of sand on an unimproved natural beach is not eligible. (2) Improved beaches. Work on an improved beach may be eligible under the following conditions: (i) The beach was constructed by the placement of sand (of proper grain size) to a designed elevation, width, and slope; and (ii) A maintenance program involving periodic renourishment of sand must have been established and adhered to by the applicant.

Explanation of FEMA Policy

The following explanation is excerpted from a FEMA memorandum dated December 16, 1993:

"An acceptable maintenance program for periodic renourishment requires that the beach be monitored and renourished on a periodic basis, or renourished when the beach profile erodes to specific design limits. . . .Our regulations do not specify design standards for improved beaches or for acceptable maintenance programs. We defer to the professional engineers to follow acceptable industry practices when designing the beach and the maintenance plan."

". . . .The test for eligibility is whether or not the beach was maintained in accordance with a maintenance plan. If an improved beach has not been renourished because insufficient time has elapsed when a disaster is declared, we will accept the design documents, the written program, and evidence that the beach was monitored as evidence that the owner complied with the maintenance plan."

". . . .Permanent repair of improved beaches may not be eligible for disaster assistance in the future. We are currently reviewing the regulations concerning improved beaches. This review may result in changes that could remove permanent beach repair and related restoration work that occur [sic] in coastal high hazard areas from eligibility for funding under the Stafford Act."

APPENDIX E

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