THE COASTAL ZONE MANAGEMENT ACT

THE CONGRESSIONAL PLAN FOR MANAGING AMERICA'S COASTS

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1995 CONGRESSIONAL BRIEFING BOOK
Coastal States Organization, Inc.

COASTAL STATES ORGANIZATION

FOUNDED IN 1970 TO REPRESENT THE GOVERNORS OF THE THIRTY-FIVE COASTAL STATES, TERRITORIES, AND COMMONWEALTHS ON COASTAL, GREAT LAKES, AND OCEAN AFFAIRS.

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Since 1970, the Coastal States Organization has served as the Governors' official representative for ocean, coastal and Great Lakes affairs of the United States. Endorsed by the National Governors' Association, the Coastal States Organization is the States' leading advocate for sound coastal, Great Lakes and ocean resource management, protection and development efforts nationwide. The Coastal States Organization membership consists of Delegates formally appointed by the Governors from each of the 35 States, Commonwealths and Territories bordering the Atlantic and Pacific oceans, the Gulf of Mexico or the Great Lakes.

The Coastal States Organization's broad-based information and data gathering network, coordinated through the CSO Washington Office, provides answers to questions about U.S. coastal practice and policy, the States' role in federal offshore energy activities, territorial sea claims, coastal hazards planning and management, wetlands, fisheries development and management, port and waterfront restoration, oil spill response, flood insurance, historic shipwrecks, the National Marine Sanctuary System, the National Estuarine Research Reserve System, and other important coastal resource issues affecting the United States.

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THE COASTAL ZONE MANAGEMENT ACT: THE CONGRESSIONAL PLAN FOR MANAGING AMERICA'S COASTS

CONGRESSIONAL BRIEFING BOOK

EXECUTIVE SUMMARY

Since colonial times Americans have depended on the coasts for commerce, transportation, fishing, recreation and scenic beauty. By the late 1960's, with more than half of the nation's population located near the coasts, the number of conflicts between different users increased dramatically. Recreational fishermen were displacing commercial fishermen. Local residents became fenced out of their coastlines by resort and residential development. Fouling of the coastal waters closed shellfish beds and swimming beaches, and caused the decline of commercial and recreational fisheries.

After three years of hearings and debates, Congress enacted the Coastal Zone Management Act of 1972 (CZMA), with the national goal to "preserve, protect, develop, and where possible, to restore and enhance the resources of the Nation's coastal zone for this and succeeding generations." The CZMA is the only "environmental program" that requires a balance between economic development and resource protection within the coastal zone.

■ **What is the "Coastal Zone?"** In simple terms, the coastal zone includes all waters out to a State's seaward boundary (generally 3 miles offshore, or in the case of the Great Lakes, between States or to the Canadian border) and all uplands "to the extent necessary to control shorelands."

■ **The CZMA: Implemented by the Coastal States:** Congress recognized that the key to effectively protecting the lands and waters of the coastal zone was to encourage States and local governments to develop the institution capability to manage the use of coastal lands and waters. The CZMA provides the "ingredients" and "recipe" for State CZM plans to guide the States towards developing their CZM programs. When the plan is complete, the State then submits it to the National Oceanic & Atmospheric Administration (NOAA), an agency within the U.S. Department of Commerce, for review and approval. Upon federal approval of a State's CZM plan, the State becomes eligible for federal assistance in implementing and enhancing its coastal zone management program, and federal activities within the coastal zone must be consistent with the State's program.

■ **Federal Consistency:** In addition to owning large tracts of land within the coastal zone, the federal government conducts a broad range of activities that affect coastal resources, especially those associated with ports and harbors, military facilities, dredging projects, offshore oil, gas and mineral development and ocean waste disposal. Further, many private actions require a federal permit, such as those for offshore oil and gas production, dredging, filling, construction and environmental cleanup. Congress recognized that unless these federal agency and federally-permitted actions were consistent with State CZM plans, the goals of the CZMA would never be reached. As a result, Congress required that any activity by a federal agency, or any private action authorized by a federal permit, must be performed in a manner that is consistent with a State's federally-approved CZM plan. This is the essence of the partnership between the federal government and each coastal State: once a State's coastal program has been federally approved, the federal, State and local governments, as well as private citizens, are bound to conduct themselves in a manner consistent with the plan.

■ **The State/Federal Partnership -- Serving the National Interest:** Thirty-four of 35 eligible coastal States, Commonwealths and Territories currently participate in the national CZM program: 29 have received federal approval for their CZM plans, and five more are in the program development stage. Thus, more than 95% of our Nation's coast is now managed by the 29 federally-approved State CZM plans, with coverage increasing to over 99% when the next five States come on line.

■ **Why apply limited federal funding to this program?** Because Good Coastal Management Makes Sound Economic Sense. The benefits of coastal management are tangible and many. Coastal management programs have worked and proven to be cost-effective.

The national CZM program is funded from two sources: the federal government and participating State governments. All federal appropriations to participating States are required by the CZMA to be equally matched by the States. Federal funding remains critical to the CZM program, however, simply because every federal dollar withheld means a total of two dollars is lost from the national coastal resource management program. Given these tight budgetary times, it is impressive that the federal government can get $2.00 worth of results for every $1.00 invested. That's a bargain.

■ **Recommendation for CZMA FY 96 Funding:** To safeguard and strengthen coastal protection programs in 34 Coastal States, Commonwealths and Territories by developing and maintaining their current programs, the following levels of appropriations for FY96 are imperative:

- $49.5 million for State CZM Program Grants (§§306, 306A and 309) - Although less than authorized, this level of funding is necessary to meet the new Congressional mandates. (FY95 appropriation: $ 45.5 million).

- $4.214 million for the National Estuarine Research Reserve Program (§315) - This funding level is necessary to support 22 designated sites throughout the nation's coastal area, and bring four new sites on line. (FY95 appropriation: $3.350 million).

- $12 million for the 6217 Coastal Nonpoint Pollution Control Program - Full funding at the authorized level is requested to enable States to complete coastal nonpoint source pollution control programs and begin addressing this critical coastal issue. (FY95 appropriation: $5.0 million).

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THE CONGRESSIONAL PLAN FOR MANAGING AMERICA'S COASTS

1995 CONGRESSIONAL BRIEFING BOOK
Coastal States Organization, Inc.

INTRODUCTION

Since colonial times, we have depended on the coasts for commerce, transportation, fishing and recreation. Early decisions affecting coastal resources were made at the town and village level. But as our population grew and society evolved, the State and Federal governments became involved. Until just a few decades ago, decisions affecting coastal resources were made in piecemeal fashion with little consultation or coordination between the Federal, State and local governments.

By the late 1960's, with more than half of the nation's population located near the coast, the number of conflicts between different users increased dramatically. Coastal "space" was at a premium. Recreational fishermen were displacing commercial fishermen. Local residents became fenced out of their coastlines by resort and residential development. Fouling of the coastal waters closed shellfish beds and swimming beaches, and caused the decline of commercial and recreational fisheries. Booming development proved beyond the ability of local communities to control. State and local governments could only react to events.

Planning and management were needed to conserve coastal resources while accommodating growth. Past mistakes needed to be remedied, and future ones avoided. A plan for managing America's coasts was needed to achieve a balance between competing interests and uses; protect coastal ecosystems; redevelop blighted shorelines and urban waterfronts; and ensure the economic vitality of coastal communities and the Nation as a whole.

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THE CONGRESSIONAL PLAN FOR MANAGING AMERICA'S COASTS

In 1969, approximately 93 million Americans lived within the coastal zone. The diverse and overlapping interests of the Federal, State and local governments, and the myriad of competing coastal resource uses—fishing, boating, recreation, tourism, ports and harbors, energy production, mining, transportation, waste disposal, dredging—were competing for a very finite amount of coastal space. It became clear that "multiple use" management of the coastal zone was essential for the economy, the ecology, and for the continued enjoyment of the coast by all Americans. Clearly, the national interest would be served best by effectively managing the coastal zone.

The CZMA is the only "environmental" program that requires a balance between economic development and resource protection within the coastal zone.

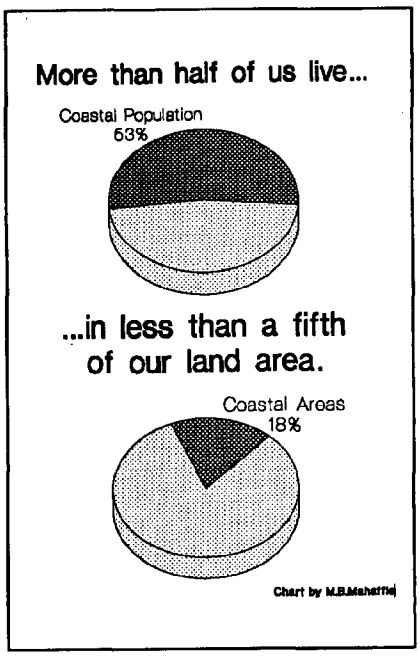
The Coastal Zone Management Act: Management for Today, Stewardship for Tomorrow

After three years of hearings and debates, Congress enacted the Coastal Zone Management Act (CZMA) in 1972, with the national goal to "preserve, protect, develop, and where possible, to restore and enhance the resources of the Nation's coastal zone for this and succeeding generations." Through the CZMA, Congress created a unique partnership among Federal, State and local governments by ensuring coordination among them as they collectively seek solutions to the problems caused by competing coastal pressures.

All activities within the coastal zone, and those activities outside but affecting resources inside the coastal zone, are now subject to the multiple-use management regime established by the CZMA. The CZMA is the only "environmental" program that requires a balance between economic development and resource protection within the coastal zone.

What is the "Coastal Zone"?

Congress viewed the coastal zone as all waters out to a State's seaward boundary (generally 3 miles offshore) and all uplands "to the extent necessary to control shorelands." The landward extent of the coastal zone is determined by each State. In some States, the coastal zone extends inland many miles, to the crest of a coastal mountain range for example. In a few instances, such as Delaware, Florida and Hawaii, the entire State is within the coastal zone. Nationwide, there are 666 coastal counties within 50 miles of the coast, encompassing 706,201 square miles of uplands, and 48,000 square miles of coastal waters, for a total of 754,201 square miles. Where these lands and waters meet runs a thin strip of beaches and shore stretching a total of 96,391 statute miles.



The CZMA: Implemented by the Coastal States

Congress realized that an effective State/Federal partnership to manage the coastal zone could not be accomplished without the willing participation of the States. To encourage States to join the program, Congress provided two incentives: financial assistance to develop and implement "Federally approved" State coastal zone management plans, and an assurance that Federal activities would be consistent with those plans.

Federally-Approved State CZM Plans: The CZMA was designed to guide States in developing plans that give "full consideration to ecological, cultural, historic, and aesthetic values as well as the needs for compatible economic development." To assist in developing and implementing CZM plans, Congress authorized annual grants to the States.

When a State CZM plan is complete, the State submits it to the National Oceanic & Atmospheric Administration (NOAA), an agency within the U.S. Department of Commerce, for review and approval. Upon Federal approval of a State's CZM plan, the Act's "Federal consistency" provisions become effective.

Federal Consistency: In addition to owning large tracts of land within the coastal zone, the Federal government conducts a broad range of activities that affect coastal resources, especially those activities associated with ports and harbors, military facilities, dredging projects, offshore oil, gas and mineral development and ocean waste disposal. The role of the Federal government in the coastal zone also extends to many private actions requiring a Federal permit.

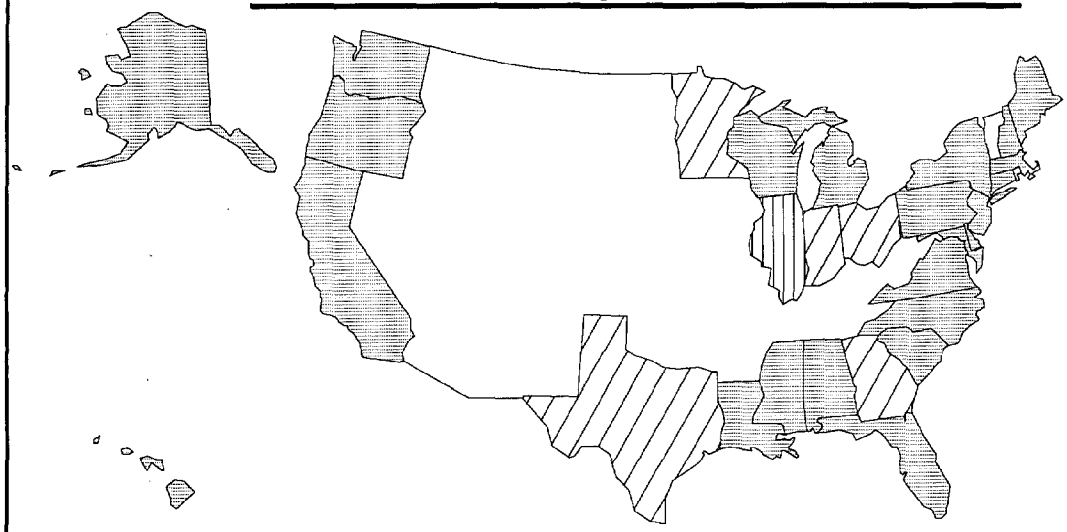
... any activity performed by a federal agency, or any private action authorized by a federal permit, must be performed in a manner that is consistent with a State's federally approved CZM plan.

Congress recognized that unless Federal agency actions and permits were consistent with State CZM plans, the goals of the CZMA would never be reached. Congress included within the CZMA provisions which require that any activity by a Federal agency, or any private action authorized by a Federal permit, be performed in a manner that is consistent with a State CZM plan. The "Federal consistency" provisions are the essence of the partnership between the Federal government and each coastal State. Once a State coastal program has received Federal approval, the Federal, State and local governments, as well as private citizens, are bound to conduct themselves in a manner consistent with the plan.

The State/Federal Partnership: Serving the National Interest

There is no better testament to the success of the State/Federal partnership forged by the CZMA than the fact that 29 of 35 eligible coastal States, Commonwealths and Territories have received Federal approval of their CZM plans, and that five more States are seeking to join the national CZM program. As a result, the many national interests cited in the CZMA—protecting fish and wildlife habitats; managing coastal development in hazardous areas; siting of energy, commercial and industrial facilities; planning for public access; restoring and redeveloping waterfronts; streamlining permitting procedures; and involving the public and private sector in the decision-making process—are being promoted through State coastal management programs.

Coastal Management Programs



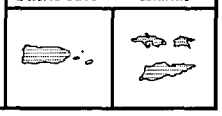
KEY

Approved

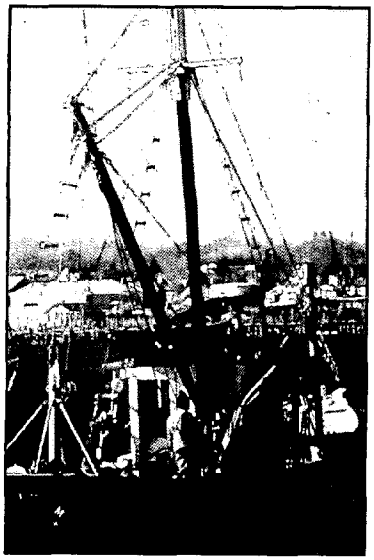
Developing Pgm.

Non-Participant

- 29 Approved Programs
- Cover 94% of the Nation's shoreline (89,117 miles)



COSTS & BENEFITS: THE BANG FOR A COASTAL BUCK



The "Value" of the Coastal Zone

America's coasts are one of the Nation's most valuable resources. When considering the value of the coast, the first thing that often comes to mind are "coastal" industries:

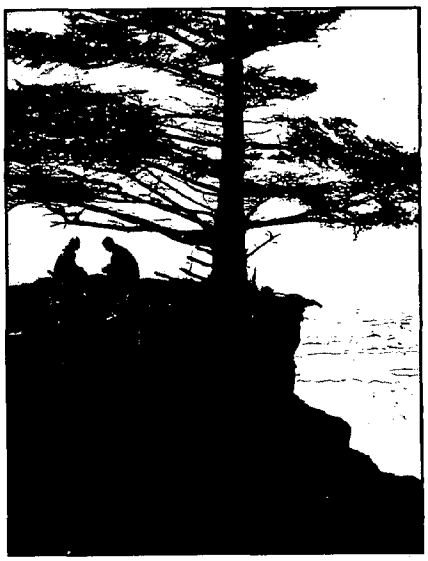
- Commercial fishing, which contributes $17 billion a year to the U.S. economy;
- Recreational fishing, which annually contributes $13.5 billion;
- Commercial ports and harbors, through which over 2,146 million tons of cargo moved in 1990;
- Offshore energy production, which produced 324 million barrels of oil (12% of U.S. production) worth $6.98 billion, and over 5 quadrillion cubic feet of natural gas (28% of U.S. production) worth more than $9.4 billion in 1990; and
- Recreation and tourism, which generates between $8 and $12 billion annually to the U.S. economy.

But to fully appreciate the true value and benefit of the coastal economy, it is necessary to take a more refined look at the economic factors at work. These are:

- "Coast-dependent activities": water-dependent activities such as fisheries, yacht clubs, off-shore energy production, beach-related recreation, and water-borne transport and shipping.

- "Coast-linked activities": related to the use of the resources of the oceans, bays, Great Lakes and estuaries, even though the activities might not be in the coastal zone, such as fish processing and packing, or the production of fishing gear, life jackets, boats and other marine equipment.

- "Coastal service activities" located within the coastal zone which provide services to residents and visitors.



In addition, values not measurable in dollar terms, nonetheless, add to the economic value of the coasts. The scenic vistas of California's Big Sur, the roaring tides along Maine's coast, the magnificence of the Great Lakes, or the beach at Chincoteague Island—these "non-market" values are the essence—the heart and soul—of the value of the coasts.

Why do 110 million people, or 53% of all Americans, want to live within the narrow band which comprises only 18% of the land area of the Nation? Why are they willing to pay extra for a home with a view of the coast; or much extra for a home on the water? The widespread desire of Americans to be located on or near the coast is a sure measure of the great value Americans place on the coast and its resources. Acre for acre, America's coastal zone is one of the Nation's most valuable resources.

Coordinated & Integrated Program Funding

The national CZM program is funded from two sources: the Federal government and participating States. All Federal grants are required by the CZMA to be matched by the States, dollar for dollar. Given these tight budgetary times, it is impressive to know that the Federal government can get $2.00 worth of results for every $1.00 invested. That's a bargain.

By every major indicator—population, percent of GNP, value of real estate, natural resource productivity and ecological importance—the country's well-being depends in large measure on the well-being of America's coasts.

Dollars spent on coastal zone management encourage inter-governmental coordination and cooperation which reduces conflict, waste and redundancy. The CZMA is designed to be integrated with other local, State, interstate and Federal programs. A State's proposed CZM program cannot receive Federal approval unless the State "has coordinated its program with local, area-wide, and interstate plans applicable to areas of the coastal zone." Each Federally-approved State CZM program incorporates the protections of the Clean Water Act and the Clean Air Act. In addition, the State CZM programs are administratively coordinated with other Federal programs, such as EPA's National Estuary Program and NOAA's National Marine Sanctuary program. By integrating decision-making processes, coastal zone management saves money for the public and private sectors.

The CZMA—A True Bargain

Twenty years of experience have proven that the State/Federal CZM partnership provides the capability to deal with many pressures: population growth, hurricanes and flooding, erosion, wetlands loss, declining water quality, beach pollution and shortage of public access. The vast increases in coastal population and economic activity projected for the next decade will only exacerbate these problems and pressures. They must be met with increased coastal management capability.

The bottom line? By every major indicator -- population, percent of GNP, value of real estate, natural resource productivity and ecological importance -- the country's well-being depends in large measure on the well-being of America's coasts. And the well-being of America's coasts depends upon the national Coastal Zone Management Program.

THE NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM

Estuaries are found where the rivers meet the sea. Bays, sounds, marshes, swamps, inlets, and sloughs are all examples of estuaries. Each estuary supports a unique composition of mammals, birds, fish, reptiles, shellfish and plants that interact to sustain an ecosystem.

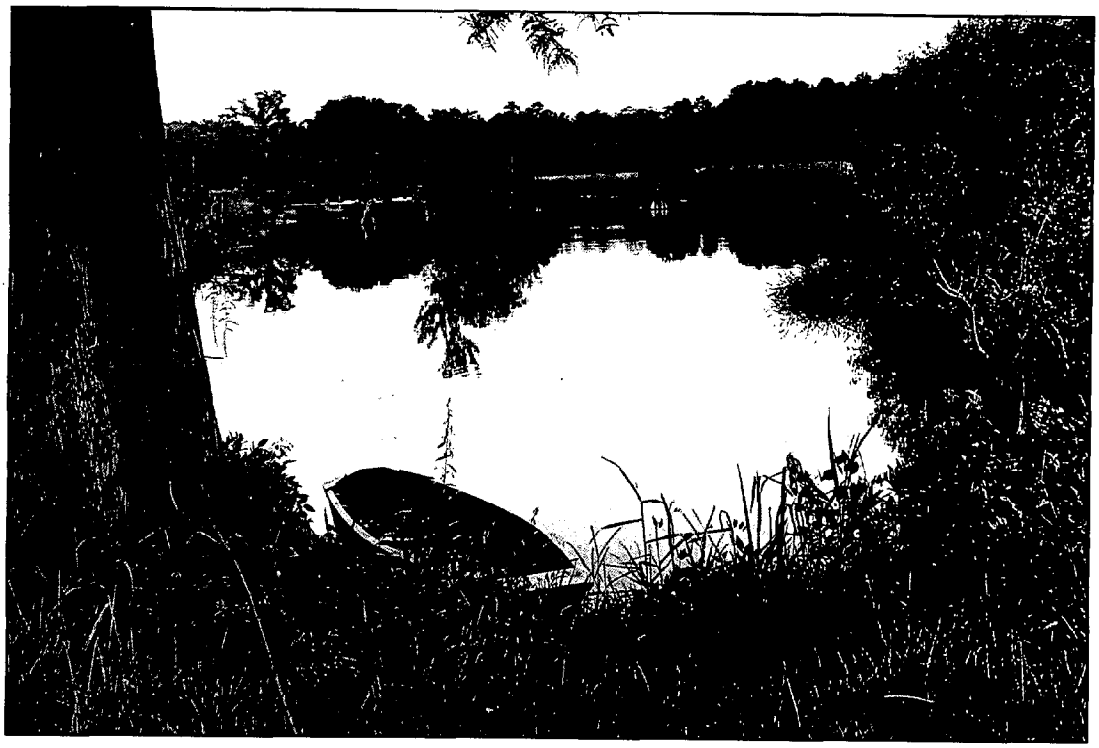
For over 300 years, our nation's estuaries have been impacted by human activity. The settlement along rivers and tributaries has led to downstream siltation, as forests were cleared and land tilled for agriculture. The growth in cities, commerce, and ports led to extensive diking and draining of marshes, filling of tidelands and dredging of navigation channels and canals. Feeding the growing population required intensive harvesting of fish and shellfish. At the same time, estuaries became receptacles for sewage and industrial wastes, hardly conducive to either fishing or shellfishing. This activity has seriously damaged estuaries.

In 1972, Congress established the National Estuarine Research Reserve System (NERRS) to serve the national interest by protecting the estuarine environment and providing a network of sites for education, research and long-term monitoring. Currently there are 22 sites comprising nearly 450,000 acres of varied estuarine environments. These sites ring the nation's coasts and serve as magnets for education and research.

Monitoring and research conducted within the National Estuarine Research Reserve System is helping coastal resource managers determine how to control the invasion of exotic species, like the Zebra Mussel; prevent nonpoint source pollution from the run-off of agricultural pesticides; develop sustainable management strategies for shellfish beds; and restore marshes and other wetlands. The knowledge that is gathered is distributed throughout the world to assist the recovery of estuaries.

The Reserves are also leading the way in environmental education with widely acclaimed curriculums in estuarine ecology aimed at coastal managers, teachers, students, and the general public. The Reserve sites provide outdoor classrooms which are an important component of State coastal programs. At the Reserves, the public can see State coastal zone management programs in action.

Much remains to be done in the establishment and development of Reserve sites. As a system representing the bio-geographic diversity of the estuarine environment, the Reserve System is only two-thirds complete. Continued Federal commitment is essential to the completion of the National Estuarine Research Reserve System.



Coastal Uses and Users

Ports & Harbors

- There are about 190 seaports offering over 3,000 berths for commercial carriers in the U.S.
- An estimated 60% of the Nation's coastal waterways require operational and maintenance dredging.
- Within coastal waters, some 200-250 million cubic yards of sediments are dredged each year.

Fisheries

- Coastal waters provide nurseries and spawning grounds for 70 percent of the U.S. commercial and recreational fishery.
- Commercial fishing employs over 350,000 people in vessel and shore-related fisheries work.
- Seventeen million people participate in recreational saltwater fishing, spending $7.2 billion annually.

Boating

- Over 73 million people participate recreational boating activities on coastal waters each year.
- Between 1950 and 1989, the number of recreational boats owned in the U.S. grew from 3.5 million to over 15.5 million.
- More than 3,800 private marinas and 4,500 private charter boats are located within the coastal zone.

Coastal Energy Facilities

- Approximately 98 percent of U.S. refining capacity is located in coastal areas.
- With the U.S. containing 25 percent of the world's coal reserves, U.S. ports are expected to be increasingly relied upon as transfer points for coal shipments.
- Over 520 electrical generating facilities are located in coastal counties where cooling waters are found, and another 100 are planned.
- The coast has been a focal point for developing alternative energy sources, such as tidal, thermal, deep ocean cold water, wind and solar energy.

Tourism and Recreation

- Coastal beaches are visited by more than 180 million visitors each year.
- Americans visit the shore for recreation purposes an average 10 days per year.
- Coastal recreation and tourism generates $8-$12 billion annually.

PRESSURES ON THE COAST

Population Growth

- The population in the coastal zone has increased from 80 million people in 1960 to more than 110 million today.
- Fifty-three percent of the Nation's population live within the coastal zone.
- The population density of coastal counties is four times the national average.
- By the year 2010, the U.S. coastal county population is projected to grow to 127 million people.
- About 700,000 new homes are constructed in coastal areas each year.

Coastal Pollution

- Pollutant run-off from land uses is responsible for forty-three percent of impaired estuaries and coastal waters.
- Only about one-third of shellfish beds are approved for the harvesting.
- The total economic loss to New Jersey and New York in 1988 due to marine pollution has been estimated to amount to between $3 billion and $7.3 billion dollars, with losses of between 46,000 and 100,000 jobs.

Coastal Hazards

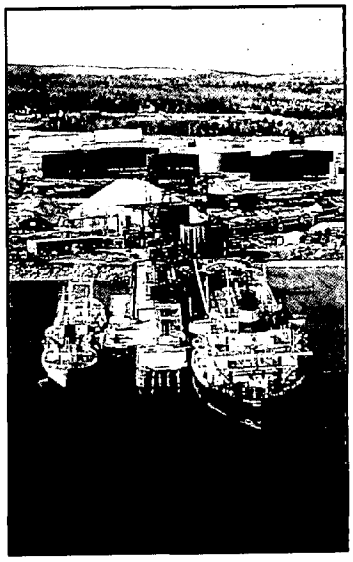
- Hurricane Andrew, a category IV hurricane, caused at least $15.5 billion in insured losses when it struck South Florida in 1992.
- Estimated losses resulting from a category V hurricane, the severest, far surpass those of Hurricane Andrew—$43 billion for Galveston, TX; $52 billion for Fort Lauderdale, FL; $34 billion for Hampton, VA.
- Eighty percent of people living in hurricane-prone areas have never experienced a major storm.
- Great sums are being spent on protecting structures from natural and predictable occurrences of erosion: Miami Beach, FL—$65 million; Ocean City, MD—$45 million; Rockaway Beach, NY—$52 million; Seabright, NJ—$158 million.
- In recent years, the Corps of Engineers has spent $40-$70 million annually on beach renourishment and shore protection.

Loss of Coastal Wetlands

- In 1780, an estimated 11 million acres of coastal wetlands ringed the coasts of what is now the lower 48 States; by 1983, only 5.47 million acres of wetlands remained.
- Annual wetlands losses for the U.S. are estimated at 31 square miles.

THE CZMA: TWENTY-TWO YEARS OF PROGRESS

For the past twenty years the CZMA has enabled coastal States to balance the need for economic growth with resource protection. The Act has enabled coastal States to become laboratories to experiment with new laws and to strengthen existing statutes to protect ecologically threatened wetlands and estuaries. The States have tailored their CZM programs to meet national objectives as well as unique local requirements. The State CZM accomplishments cited here are by no means exhaustive. Rather, they reflect the wide diversity and scope of each State's coastal management efforts that are a result of the CZMA.



Managing Coastal Development

Ports and harbors advance critical national objectives by promoting energy exploration, fishery production, commerce and recreation. The CZMA enables States to identify sites to construct ports and harbors, coupling economic development with wise management of coastal resources.

- **Oregon's** CZM program designated large sites for platform fabrication projects, coal transshipment and other coastal-dependent energy facilities where permits were readily available. This advance site identification system has enabled Oregon to approve project proposals for offshore module construction facilities at Coos Bay and Astoria in less than 60 days.

- **Rhode Island** converted a large surplus Navy base at Quonset Point-Davisville into a major support base used for offshore oil and gas exploration in the mid- and North Atlantic. The State also provided dock space and support facilities for displaced commercial lobster fishermen by redeveloping the fishing port of Galilee.

- **Washington** used CZM funds to evaluate 17 ports for future offshore platform construction sites. This helped local industry meet Federal and State regulatory and environmental impact requirements by providing advance notice of alternative construction sites.

▸ **California** reserves areas for the present and future needs of the State's five deepwater commercial ports. The Corps of Engineers and the Port of Los Angeles worked together on projects designed to meet the port's cargo and infrastructure needs through the year 2020. This project generated thousands of construction and operation-related jobs. Mitigation actions required in connection with these projects are expected to restore nearly 600 acres of wetlands.

The shortage of available sites for the disposal of dredged material often prevents port expansion and threatens the continued use of waterways for shipping. State CZM programs assist the U.S. Army Corps of Engineers in identifying environmentally acceptable disposal methods and designating suitable sites for dredge spoil disposal.

▸ The **Florida** CZM program conducted detailed engineering and environmental assessments to locate acceptable disposal sites for dredged materials. In the Port of Jacksonville alone, the Florida CZM program expects to save 72 months of permit processing time over the next 25 years.

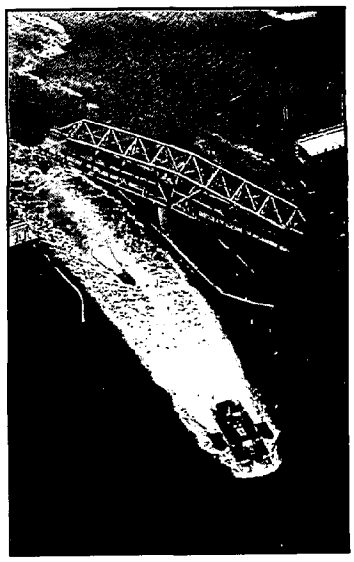
▸ In **Maryland**, the Corps of Engineers was able to dredge a severely silted Wicomico River for the first time in 10 years after a $335,000 Maryland CZM project identified suitable upland areas for dredge disposal. Industries dependent on oil, coal and grain transport along the Wicomico River saved more than $4 million each year as a result.

CZM funds finance harbor management and port improvement projects.

▸ The Bath Iron Works naval shipyard established its Portland, **Maine**, operations and positioned one of the nation's largest floating drydocks with the assistance of a waterfront coordinator hired by the city under the Maine CZM program. The coordinator guided this $45 million project through a maze of procedural hearings and found an acceptable location to dispose dredged material from the deepening of the dry-dock area. This effort netted the State an important defense industry and created 750 new jobs.

▸ **Wisconsin and Minnesota** initiated joint harbor management planning which increased interport cooperation, reduced harbor congestion, improved the port's truck and rail access, and led to the construction of new boat ramps and fish piers to reduce access conflicts between recreational boaters and commercial shippers.

Shorefront property is becoming increasingly scarce. To relieve development-related stress on shorefront property, many States restrict waterfront uses to those that are "water dependent."



▸ After considering the recommendations developed by the Commonwealth's coastal management program, the **Massachusetts** legislature approved a public trust lands law that requires critical waterfront space to be reserved for water-dependent uses.

▸ **Connecticut** law protects scarce waterfront sites by prohibiting the conversion of existing water-dependent facilities such as marinas and shipyards to non-water dependent uses. Local and State permitting authorities are empowered by statute to reject non-water dependent coastal development even if all other zoning and regulatory standards are met, thereby encouraging "land banking" of key sites along the waterfront. This unique approach insures that priority consideration is given to water-dependent uses that require a coastal location.

U.S. Commonwealths and Territories, which rely heavily on tourism for their economic livelihood, have taken steps through their CZM programs to guard against coastal overdevelopment and enhance natural resources.

▸ The **Virgin Islands** balanced concerns for environmental protection with a need for tourism revenue by allowing some bay filling for a new berth that could accept large cruise ships.

▸ To accommodate a dramatic increase in tourism, the **Commonwealth of Northern Mariana Islands** used CZM funds to prepare a management plan for hotel development in the Saipan Lagoon.

▸ Since 1988, the **American Samoa** Coastal Management Program (ASCMP) has worked to establish a coordinated system of land use review, which involves several American Samoa governmental agencies, each with its own technical expertise and authority over various economic, social and environmental planning concerns. Although responsibility for the program and the permitting system rests with the entire government, ASCMP has been assigned the responsibility of overall program development, administration, and coordination.

Enhancing Coastal and Ocean Resources

The economies of coastal States are intimately tied to healthy and productive coastal waters. State CZM programs restore and protect fish, shellfish and their habitat while providing for increased commercial and recreational opportunities.

- In **New York**, over 100 fish habitats in coastal waters have increased protection. These are part of the 205 fish and wildlife habitats that are designated as being of statewide significance in the New York Coastal Program, and encompass thousands of acres.

- **South Carolina** used CZM funds to map its oyster grounds, allowing the State to identify oyster quantity and quality. To boost shellfish production, the State also developed a mechanical oyster harvester that helped transfer thousands of bushels of seed oysters from polluted ocean beds to cleaner waters.

- **Florida** is improving its fishery management efforts by documenting the long-term effect of habitat changes such as channel dredging, bulkheading and marsh and mangrove loss on various fish populations. The extent and causes of habitat loss along 6,000 miles of Florida coastline are being documented on a site-specific basis in order to protect key habitats and save permit processing time.

- In Boston, an overloaded and antiquated sewer system which supports 43 communities has caused severe water pollution. The **Massachusetts** CZM program helped assess the Harbor's pollution levels, assisted in the coordination of the Governor's task force to address the problem, and drafted a legislative cleanup proposal. These efforts led to enactment of a law which transferred control of the Boston Harbor sewer and water systems to a new independent authority and provided both financial resources and institutional latitude to improve water quality.

- **Michigan** applied $30,000 in CZM funds to inventory the spawning grounds of fish species throughout its Great Lakes waters. The data, which was collected through on-site evaluations and interviews with commercial fishermen, describes spawning cycles and habitats of particular fish species and the characteristics of surrounding lakebeds. This inventory data has enabled the State to restore native fish populations and balance commercial and sport use of fish resources.

▸ After considering a series of recommendations proposed by the State coastal program, **Maine** voters approved a $10 million State expenditure to build seven new fish piers, complete with berths, fuel and ice facilities. Another $12 million in local and Federal funds supplemented construction financing for the new piers, enabling the fishing industry to expand and attract additional private capital investment and devise new fish marketing methods.

▸ **Maryland's** coastal program helped watermen on the Eastern Shore obtain a long-delayed Federal permit to dredge and bulkhead a new lagoon for docking oyster and clam boats off the Kent Narrows. Until the State CZM program intervened, the Corps of Engineers had not acted on their permit request for 19 months. The Maryland CZM program conducted a study that demonstrated that the project would not impair water quality and circulation, prompting the Corps to issue the permit and enabling watermen to pursue $600,000 in State and local funds for project financing.

Restoring Urban Waterfronts

Our nation's waterfronts, ports and harbors have historically been centers of rapid industrial and urban growth. Access to waterborne transportation led to the development of the country's large metropolitan areas. Over the years, however, many waterfronts have fallen into disrepair. State coastal management programs revive deteriorating water-fronts across the nation.

▸ **New York's** two largest cities are putting together ambitious waterfront revitalization undertakings. New York City's proposal calls for virtually continuous public access around Manhattan; designation of six sites to protect maritime uses; safeguarding of three Special Natural Waterfront Areas; and new waterfront zoning changes. In Buffalo, through the Horizons Waterfront Commission, a state-backed effort with Erie County, new waterfront projects include: an aquarium and science center, a Buffalo Harbor redevelopment plan, and relocation of a principal highway to open the waterfront to public access.

▸ **Michigan** has promoted tourism by encouraging redevelopment of abandoned riverfront and lakeshore areas by increasing the marketability of industrial riverfront corridors through inexpensive aesthetic improvements, and building walkways along the historic canal locks at Sault Ste. Marie.

▸ Since 1981, the **California** CZM program has used approximately $20 million to leverage an additional $100 million from other public and private sources to fund over 60 projects for the construction of docks and marina berths for commercial fishing; public piers and fishing wharfs; coastal parks and public access improvements; and educational sites.

▸ Between 1978 and 1980, the **Michigan** coastal management program provided Detroit with $100,000 in CZM funds to plan, design and engineer a major urban waterfront redevelopment effort, the Linked Riverfront Parks project. It proved so successful that the city subsequently appropriated more than $33.5 million for additional park development. Consequently, these CZM-based revitalization efforts inspired the Stroh's Brewing Company and a private developer, American Natural Resources, to plan two residential-commercial projects along the Detroit River totaling more than $160 million in private investment.

▸ Port Angeles, **Washington**, located on the Straits of Juan de Fuca, applied $21,000 in CZM seed funds toward the design and construction of a $2.5 million city pier, park and aquarium. Port Angeles invested another $2.4 million in private and public funds to rehabilitate its shoreline.

▸ In Washburn, **Wisconsin** $40,000 in CZM funds were applied to revitalize an abandoned waterfront. This investment led to a $5.6 million venture in private and public capital and the creation of 85 permanent new jobs. Now the waterfront boasts a new ship repair and boat building facility, marina, restaurant-hotel complex, residential townhomes, and lakeshore park.

▸ Residents of Lynn, **Massachusetts** redeveloped a parcel of degraded waterfront by applying a $1.7 million in CZM funds to a State Heritage Park and private condominium proposals to generate $6 million in private investment and $5.5 million in State capital funds.

▸ In New Haven, **Connecticut** a $25,000 CZM grant used for planning and a design competition initiated the construction of a $250 million office, conference, commercial retail, hotel and marina complex on what had once been a deteriorated, under-utilized waterfront.

Working with Federal Agencies

The Federal consistency process has increased coordination between State and Federal agencies so that conflicts can be resolved or avoided. In a 1985 Federal review of the consistency process, only five of 1,336 consistency certifications by States for OCS regions in the Gulf of Mexico, the Pacific, Atlantic and Alaska between 1978 and 1985 were denied.

- **New York** relied on the consistency process to negotiate a land swap that helped convert surplus Federal coastal land into a State park at Montauk Point and, at the same time, expand Federal holdings in the Fire Island National Seashore.

- The consistency process enabled the **Washington and Oregon** CZM programs to negotiate an agreement with the U.S. Department of the Interior to provide crab fishermen with advance notice of Federal seismic testing for oil and gas in the Northern Pacific, thereby reducing damage to crabbing equipment.

- **Connecticut** entered into negotiations with AMTRAK using consistency procedures to ensure continued beach access in an area which otherwise would have been blocked due to fencing of a high speed rail bed. Since railroads are statutorily exempt from local regulation and AMTRAK is a private corporation chartered by Congress, the consistency provisions provided both parties with the only mechanism, short of litigation, for reaching this agreement.

- **Louisiana** is developing long-term management plans for nine federally maintained navigation channels in the State's coastal zone. These plans will provide guidance for priority use of material from dredging of the channels for wetlands restoration, salt water intrusion abatement and bank stabilization into the next century.

- The **California** CZM program and Vandenberg Air Force Base have reached agreements on water conservation planning, creation of miles of shoreline access trails, and protection for endangered and threatened species. Billions of dollars worth of NASA space program and U.S. Air Force missile program projects have gone forward while securing environmental protection, enhancing community relations, and increasing public access and recreation opportunities.

CONCLUSION

The coastal zone is rich in a variety of natural, commercial, recreational, ecological, industrial, and aesthetic resources which are of great value to the present and future citizens of the Nation. But, the lands and waters of our coastal zone are subject to increasingly intensive and competing uses. Population growth, industrial, commercial, and residential development, recreational demands, extraction of mineral resources and fossil fuels, transportation and navigation, waste disposal, and harvesting of fish, shellfish, and other living marine resources, cumulatively threaten the economies, way of life, heritage, recreational opportunities, and living resources of the coast.

Through the CZMA, the Congressional plan for managing America's coasts, the coastal States are developing or have implemented federally-approved programs covering 99 percent of the coastal zone. The success of this unique State/Federal partnership is well documented by the support of the public, coastal businesses, and local, State and Federal governments. Indeed, many foreign countries view the United States coastal program as a model. The National CZM program is a proven, cost-effective way to pursue national priorities, and manage the nation's interest in the coastal zone.

Our Nation's commitment to the coast is at a crossroads. Together, the Federal and State governments have made a significant financial investment in managing the Nation's coastal resources over the last two decades. However, this effort must continue. By every major indicator—population, percent of GNP, value of real estate, natural resource productivity and ecological importance—the country's well-being depends in large measure on the well-being of America's coasts. And the well-being of America's coasts continues to depend upon Congressional support for the national Coastal Zone Management Program.

APPENDIX A - CZMA FUNDING HISTORY: FEDERAL CONTRIBUTION *(dollars in thousands)*

Fiscal Year	State CZM Programs	State CZM Mgmt.	NERRS	Coastal Nonpoint Source Pollution Program Development	NOAA Administration	State CZM Program Development	Totals
1972	-0-	-0-	-0-		-0-	-0-	-0-
1973	-0-	-0-	-0-		-0-	-0-	-0-
1974	-0-	-0-	4,000		800	7,200	12,000
1975	-0-	2,100	-0-		919	14,100	17,119
1976	1	4,850	-0-		1,182	15,000	21,032
1977	2	9,152	1,500		2,250	17,803	30,705
1978	12	18,212	300		3,662	11,028	33,202
1979	18	31,212	3,000		3,343	4,535	42,090
1980	25	37,712	3,000		5,163		45,875
1981	26	33,962	3,000		5,201		42,163
1982	28	36,000	2,000		3,180		41,180
1983	28	40,179	2,930		3,229		46,338
1984	28	21,000	2,930		3,176		27,106
1985	29	37,000	2,930		3,275		43,205
1986	26	34,448	1,991		3,122		39,561
1987	29	31,373	2,859		3,020		37,252
1988	29	34,055	2,859		2,509		39,423
1989	29	34,942	2,790		2,779		40,511
1990	29	34,400	3,490		3,279		41,169
1991	29	34,600	3,473		3,394		41,467
1992	29	40,331[1]	3,722	2,000	4,000	600	50,653
1993	29	40,534[1]	3,214	1,920	3,597	800	50,065
1994	29	45,800[1]	3,214	4,000	3,500	-0-	56,514
1995	29	49,200[1]	3,350	5,000	4,100	760	62,410
Totals	29	651,062	56,552	12,920	68,680	71,826.00	861,040

[1] Includes transfers from the §308 CZM Fund and apportionment for §309 grants.

Appendix B

Legislative Chronology of the Coastal Zone Management Act

1953

• Congress enacts the Submerged Lands Act explicitly recognizing coastal state jurisdiction over the resources of the three-mile territorial sea.

1969

• Oil spill in California's Santa Barbara Channel brings national attention to offshore environmental issues.

• The Nixon administration proposes a five-point ocean science program including a proposal to establish an estuarine and coastal zone management program.

• The U.S. Commission on Marine Science, better known as the Stratton Commission, issues a report recommending that a Coastal Zone Management Act be enacted to manage the coastal waters and adjacent land.

• The National Oceanic and Atmospheric Administration (NOAA) established within the Department of Commerce by Executive Order.

• The Coastal States Organization formed.

1971

• Senators Ernest F. Hollings and John Tower introduce comprehensive coastal zone management legislation, while in the House, a similar bill is proposed by Congressman Alton Lennon.

1972

• The Senate approves a coastal zone management bill.

• Congress passes the Coastal Zone Management Act of 1972 (P.L. 92-583) to be administered by NOAA. The Act provides federal grant assistance to coastal states to develop and implement coastal management programs; requires federal consistency with approved coastal management programs; and authorizes federal financial assistance to coastal States for the acquisition, development, and operation of estuarine sanctuaries to serve as natural field laboratories.

1973

• OPEC oil embargo demonstrates the nation's vulnerability to supply disruptions, spurring national attention to energy independence.

1974

• President Nixon directs the Interior Department to accelerate its OCS program to lease 10 million acres in 1975, equal to all previous federal leasing of the OCS.

• Clarifying amendments to the CZMA (P.L. 93-612) increase the planning grant authorization from $9 million to $12 million per year and change provisions that affect the distribution of grants to coastal States and territories.

• Congress provides initial funding of $7.2 million for coastal zone management program development grants.

• Oregon's South Slough Estuarine Reserve becomes the first federally designated estuarine sanctuary.

1976

• CZMA amendments (P.L. 94-370) are prompted by calls for U.S. energy self-sufficiency and accelerated federal efforts to explore and develop new offshore oil and gas reserves. The amendments establish a Coastal Energy Impact Program (CEIP) authorizing grants, loans and loan guarantees over ten years for states whose coastal zones support and are impacted by new energy facilities. The amendments also raise the federal share of CZM administrative grants from two-thirds to 80 percent. Program development funding extended for three years.

• Washington State coastal zone program becomes the first to receive federal approval.

1978

• Outer Continental Shelf Lands Act amendments enacted (P.L. 95-372), affecting the CZMA's Coastal Energy Impact Program provisions and clarifying the consistency certification process for OCS permits and licenses.

1979

- Funding for program development grants expires.

1980

- Carter Administration proposes an eight-year phasedown of federal funding for state CZM administration grants.

- Congress amends and reauthorizes the CZMA (P.L. 96-464) specifying national objectives to guide states in managing their coastal resources. A new title authorizes resource management improvement grants to finance low-cost construction projects, preserve fragile coastal areas, redevelop waterfronts and ports, and provide shoreline access. The scope of the CEIP program expanded, enabling Great Lakes states affected by the growing national demand for coal to accommodate new coal development, storage and shipment facilities in their coastal zones.

1981

- The Reagan Administration proposes to end federal funding for the State CZM administrative grants and Coastal Energy Impact Assistance programs, the first of nine Reagan Administration budgets recommending a zero funding level for State CZM grants.

- Interior Secretary James Watt announces a five-year OCS program, based on the concept of areawide leasing, offering oil and gas development rights on one billion acres.

- NOAA publishes final regulations interpreting the CZMA federal consistency provision so as to preclude its application to OCS leasing. The House Merchant Marine and Fisheries Committee reports a resolution disapproving the regulations. NOAA rescinds the new rule.

1982

- Appropriations for CEIP Fund discontinued.

- Washington office opened by the Coastal States Organization.

1983

- The House passes an OCS revenue sharing bill which allocates a portion of federal revenues from offshore oil and gas leasing to state coastal zone management programs to help offset the impacts of offshore drilling operations on the nation's shorelines.

1984

- The U.S. Supreme Court rules that the CZMA's consistency provisions do not apply to federal offshore oil and gas lease sales. The Court's ruling in *Interior v. California* raises new concerns about the applicability of the consistency provisions to other federal activities such as deep seabed mining, at-sea incineration, and ocean dumping that, although conducted outside a state's coastal boundary, might affect that state's coastal zone.

- The House Merchant Marine and Fisheries Committee holds hearings on legislation to amend the CZMA's consistency provisions to require that federal activities significantly affecting state coastal zones comply with federally-approved state coastal management programs. The Senate Commerce, Science and Transportation Committee later reports a similar bill.

1986

- Congress reauthorizes the CZMA (P.L. 99-272) gradually increasing the match requirement for state administrative grants to equalize state and federal contributions by FY89. The estuarine sanctuaries program is restructured as the National Estuarine Reserve Research System. Congress directs NOAA to prioritize the Reserve System for estuarine research projects which address coastal resource management information needs.

1987

- The Office of Technology Assessment issues report *Wastes in the Marine Environment* finding that the overall health of estuaries and coastal waters is declining or threatened.

1988

- Dolphin die-offs, medical waste wash-ups, and summer beach closures focus national attention on coastal pollution. The House Merchant Marine and Fisheries issues report *Coastal Waters in Jeopardy* finding the federal response to the problem of coastal pollution to be fragmented and ineffectual. The report cites the need to place greater emphasis within the Coastal Zone Management Act on protecting estuaries and other coastal waters.

- Congressional intervention prevents NOAA reprogramming of funds appropriated for coastal programs.

1990

- Congress enacts the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) (P.L. 101-508, sec.6201 *et seq.*) amending the CZMA's federal consistency provisions to overturn the Supreme Court's 1984 decision in *Interior v. California* by clarifying that all federal activities, whether in or outside of the coastal zone, are subject to the CZMA's consistency requirements; reauthorizing program development grants; authorizing Coastal Zone Enhancement Grants for the improvement of State CZM programs; authorizing appropriations through FY95 at increased levels; and requiring states to develop coastal nonpoint source control programs.

1992

- The House and Senate approve OCS revenue sharing bills as part of comprehensive energy legislation; however, all OCS provisions are dropped during the House/Senate conference on the energy legislation due to failure to reach agreement on OCS lease sale moratoria and buybacks.

- Technical amendments to the CZMA. P.L. 102-587.

1993

- NOAA and EPA issue guidance for the development and appoval of State coastal nonpoint source pollution programs.

1995

- Submission of State coastal nonpoint source pollution programs due.

- CZMA up for reauthorization.

Appendix C

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STATE PROGRAMS

Alaska

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Following enactment of the federal Coastal Zone Management Act in 1972, the State of Alaska began active coastal management planning in 1974. The Alaska Coastal Management Act was enacted in 1977, and the state received federal approval of the Alaska Coastal Management Program (ACMP) in 1979.

The Alaska Coastal Management Act provides for 1) a program coordinated by the Office of the Governor; 2) State standards enhanced by "coastal district" management programs developed and implemented by local communities and the State; 3) a management structure built on existing State resource agency authorities and local government land-use actions, rather than a separate coastal permit; and 4) the Alaska Coastal Policy Council to oversee the development and implementation of Alaska's coastal program.

Under the ACMP, local governments, rural areas, and the State of Alaska cooperatively manage the use and protection of Alaska's coastal resources. The State ACMP standards establish general policies governing uses and activities in the following areas: coastal development, geophysical hazard areas, recreation, energy facilities, transportation and utilities, fish and seafood processing, timber harvest and processing, mining and mineral processing, subsistence, habitats, air, land and water quality, and cultural resources. Following State guidelines and subject to State review and approval, coastal communities and regions develop coastal district management plans, which become enforceable components of the ACMP. District programs focus on coastal resources, uses, and activities of particular local concern and, when coupled with State ACMP standards, provide a comprehensive framework for decision-making and permitting of proposed development projects.

Balancing Development and Protection of Coastal Resources

The ACMP provides a forum where conflicts about coastal development can be identified and resolved. For example, energy resource development, mining, port expansion, or seafood processing projects along Alaska's coast can involve numerous permits, complex issues, and multiple jurisdictions. The ACMP sets the stage for an integrated, multi-agency review of such coastal development projects. Local interests are incorporated into a State-level consistency review, particularly when questions of public need and alternatives arise. The impacts of major development projects are minimized at the same time that the state's resource-based economy is enhanced.

Management of Coastal Habitats

Many habitats throughout the very diverse coastal regions of the state are managed under the ACMP, including offshore areas; estuaries; wetlands and tideflats; rocky islands and seacliffs; barrier islands and lagoons; and rivers, streams and lakes. Maintenance or enhancement of the biological, physical, and chemical characteristics of the habitats is the management goal.

Protection of Subsistence Resources

The ACMP recognizes the importance of subsistence resources in coastal areas. Districts may identify areas in which subsistence is the dominant use of coastal resources. Several rural coastal districts have specific local policies addressing the protection of important subsistence resources. In certain areas, potentially conflicting uses or activities may be allowed only after careful review and adequate safeguards are in place to assure continued subsistence use.

ACCOMPLISHMENTS

- Since the late 1970s, 33 coastal districts (ranging from the small Southeast cities to the Municipality of Anchorage or large, remote regions in rural Alaska) have developed local coastal management programs. In several areas of the state, the coastal management planning represents some of the first coordinated, local-State planning to occur in this comparatively young state. Local concerns vary from district-to-district, depending upon resource use patterns and coastal demands.

- Nearly 50 percent of the federal coastal management grants, about $1 million, is annually passed through to local governments and rural resource areas for coastal planning and implementation efforts. While most communities have focused their efforts on participating in the State-level consistency reviews, some have also incorporated their coastal policies into local regulations which govern the full array of local land use decision-making.

- The ACMP consistency review, in place since 1984, is a streamlined, coordinated process for reviewing and issuing State permits for proposed projects in Alaska's coastal zone. Over 1,500 projects -- ranging from residential lot fills to major energy facilities -- are examined each year, generally within a 30- or 50-day review period. Given Alaska's vast size and diverse coastal regions, projects are processed at a regional level and most activities or uses proceed according to regionalized conditions. Occasionally, a project review is appealed because of controversial, complex or new issues; and the concerns are resolved by the heads of State resource agencies.

- The ACMP provides a strong vehicle for the State of Alaska to advocate for responsible resource development and protection on federal lands and waters within the coastal zone. The federal consistency provisions under the federal Coastal Zone Management Act are an important tool for the state when addressing the proposed activities of the federal government, which owns a major portion of Alaska lands. Protection of bowhead whales for subsistence hunting and careful attention to oil spill contingency planning are two instances where the state has asserted its views during reviews of offshore energy activities under federal consistency provisions.

- Given the vast size of Alaska's coastline—about 34,000 miles—and the localized nature of coastal development in Alaska, the state focuses its management efforts where the development occurs and the people are concentrated. Recent specialized area planning is directed at urban waterfronts, world-class fishing ports, and urban wetlands. Regionalized planning and coastal project reviews enhance the coastal land-use decision-making within a statewide program framework which ensures consistent treatment of the coastal resources.

For Additional Information:

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Alabama

COASTAL AREA MANAGEMENT PROGRAM

BACKGROUND

The Alabama Coastal Area Management Program (ACAMP) was approved in 1979. Program responsibilities are divided between the Alabama Department of Environmental Management (ADEM) which handles all of the regulatory aspects of the program including wetland and coastal construction permitting and the Alabama Department of Economic and Community Affairs (ADECA) responsible for overall program management including fiscal & grants management, planning and public information. The coastal area in Alabama extends from the continuous ten foot contour seaward to the three mile limit. Funding in FY94/95 federal funds matched by $702,000 in state and local funds/in-kind services for total of $1,510,000. For more information contact: Gil Gilder, Manager, Coastal Programs, ADECA, 401 Adams Ave., Montgomery, AL, 36103-5690; 205/242-5502 or Phillip Hinesley, Coastal Programs, 10936-B U S Hwy 98, Fairhope, AL 36532; 205/928-3625.

ACCOMPLISHMENTS

1) Wetlands Preservation

Through judicious monitoring of Section 404 Dredge and Fill permits, enforcement of sediment controls and public education efforts, the ACAMP has greatly reduced the rate of loss of wetlands due to man-made causes in the coastal area. This has benefited coastal fisheries, water quality & wildlife habitat and helped preserve wetlands as such for generations to come.

2) Coastal Construction Control Line (CCL)

The ACAMP established a Construction Control Line to govern construction along the Gulf shoreline in order to protect & stabilize beaches & dunes and reduce potential storm damage. The CCL will, in addition, help protect the character of the Alabama Gulf Coast for future generations.

3) Natural Gas Production

Revenues from natural gas production in Alabama's coastal waters have been a financial boon to the State. Through its work with the oil companies, other state regulatory agencies and citizens groups, the ACAMP has played a major role in assuring that the development of gas production has been conducted in an environmentally sound manner. The State has benefitted from gas production while protecting its other coastal natural resources.

CURRENT ACTIVITIES/EMPHASIS

1) Shoreline Management

The Alabama Gulf coast has experienced pockets of erosion over the last several years. A study "Alabama Shoreline Change Rates: 1970-1993" completed last year is being used to develop a shoreline management plan for the Gulf coast. The plan will explore management strategies and funding sources as a first step toward a long-term program to prevent the loss of historic structures and recreational beaches.

2) Public Access

In an effort to expand public access to coastal waters some ACAMP funds have been allocated to low cost construction projects. Public access improvement projects include: Pier St. Ramp (Fairhope), Alabama Point Fishing Park (Orange Beach), Billy Goat Hole Ramps (Dauphin Island) and Mary Ann Public Beach (Baldwin Co.). In addition the ACAMP is involved in coordinating public access development with local governments & government agencies and in inventorying publicly owned lands.

3) Local Government

The ACAMP is increasing its involvement with local Government in an attempt to engage more people in the protection of coastal resources. In the current year staff will: a) work with districts in Baldwin Co. developing zoning ordinances in order to promote regulations protective of coastal resources and b) work with local governments and groups such as the East End Committee on Dauphin Island and the Dog River Clearwater Revival in Mobile.

4) Coastal Association

The feasibility of and the need for an area and issue-wide membership association in the Alabama coastal area was the subject of recent study by ACAMP. As a result of the discussion and interest sparked by this study, the Alabama Coastal Foundation (ACF) was incorporated in 1993. The ACF now has a staff and is sponsoring Amnesty Day and Baywatch.

American Samoa

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Since becoming an unincorporated territory of the United States in 1900, American Samoa has changed from a subsistence economy to that of a cash economy, while still trying to retain its traditions and cultural values. This transition has brought about ecological changes as well. Traditionally, Samoans would plant, harvest and replant. Because of economic growth today, deforestation more often results from building and new businesses. Areas which were once forests and farms, are now shopping centers and European style homes. This is true of most island nations in our region. Our biggest challenge today is how to recognize the need for change and how to manage it without adverse impact to the environment.

There are 48,767 acres in the territory, but about two-thirds of the land is steeply sloping and virtually inaccessible. With the high percentage of steep inaccessible land in American Samoa, the majority of villages are located in the relatively flat valleys of larger watersheds and their adjoining coastal strips, with the exception of a broad, ancient lava flow known as the Tafuna plain, to which the focus of new residential and industrial/commercial activity has recently shifted. Land prices have risen to as much as $20,000 per 1/4 acre and legal battles over land ownership are common.

Land use patterns are dictated by the communal village lifestyle. Traditionally, the village developed around the malae, a large open green or town plaza, located in the center of the village. Agricultural plots were located on the outside perimeter of a village. With this type of development there was a clustering of uninhabited areas along the coast, with agricultural uninhabited areas between villages.

The traditional village pattern has been largely modified in the 20th century as many villages have been forced to utilize their open malae area for expanding residential needs. Contributing to such change was the development of a road system and the urbanization of Pago Pago Harbor and other highly populated areas. In the majority of villages, the malae has lost significance as the center of village life, and today most houses and other new developments are oriented toward the main road in a "strip" development fashion (A report to the Natural Resources Commission 1992).

Most villages have used up their developable land, either for residential or commercial use. All villages are struggling to accommodate a rapidly increasing population and commercial base. But the general trend is clear, growth continues to increase at alarming rates.

In 1900, according to the U.S. Bureau of Census, the population of Tutuila and Manua was 5,679. By 1985, the population had risen to 35,527 (Statistical Digest, 1991), and 5 years later, the population stands at 46,773, an almost 50% increase in one decade!

The environmental problems which American Samoa experiences today are exacerbated by a high population growth rate and a growing dependence on commodity product imports from the outside world. With only 55 square miles of land for Tutuila - American Samoa's largest island and home to 95% of the total population of 47,000 - the 3.7% population growth rate is indeed alarming.

It was within this setting that in 1980, the

American Samoa Coastal Management Program (ASCMP) was established through an executive order (later established into statute in 1990). Since then, the ASCMP has played a major part in fostering development standards for the territory.

The program's jurisdictional area was established to include all lands in the Territory and coastal waters seaward to the three mile territorial sea limit.

ACCOMPLISHMENTS

ASCMP Legislation approved by Fono

For almost 10 years the ASCMP has been under executive order. That has now changed as in 1990, the American Samoa Legislature passed the ASCMP to be under statute. Two previous moves to establish the ASCMP by statute were rejected by past sessions of the legislature. The legislation includes a stop order provision, fines for violations, and a special "environmental restoration fund" to be established through the collection of fines.

Archaeological Monument

The first Archaeological Monument in the Territory was completed in 1990 with 306A funds. The monument preserves a several hundred year-old "starmound" or "Tia-Seu-Lupe", which consists of an elaborately constructed mound of rocks located in the middle of dense lowland rain forest.

Although there are several theories on the origins and purpose of Samoan starmounds, most widely accepted is the theory that the elevated sites were used in ancient times for pigeon hunting by high chiefs. There are some 75 recorded starmounds on Tutuila, although the actual number is very likely too be several hundred. This particular starmound is in relatively good condition and the park has been built around it for residents and tourists to enjoy.

CZM Video: "Our Island Village"

The major thrust of the film is the environment and what we, as citizens, can do to preserve the precious resources we have been given, while still developing the island in a prudent fashion. The film also touched on the permitting system and the reasons for implementing a land-use system.

The film was produced in both English and Samoan so that we have a broad audience. The film was used as introduction to the legislature members when the CZM. legislation was introduced in 1990. As a result, both houses vote unanimously to approve the legislation and was signed into law by the Governor that same year.

Landslide Mitigation Feasibility Study

Following Hurricane Tusi which struck the Manua Island group in 1987, the Federal Emergency Management Agency (FEMA) mandated a certain set of qualifying criteria for future funding. The mandate included the requirement for the Territory to implement a strategy to mitigate the effects of potential landslides. As our program is directly responsible for the coordinated review of Land-Use Permit Applications, we were given the task to prepare a study of landslide hazard areas and to recommend mitigation measures.

The ASCMP and the Soil Conservation Service worked together to design and conduct a feasibility study for effective landslide mitigation in the Territory. The goal of the feasibility study was to produce a series of maps, which, along with relevant data, could be used as a broad scope locational reference to determine if proposed developments should in fact be examined more closely from a potential landslide perspective. Four parameters -- geology, soil type, slope zone, and vegetation -- were combined in a correlational model to assess low, medium, and high landslide hazard probability.

Aerial Orthomapping

The ASCMP has pooled funds with several other local agencies to produce an update of aerial orthophoto maps of the Territory. Prior to this effort, the most recent aerial mapping was carried out in 1984 for the island of Tutuila only. Most of those photos are missing, damaged, or of a useless scale for planning purposes. The new series off orthophoto maps will be cataloged, referenced, and hopefully treated with the respect they properly deserve through the thorough training of staff.

All islands in the Territory were photographed at an altitude that produced negatives that can be used to produce orthophoto maps of scale 1" = 200'. In addition, special "sub-areas" including, our three special management areas, was flown at a lower altitude to produce maps of scale 1" = 100".

Pago Pago Harbor Toxicity Study

Another interagency venture sets out to determine if it is safe to consume fish caught in Pago Pago Harbor. The ASCMP has pooled technical and financial resources with the Department of Marine and Wildlife Resources and the American Samoa Environmental Protection Agency. The study examined the levels of toxic elements in sediments, water, and fish tissue, and sought to determine whether more detailed study is warranted.

Permit Brochure

The brochure's main objective was to inform and assist the applicant in the permit process and the reasons for the PNRS system as described below. Again, it was produced in both English and Samoan.

The ASCMP was in operation of eight years when, in 1988, it initiated the establishment of a coordinated, interagency decision-making process for the review of land use permit applications. The new initiative, known as the Project Notification and Review System (PNRS). Three principle features of the PNRS were advocated by the ASCMP staff as the system's major benefits: (1) timely review of the land use permit application by providing coordination on all aspects of regulatory requirements of the various resource management agencies represented on an interagency PNRS Committee; (2) more meaningful environmental review of development proposals by bringing together the collective experience of some 7 or 8 professionals, rather than a single person as was previously the case; and (3) a reduction in expense for the public by requiring early review of a project proposal at the conceptual site planning state, rather than at the stage when building blueprints were already approved by the Department of Public Work. This would eliminate the expense for such plans entirely.

Pulenu'us' Workshop

In the past ASCMP and ASEPA conducted Pulenu'u's workshops of the eastern district and western district of Tutuila, respectively. The purpose of the workshops was to acquaint the pulenu'us with the Coastal Management Program and foster their cooperation on the village level.

Coastweeks

The COASTWEEKS celebration brings together teachers, elected officials, environmental organizations, local groups, and individuals together to express their concern for coastal resources in an atmosphere of charged enthusiasm with plenty of work and fun.

Our hope is to get as many people involved and interested in widening the spectrum of ideas that will expand public awareness in all communities, churches, schools and every corner of our island.

We have celebrated Coastweeks in the Territory for the past six years. We have received a lot of participation with all ages in the community. Our most popular activity is the children's art calendar. This has been distributed both local and abroad and has been well received.

Wetland Management Plan

ASCMP has just completed a Wetland Management Plan for Tutuila and Aunu'u. The plan provided recommendations for the American Samoa Government to consider in the protection of the wetland areas. ASCMP is working with village council toward adopting some of the recommendations contained in the plan.

California

COASTAL MANAGEMENT PROGRAM

OVERVIEW

State coastal management efforts began in California in 1965--seven years before the enactment of the CZMA. The California Coastal Management Program (CCMP) is administered by three state agencies which oversee the conservation and development of California's coastline. These are the California Coastal Commission, the San Francisco Bay Conservation and Development Commission (BCDC) and the California State Coastal Conservancy (the Conservancy). Under the CCMP California balances the demands for development with the need to conserve natural resources, providing for sound, responsible stewardship of one of the nation's most spectacular coastlines. Maintaining this balancing act is an increasing challenge. California's fiscal crisis in the 1990s has severely constrained state funding for coastal protection, making federal funding more critical than ever.

California Coastal Commission

In 1972, California voters passed Proposition 20, a coastal protection initiative that led to the California Coastal Act of 1976, establishing the California Coastal Commission as a permanent state agency with mandates to, among other things, protect and enhance public access, recreation, wetlands, visual resources, agriculture, commercial and industrial activity, and environmentally sensitive habitats within the coastal zone.

Stretching 1,100 air miles from Oregon to the Mexican border (over 3,400 miles of actual waterfront land), the coastal zone extends seaward three miles, while its landward boundary varies. In rural and generally undeveloped areas where there can be a considerable impact from development, the coastal zone extends as much as five miles inland from the water. In developed urban areas, the boundary is as little as a few hundred feet inland. The Coastal Commission's jurisdiction excludes San Francisco Bay, where development is regulated by BCDC under separate law (see below).

The CCMP manages coastal resources using a variety of planning, permitting, and non-regulatory mechanisms. One key mechanism is the federal consistency review authority which allows the Commission to evaluate projects conducted or funded by the federal government, as well as private sector projects which require federal permits. This process gives the state an unparalleled ability to negotiate with federal agencies to ensure that projects that effect the coastal zone are consistent with the CCMP.

Along with federal consistency review authority, the Coastal Commission's primary mechanism managing the coast is the coastal development permit. Any development in the Coastal Zone may require a coastal development permit issued either directly by the Coastal Commission, or by a local government to which this authority has been delegated. This delegation of authority represents a unique state and local government partnership established by the Coastal Act through which state-wide policies for the conservation and use of coastal resources are reflected in local coastal planning and development decisions. The Coastal Commission generally approves 95% of all permits under its purview, often with conditions to bring the projects into compliance with

Coastal Act policies. Primary among these policies are those which address:

* PUBLIC ACCESS--Provide maximum public access to the shore while protecting public safety, fragile coastal resources, and private property.

* RECREATION--Protect and provide for water-oriented recreational activities, and related commercial facilities that serve visitors.

* MARINE RESOURCES--Protect the marine environment and organisms for commercial, recreational, scientific, and educational purposes. Give special protection to areas and species of special biological or economic significance.

* LAND RESOURCES--Protect environmentally sensitive habitat, limit conversion of viable agricultural land.

* DEVELOPMENT--Concentrate development in already-developed areas, protect scenic qualities of coastal areas, prevent increased erosion or other hazards, maintain Highway 1 as a scenic two-lane road, give priority to coastal-dependent development, and protect wetlands from adverse development.

* INDUSTRIAL DEVELOPMENT--Encourage coastal-dependent industrial facilities and provide for port needs consistent with other policies of the Act, promote multicompany use of tanker and other energy facilities, permit oil and gas-related development which minimizes environmental impacts.

Additional Commission responsibilities under the Coastal Act include: reviewing and certifying local government, and port coastal plans; acting on permit appeals and plan amendments; and carrying out public education programs. The Commission also provides technical assistance and grants to help local governments develop and implement local coastal programs.

This year the California Coastal Commission celebrates its first twenty years of promoting the intelligent use of the State's precious coastal resources. The Commission's future challenge will be to adapt this sturdy framework, erected and still strongly supported by the citizens of California, to the dynamic changes in California's demographics and economy, the cumulative impacts of the state's tremendous past growth, and new information about natural and human processes affecting the coast.

San Francisco Bay Conservation and Development Commission

In 1965 the California legislature created the San Francisco Bay Conservation and Development Commission and authorized it to formulate a plan to protect the bay for future generations. BCDC developed San Francisco Bay Plan to protect San Francisco Bay as a great natural resource, and to develop the Bay and its shoreline to their highest potential with a minimum of Bay filling. In 1969 the legislature made BCDC a permanent state agency and incorporated the Bay Plan into law, resulting in the first comprehensive coastal management program developed in the nation by a state agency. In 1976 further legislation directed BCDC to similarly protect the Suisun Marsh, the state's largest remaining wetland.

BCDC's mandates are to limit fill,increase public access to and along the Bay, and assure that sufficient land is available for priority water-oriented uses such as ports, airports, water-related industry, wildlife refuges, and recreation. BCDC permits to fill, change the use, or excavate materials from the Bay, from certain diked areas or tributaries to the Bay, or from a shoreline band extending 100 feet inland from the Bay. As the state agency implementing the CCMP in San Francisco Bay, BCDC also exercises the authority to review federally-sponsored, -funded, or -permitted projects in the Bay for consistency with the CCMP.

Recently, with filling controlled and public access much increased, the Commission has concentrated on (1) diversion of fresh water from the Bay, (2) dredging and the aquatic disposal of dredged materials in the Bay, and (3) the protection and enhancement of diked historic baylands.

California State Coastal Conservancy

The California State Coastal Conservancy was created in 1976 to protect, restore, and enhance resources in the coastal zone and San Francisco Bay through its authority to acquire land, design and implement resource restoration and enhancement programs, and resolve coastal land use conflicts, complementing the regulatory activities of its sister agencies. Accordingly, the Conservancy collaborates with the Coastal Commission and the BCDC to: implement public access and mitigation requirements arising from the two agencies' permit conditions; help resolve problems which impede completion of local coastal programs (LCPs); and help implement LCPs.

The Conservancy's work is concentrated in the following areas:

* AGRICULTURAL LAND PRESERVATION--Preservation of productive agricultural lands by acquiring property, providing necessary site improvements, and reselling legally protected lands for continued agricultural use.

* PUBLIC ACCESS--Designing, implementing, and acquiring land for projects to improve public access to the coast and bay shore.

* URBAN WATERFRONT IMPROVEMENT AND RESTORATION--Funding acquisitions, construction, and technical assistance to redevelop deteriorated, underused and poorly planned waterfronts for public and commercial use. Supporting coastal-dependent industries, including commercial fishing, through technical assistance and project grants. Providing assistance and funding for enhanced visitor, recreational, and public access opportunities.

* LAND USE CONSERVATION AND SITE RESERVATION--Protecting, through acquisition, coastal lands that are environmentally sensitive or have high scenic, recreational, or habitat value and holding them for eventual conveyance to public agencies or qualified non-profit organizations.

* RESOURCE RESTORATION--Restoring areas through acquisition, lot consolidation, or other means which help protect the coastal environment or encourage orderly development.

* RESOURCE ENHANCEMENT--Creating, restoring, and enhancing functioning wetlands, watersheds, and other coastal habitat through technical assistance and mediation of land use conflicts, as well as project funding, planning, and implementation.

* NON-PROFIT SUPPORT--Providing technical assistance and financial support to non-profit organizations to increase their capacity to carry out Conservancy projects in all the above areas.

The Conservancy is an invaluable catalyst for cooperation between state and local government agencies, non-profit organizations, and the private sector. The Conservancy's ability to mediate coastal resource and land use conflicts, and to take advantage of acquisition opportunities in a timely fashion, provides an effective non-regulatory complement to the two Commissions. Faced with growing fiscal constraints and some of the highest coastal land prices in the world, the Conservancy has begun to focus its activities on high priority sites that, but for Conservancy intervention, would be lost forever as precious economic, environmental, or recreational resources.

ACCOMPLISHMENTS

▸ Public Access and Recreational Opportunities: Coastal-related recreation in the state has been estimated to generate over $800 million annually. Coastal attractions contribute strongly to the $27 billion in tourism revenues collected annually by the state's coastal counties. As a result of Coastal Commission action, over 2300 easements for public beach access and recreational use have been secured in connection with new development. Over 30 miles of coastline previously closed to public use have been opened. Many thousands of acres of new coastal parklands have been added to local, State and federal park systems. New campgrounds, youth hostels, hotels and other recreation-oriented facilities have been required or permitted under the coastal program. During the same period BCDC increased public access to the Bay shoreline from less than ten miles to over 100 miles. Together with local governments and non-profit organizations, the Conservancy has turned nearly 200 public access easements into recreational facilities for the permanent enjoyment of California's visitors and residents.

▸ Appropriate Economic Development: California's coastal management program provides for stable growth with environmental protection to serve the needs of tourism, industry, agriculture, and recreation. The Coastal Commission and Bay Commission have approved billions of dollars worth of development while increasing public access to the coast and Bay shoreline, ensuring that projects minimize adverse environmental impacts, protecting environmentally sensitive habitats, reducing fill in San Francisco Bay and other bays and estuaries, concentrating development where adequate public services exist, maintaining scenic coastal views, and preserving productive agricultural land.

▸ Commercial Fisheries: California's commercial fishing industry harvests up to $200 million worth of fish annually. Coastal Commission policies promote the protection and upgrading of harbor space, the enhancement of commercially harvested wildlife, the prevention of harm from offshore oil development of seawater intakes of onshore facilities, and ocean waste disposal. The Conservancy's waterfront facility development and enhancement projects have directly boosted the industry's competitiveness.

▸ Local Government Decision Making: The Coastal Commission and BCDC have fostered effective partnerships with local governments to ensure that local planning and development decisions reflect statewide policies for the conservation and sound use of coastal resources. A local government obtains the authority to issue coastal development permits through the submission and Coastal Commission approval of a Local Coastal Program (LCP) for its portion of the coastal zone. Similarly, a Suisun Marsh local government gains permitting authority when BCDC approves its local protection program. By 1992, the Coastal Commission delegated permitting authority to local governments in 51 of 73 designated jurisdictions, representing 78% of the coastline. BCDC has delegated permitting authority to all of the Suisun Marsh local governments.

▸ Providing for Long-Term Port Needs: The Coastal Commission port planning process reserves appropriate coastal areas for the present and future needs of the four deepwater commercial ports located in the coastal zone (Los Angeles, Long Beach, San Diego, and Hueneme) while protecting the coastal environment. For example, the Commission is currently working with the Corps of Engineers and Port of Los Angeles on projects designed to meet the port's cargo facility and infrastructure requirements through the year 2020, generating thousands of construction and operations-related jobs for the southern California economy. Mitigation actions required in connection with these projects are expected to restore nearly 600 acres of wetlands. Similarly, BCDC prepared a Regional Seaport Plan to help assure that Bay Area ports have sufficient lands to provide for future shipping demand

with a minimum of fill in the Bay. The plan, drafted jointly with the regional transportation planning agency, establishes port policies and identifies shipping terminal sites to meet projected needs.

▸ Promoting Sound Dredging Policies in San Francisco Bay: Regular dredging of much of San Francisco Bay is necessary to serve the needs of its ports, marine oil facilities, and many recreational marinas. Historically, dredged materials have often degraded fishery, navigation and other important uses. BCDC has advocated for reuse and non-aquatic disposal options to provide predictability for the dredging community while allowing for wetland enhancement as well as providing materials for levee reconstruction, construction material, and land cover for landfills. The Conservancy is now developing and implementing innovative projects to safely use uncontaminated dredge material from ports to restore Bay area tidal marshes.

▸ Promoting Sound Development of Oil and Gas Resources: By exercising its federal consistency review authority the Coastal Commission has ensured that 41 outer continental shelf oil and gas plans of exploration, development and production include the strongest possible coastline protection provisions while allowing industry to exploit this valuable resource. In State waters the Commission's permitting powers protect coastal resources by encouraging the use of consolidated energy facilities and onshore pipeline transport of oil instead of tankering. In addition, the Coastal Commission and BCDC are two of the key agencies implementing the state's Oil Spill Prevention and Response Act of 1990, which imposes stringent requirements on oil transporters and marine facilities to reduce the risk of oil spills and effectively respond to spills when they do occur.

▸ Protecting and Restoring Wetlands: Wetlands are now valued as highly productive habitat for commercially and recreationally harvested fish and wildlife, refuges for endangered species, and mechanisms for controlling pollution and floods. In 1974, the Coastal Commission found that over half of the nearly 200,000 acres of coastal wetlands that existed at the turn of the century had been destroyed by dredging and filling, including 90% of all southern California wetlands. Both the Coastal Act and the San Francisco Bay Plan restrict new development in wetlands and require their restoration as a condition of development permits. Both agencies work closely with federal agencies, including the Army Corps of Engineers, the Fish and Wildlife Service, and the National Marine Fisheries Service. The results are readily observed in San Francisco Bay, which by the early 1960s was being filled at the rate of up to 2,300 acres per year. The trend has since been reversed such that the Bay is now slightly larger than it was in 1965, when BCDC was established. In addition, BCDC's Suisun Marsh Protection Plan forms the basis for protecting the largest remaining wetland in the state. The Conservancy and local non-profit organizations complement these regulatory actions with on-the-ground projects in wetlands, estuarine, watershed, and riparian restoration and enhancement, acquisition, technical assistance, and public education.

▸ Restoring Urban Waterfronts: The Conservancy's Urban Waterfronts Program seeks to restore these areas as vital economic and cultural components of a community. Since 1981, the Conservancy has used approximately $20 million to leverage an additional $100 million from other public and private sources to fund over 60 projects. Projects include: commercial fishing facilities such as docks and marina berthing; new and restored public piers and fishing wharfs; coastal parks and public access facilities; and educational facilities.

▸ Mitigating Environmental Impacts Through Public-Private Cooperation: Shrinking public funding for coastal protection increases the importance of public agencies finding creative ways to work with the private sector. A prime example is the Coastal Commission's agreement with Southern California Edison (SCE). The utility will fund one of the largest mitigation efforts ever attempted in the United

States to address the significant reduction in fish stocks caused by SCE's San Onofre Nuclear Generating Station (SONGS). The Conservancy broadens its impact by enabling non-profit organizations, through technical assistance and targeted grants, to carry out their own coastal restoration, public access, and agricultural preservation programs. In the past 16 years the Conservancy has channeled nearly $40 million to 78 different organizations which have carried out almost 200 projects. BCDC chairs a trustee committee that is using an $11 million payment from Shell Oil Company to enhance wetlands that were damaged by a 1986 oil spill into San Francisco Bay.

▸ Providing Economic Incentives for Coastal Protection: Mounting population pressures and limited funds for open space acquisition have prompted the Coastal Commission and the Conservancy, in partnership with local governments, to develop innovative mechanisms for preventing certain types of inappropriate coastal development. The best examples are the transfer of development credit (TDC) programs which encourage property owners to extinguish development rights on parcels zoned for residential use in the past, but which are judged unsuitable for development by today's standards. In the ruggedly beautiful and steeply-sloped areas of the Santa Monica Mountains, a TDC program allows permit applicants wishing to subdivide or build a multi-family project in a nearby area to mitigate the environmental impacts of their project by purchasing the rights to develop a parcel of land in a threatened area. This has permanently protected over 500 parcels of land at no cost to the taxpayers, preventing erosion hazards, destruction of environmentally sensitive habitat and watersheds, and degradation of scenic views. The TDC program in a 90-mile stretch of the Big Sur coast is built around a single objective standard for protecting the scenic and open space character of the coastline: a prohibition on any development which can be seen from Highway 1. Owners of existing, otherwise developable residential parcels in the "critical viewshed" of Highway 1 who extinguish their development rights are compensated with two development credits for every affected parcel of land, applicable elsewhere in Monterey County. These credits can be used, for example, to double the allowed density of development. Preserving the scenic quality of this area permanently protects an asset which has generated millions of tourism dollars for the state.

▸ Advocating for Improved Bay and Coastal Water Quality: For San Francisco Bay to function as a healthy estuary sufficient fresh water must be made available for all beneficial uses. Yet, more than 50% of the fresh water that would otherwise flow into the Bay from more than three-quarters of the state is diverted, mainly for agricultural use in the Central Valley. BCDC continues to actively participate in the State Water Resource Control Board's (SWRCB) ongoing, complex and lengthy hearings, advocating for the estuary's many users. At the statewide level, the Coastal Commission has taken the lead, in cooperation with SWRCB and the U.S. Environmental Protection Agency, to develop a nonpoint pollution control component of California's coastal management program. This effort, mandated by a 1990 amendment to the federal Coastal Zone Management Act, will address polluted runoff from various activities, including: urban land uses; agriculture; forestry; marinas and recreational boating; and stream channelization and other waterbody modifications. There also will be a special focus on the habitat protection needs of wetlands and riparian areas.

▸ Restoring Damaged Areas, Protecting Agricultural Lands, and Preserving Future Options: The Conservancy's Resource Enhancement Program seeks to halt damage resulting from the draining and filling of wetlands, the destruction of dunes that buffer inland areas from encroaching seas, and the erosion that loads streams with sediments and increases the need for costly dredging. Since 1978 it has done so in 167 projects located in every coastal and San Francisco Bay county at a cost of $49 million. Projects include watershed

protection, wetlands restoration, revegetation, and the acquisition of 1,500 acres of critical coastal sites. The Agricultural Program has: protected approximately 7,000 acres of productive coastal land; funded projects to demonstrate agricultural conservation techniques; mediated disputes between agricultural, urban, and natural resource protection interests; and promoted the work of land trusts. In less stringent economic times the Conservancy's Site Reservation Program purchased coastal parcels with high resource values as a "stand-in" for a permanent acquiring agency. This allowed the state to respond flexibly to the private market to acquire over 5,000 acres of key resource lands at opportune times and minimize the cost of land acquisitions.

▸ Promoting National Marine Sanctuaries: California is home to four of the nation's eleven Marine Sanctuaries including the newest and largest, the Monterey Bay National Marine Sanctuary (MBNMS). Designation as a marine sanctuary promotes the comprehensive management of special ecological, historical, recreational, and aesthetic resources of each site. California's other Marine Sanctuaries are at the Channel Islands, Gulf of the Farallones, and Cordell Banks. In addition to its direct involvement in the formation and multi-agency administration of these areas, the Coastal Commission's impact on sanctuary management is bolstered by its ability to regulate land uses in adjoining areas. Together with the natural field laboratories protected as National Estuarine Research Reserves (two in California at the Tijuana River, and Elkhorn Slough near Monterey), the Sanctuaries serve as an important vehicle for the state's overall coastal program to collaborate with the federal government in promoting long term coastal resource protection and education efforts.

▸ Coastal Education and Public Involvement: The Coastal Commission's Adopt-a-Beach program has resulted in more than 300 local community organizations volunteering to keep their "adopted" beach clean for a year. The most recent Coastal Cleanup Day event gave over 35,000 Californians a "hands on" education about the types and results of pollution on our beaches, information that is disseminated to an even larger audience by the widespread media coverage this event receives every year. Both programs are substantially funded through public/private partnerships with the backing of companies like Pepsi Co. and Lucky foods. These activities are supplemented by seminars for school, church, and citizens' groups as well as public service outreach efforts to television, radio, and print media.

ELKHORN SLOUGH NATIONAL ESTUARINE RESEARCH RESERVE

Location: The Elkhorn Slough National Estuarine Research Reserve is located on the central California coast roughly halfway between the cities of Santa Cruz and Monterey. The Reserve is managed by the California Department of Fish and Game.

Site Description: The Reserve encompasses approximately 1,400 acres of wetland and upland habitat. Elkhorn Slough is the second largest salt marsh is California. The main channel of the slough is more than seven miles long with over 3000 acres of mudflat and tidal channels. Surrounding habitats include coastal dunes, grasslands, oak woodlands, freshwater ponds and maritime chaparral. Hundreds of species of invertebrates, fishes, and birds are found at the Reserve. The channels and tidal creeks are nursery grounds for the young of many species of fish. It is also a critical stopover on the Pacific flyway. Resident marine mammals include harbor seals, sea lions, and sea otters.

Significant Plant and Animal Species: Pickleweed is the dominant vascular plant in the salt marsh that flanks hundreds of acres of mudflat and channel. Three types of woodlands are found in the Reserve: the oak woodland, Monterey pine, and eucalyptus.

The Elkhorn Slough area supports several species of endangered fauna. These include: California brown pelican, California least tern, Santa Cruz long-toed salamander, American peregrine falcon and California clapper rail.

On-site Public Education and Interpretation Programs: The Reserve conducts training programs to prepare teachers to lead field trips to the site. The Reserve also sponsors specialized workshops for educators wanting more in-depth training in natural and cultural history topics. Regularly scheduled interpretive walks are conducted by docents and staff for youth groups as well as the public. Schedules of special events, activities, and public lectures are announced. Brochures and fliers on various subjects are published and distributed. The area is also designated a California Wildlands site under a program dedicated to education and interpretation instituted by the California Department of Fish and Game.

Off-site Public Education and Interpretation Programs: Off-site activities include sponsorship of major public symposia and conferences on the "State of the Bay," participation in local fairs and events with staffed booths, lectures to local service clubs, libraries, and other organizations. Radio and television programs have highlighted Reserve programs and purposes. Reserve staff have sponsored and judged school science fairs and participated in several Symposia for educators, focusing on teaching environmental and scientific issues. The non-profit Elkhorn Slough Foundation helps support research and education both on- and off-site.

Research Program: Research includes work funded by NOAA as well as graduate research carried out by students from the Moss Landing Marine Laboratories, USCS Long Marine Laboratory, and Stanford's Hopkins Marine Station. Research interests have ranged from studies on fish populations to work on erosion and sedimentation in the slough watershed. Of particular interest currently is a NOAA funded study of non-point source pollution.

Monitoring Program: Monitoring programs are performed by several different groups. State Mussel Watch monitors compounds in mussel tissue from Mytilus edulis collected from the Reserve and throughout the watershed. A water monitoring project has been established on the Reserve and utilizes volunteers in the data collection process. A National Weather Service weather station has been established on the Reserve and utilizes volunteers in the data collection process. The complements the station maintained by the Moss Landing Marine Laboratories nearby. Aerial photographs of the entire slough area are taken yearly. Every five to seven years, high resolution infrared aerial photographs are taken.

Volunteer Program: Currently, nearly 100 people volunteer their time on the Reserve and around the slough. Volunteers participate in a 7-week training program in the natural and cultural history of the slough and the logistics of the program. Volunteers provide interpretive services on-site, help in staffing the visitor center, operate the Reserve bookstore, assist with research projects, maintain trails, assist in bookkeeping chores, sponsor special projects, assist in designing and maintaining exhibits, serve as members of the Reserve Advisory Committee and as members of the Board of Directors of thee non-profit organization established to protect the slough, the Elkhorn Slough Foundation.

Facilities: Public facilities at the Reserve include a Visitors Center containing exhibits, a library, and bookstore. Self-guided hiking trails are also open to the public. On-site research facilities include a small laboratory and weather station. Facility expansion is planned for 1993.

For additional information contact:

Elkhorn Slough National Estuarine Research Reserve
1700 Elkhorn Road
Watsonville, CA 95076
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Tijuana River National Estuarine Research Reserve

Origin of the Reserve

The Tijuana River Natural Estuarine Research Reserve (NERR) was established in 1982 when a group of citizens organized as the Southwest Wetlands Interpretive Association (SWIA) joined with the State of California in nominating Tijuana River as southern California's candidate for the NERR program. The NERR program is a partnership between states and the National Oceanic and Atmospheric Administration (NOAA) and now includes a total of 21 reserves, two in California.

Administration

The nine member Tijuana River NERR Management Authority includes the public agencies with jurisdictional interests in the Tijuana River Valley. The Management Authority oversees and guides the reserve program. They meet monthly with subcommittees meeting as needed. Members include the following land owning agencies; California Department of Parks and Recreation (CDPR), U.S. Fish and Wildlife Service (USFWS), County of San Diego, City of San Diego, and the U.S. Navy. The State Coastal Conservancy, the City of Imperial Beach, Coastal Commission and NOAA are non land owning members. State Parks accepted the role of state lead agency. California Department of Parks and Recreation, and the U.S. Fish and Wildlife Service jointly manage day to day operations. San Diego County Parks also plays a major role as operator of 730 acre Tijuana River Valley Regional Park, which includes land in the Reserve and upriver.

Site Description and Key Features

The Tijuana Estuary is a tidal estuary on the international border with Mexico. Three quarters of the 1,735 square mile watershed is in Mexico. The reserve is 2,513 acres of tidal wetland, riparian, uplands, beaches, dunes and agricultural land. The salt marsh habitat is characterized by extremely variable stream flow, with extended periods of drought interrupted by heavy floods in wet years. The Tijuana Estuary is distinguished by being one of the finest tidal wetlands remaining in southern California with a significant number of resident sate and federal endangered species, including: light-footed clapper rail, least bell's viero, California brown pelican, California least tern, Belding's savannah sparrow, wandering skipper butterfly and the plant, salt-marsh bird's beak.

Key features include:

- the international setting;
- migratory stopover for birds on the Pacific flyway (378 species of birds are recorded for the TRV);
- a river mouth without a railroad or highway blocking the opening;
- the best of the few remaining coastal salt marshes in southern California (California leads the nation wetlands destruction -- 90%)

Research

For over 10 years San Diego State University (SDSU)) has conducted research focused on establishing restoration guidelines for arid region coastal wetlands and developing methods and protocols to deal with serious urban contamination problems. The University has a 3 acre field laboratory (Pacific Estuarine Research Laboratory) near the visitor center. Research funding has been provided by NOAA (Sanctuaries and Reserve Division, Sea Grant), U.S. Navy, National Science Foundation, USFWS, SDSU, University of California and State Environmental License Plate Fund. The recent NERR research index (draft) by NOAA lists 18 funded projects at Tijuana River since 1982.

Restoration

TRNERR has a complete habitat restoration plan, ready for implementation, to deal with the significant urban related problems of habitat loss due to sedimentation, filling, and contaminated water runoff. It includes re-creation of 500 acres of tidal wetland habitat.

Education

The program includes a totally bilingual elementary grade curriculum on the ecology of southern California coastal wetlands with field materials, posters, and two videotapes. Over 500 teachers from San Diego, Orange and Los Angeles counties and Baja California are trained in the use of the materials. Teacher training workshops are offered in English and Spanish. These materials are being used by marine educators throughout the U.S. There is an additional teacher workshop in using art to teach science (ART-SCI).
The visitor center has a (bilingual) children's program and cooperates with the local school district in a year round "intersession" program.

Funding for preparation and dissemination of materials comes from various sources including: Calif. License Plate Fund, and NOAA awards.

Facilities

- Field research laboratory including fenced experimental channels, storage trailer and utilities.
- Visitor center -- 6,500 square feet including administrative offices, education laboratory, theater, and exhibit hall (exhibits nearing completion), 4 car garage, shop, caretaker carport and research lab,
- 4 acre native plant demonstration garden, 2.2 miles of beach,
- 6 miles of nature trails, separate from equestrian trails,
- 1 mile of bike and dog trail.

Problems

TRNERR is affected by population pressures from 14 million humans who live within a 150 mile radius. Key problems in maintaining the ecological health of the reserve are:

- waste water discharge from Mexico and urban runoff from local U.S. communities sedimentation due to disturbance in the watershed on both sides of the border.
- trampling of sensitive habitats by illegal immigrants crossing the border,
- helicopter over flights from adjacent Navy base.
- the prospect of extensive gravel extraction next to the reserve.

Connecticut

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Coastal zone management has been a Connecticut success story. All along the coastline, from Greenwich to Stonington, there has been a renaissance of urban waterfront development that has been both environmentally sound and economically beneficial to coastal municipalities. At the same time, great strides have been made in guarding fragile natural resources, preserving and encouraging water dependent activities and restoring acres of wetlands, beaches and barrier islands, and improving marine life. Ongoing coastal management efforts have provided the citizens of Connecticut with better public access to all of the state's waterfront areas.

Efforts to establish Connecticut's Coastal Zone Management Program began in 1975, two years after the passage of the federal Coastal Zone Management Act. After four years of study of the overall effects of coastal activities, identification of critical coastal resources, the exploration of a variety of methods for improving the management of coastline use and development and hundreds of public meetings, Connecticut's Coastal Management Act (CCMA) was passed in 1979 and became effective on January 1, 1980.

The central concept which defines Connecticut's Coastal Zone Management Program is its emphasis on regulating coastal use and development based on *resource* protection criteria rather than traditional zoning models. This use of "resource zoning" allows the Coastal Zone Management Program to emphasize the development of water dependent uses which are compatible with natural resource protection and provide a greater measure of protection to fragile coastal areas. By adopting this unique approach, Connecticut's Coastal Zone Management Program has achieved the goal of striking the delicate balance between the realistic need for coastal towns to grow strong economically, and the responsibility to preserve and protect natural coastal resources and our marine heritage for present and future generations.

The program has given local governments new regulatory authority and planning responsibilities backed by funding, technical assistance and guidance at the state level. In fact, Connecticut's cooperation and coordination with municipalities has served as a model for similar programs across the nation.

Since 1980, all coastal towns in Connecticut have been actively regulating coastal development under the policies of the CCMA. In addition, 31 coastal towns have voluntarily adopted municipal coastal programs which provide a long-range plan for coastal development within the community. Through the Coastal Zone Management Program, 9.5 miles of public access have been added to Connecticut's shoreline and over 1,500 acres of tidal wetlands on Long Island Sound have been restored.

Today, Connecticut's Coastal Zone Management Program is part of the Department of Environmental Protection's (DEP) Office of Long Island Sound Programs (OLISP), a branch of the Commissioner's Office. This office was created in the Spring of 1991 to institute a comprehensive and interdisciplinary approach to Long Island Sound management within the Department. OLISP has primary oversight responsibilities for all of the Department's Long

Island Sound activities and is directly responsible for statewide implementation of Connecticut's Coastal Zone Management Program. The office is also responsible for permitting coastal development in the state's tidal, coastal, and navigable waters, protection and restoration of the state's tidal wetlands and coastal coves and embayments, implementation of the Harbor Management Act, and long range planning for programs and initiatives affecting Long Island Sound. In addition, the office is responsible for the intradepartmental coordination of agency wildlife, fisheries and water quality programs directly affecting Long Island Sound and its natural resources, including the Long Island Sound Research Fund, which annually provides one million dollars in grants to universities and high schools for Long Island Sound related research.

OLISP is currently directing its energies toward several key areas within the Coastal Zone Management Program. Tidal wetlands protection, public access, and nonpoint source pollution have been identified as priority issues for the next decade. Connecticut is the first state in the country to utilize funding provided by the federal Intermodal Surface Transportation Efficiency Act (ISTEA) for the restoration of tidal wetlands. The creation of a Long Island Sound commemorative license plate will provide monies to a dedicated Long Island Sound Fund through public purchase of the plate. Funds will be used for public access projects, marine habitat protection and restoration, marine research, and public education and outreach. In addition, the office is currently evaluating an extension of its coastal boundary to manage nonpoint source pollution control initiatives affecting nearshore water quality in Long Island Sound and its tributaries statewide in conjunction with the Long Island Sound National Estuaries Program.

As we look toward the year 2000, the need for a strong Coastal Zone Management Program in Connecticut will continue to grow. Demands on the coast and its related resources must continue to be balanced with protection of Long Island Sound and its invaluable ecosystems. E-2000, the Department's guidance document for meeting Connecticut's environmental protection needs and goals through the year 2000, includes significant programs devoted to Long Island Sound and the protection and management of its coastal resources. Connecticut's Coastal Zone Management Program is prepared to meet the challenges that lie ahead as we continue our efforts to protect our shoreline for future generations.

ACCOMPLISHMENTS

Tidal Wetlands Restoration

Connecticut's Coastal Zone Management Program has been successfully restoring tidal wetlands for over ten years. Working cooperatively with DEP's Wildlife Division, the Department of Health Services Mosquito and Vector Control Section, the U.S. Fish and Wildlife Service and other groups on these projects, the Coastal Zone Management Program has successfully restored over 1,500 acres of tidal wetlands in the state.

Since the turn of the century, and prior to their statutory protection in 1969, Connecticut has lost over 6,000 acres of tidal wetlands on Long Island Sound and its related rivers to dredging, draining, filling and development. Many of those wetland areas that were not directly altered by development were crisscrossed with mosquito ditches, an effort started in the early 1900's to drain the salt and brackish marshes and prevent mosquito breeding.

The passage of the state Tidal Wetlands Act in 1969 paved the way for efforts to stop the rampant destruction of Connecticut's tidal wetlands by recognizing the tremendous economic and natural value of tidal wetlands and by establishing a regulatory program which has arrested wetland loss to less than one-half acre per year.

While the Tidal Wetlands Act has successfully stopped additional wetland loss, the need to restore those tidal wetland areas not permanently destroyed by development became

one of the Coastal Zone Management Program's top priorities. Since many wetlands were cutoff from tidal flows by highway and railroad causeways, tidegates or mosquito ditching, the program has been able to use a variety of innovative techniques to restore tidal wetlands, all of which are based on the principle of returning tidal flows, or salt water flushing to the site.

Those wetland sites that have been degraded as a result of filling are prime candidates for the use of the state-of-the-art Open Marsh Water Management (OMWM) technique. Using low ground pressure excavators to remove fill and restore tidal channels, a site is restored to its original wetland ecosystem, and surface pools and ponds are created to provide habitat for killifish, which eat mosquito larvae. Once these features are in place and the natural balance has been restored, OMWM has created a self-sufficient mosquito control system and the marsh has been restored in the process. The Coastal Zone Management Program has used this method to successfully restore a variety of tidal wetland systems.

Additional methods have also been used by the Coastal Zone Management Program to restore tidal wetlands including the installation of culverts to restore tidal flushing to those sites which have been diked or impacted as a result of causeways, bridge construction and flood control projects. Self-regulating tidegates have also been used successfully to regulate tidal flow where flooding of adjacent residential properties is of concern. These gates allow a measure of tidal flow which protects low lying properties from flooding.

Connecticut's Coastal Zone Management Program has become a leading expert in tidal wetlands restoration. Many of the projects undertaken during the last decade have served as models for restoration efforts in other parts of the country. Extensive monitoring of these restoration projects by wetlands experts from local colleges and universities has provided a valuable database for future efforts of this type, both in Connecticut and elsewhere.

Long Island Sound License Plate

Faced by tough economic times and diminishing resources traditionally provided by the state's general fund, Connecticut's Coastal Zone Management Program has developed a program to create much needed funds for Long Island Sound and the protection of its coastal resources. On May 27, 1992 Connecticut Governor Lowell P. Weicker, Jr. signed into law a bill creating a Long Island Sound commemorative license plate. Proceeds collected from plate sales will benefit a Long Island Sound Fund administered by the Connecticut Department of Environmental Protection. While other states have adopted similar license plate programs for specific natural resource protection, this program will be the first in the country to have monies dedicated directly to coastal management activities. The Fund will support the restoration and rehabilitation of tidal wetlands and estuarine embayments, the acquisition and development of public access to Long Island Sound, marine and anadromous fisheries research, habitat preservation and restoration and public outreach and education.

The bill, drafted by the Coastal Zone Management Program, authorizes the Connecticut Department of Motor Vehicles (DMV) to issue the plate, which is available on an elective basis as a valid Connecticut motor vehicle license plate. The plate depicts a Connecticut coastline, with a lighthouse on the left and beach grass on the right. The words "Preserve the Sound" are centered beneath the ID numbers. Plates are obtained upon payment of a fee in addition to the standard fee for auto registration.

The Long Island Sound plates will be sold for a fifty dollar minimum charge. Fifteen dollars from each plate sold will go to the DMV to cover production costs. The remaining monies will go directly into the Long Island Sound Fund. Current estimates are that plate sales may generate up to $10 million which will provide much needed support for programs designed to protect and enhance Connecticut's coastline

and benefit the preservation and protection of Long Island Sound for future generations.

The program has received high visibility nationally and raised interest among many states who are considering modeling similar programs after the Long Island Sound plate effort.

ISTEA

Connecticut's Coastal Zone Management Program will be the first in the nation to use federal monies from the Intermodal Surface Transportation and Efficiency Act (ISTEA) of 1991 for tidal wetlands protection and restoration. Plans were unveiled at a ceremony held in July by U.S. Senator Joseph I. Lieberman and U.S. Representative Rosa DeLauro who supported the legislation. The Deputy U.S. Secretary of Transportation, the director of the federal Environmental Protection Agency's Office of Wetlands, Oceans and Watersheds, the general counsel for the U.S. National Oceanic and Atmospheric Administration, Connecticut Environmental Protection Commissioner Timothy R.E. Keeney, Transportation Commissioner Emil E. Frankel, and Colonel Brink Miller of the U.S. Army Corps of Engineers signed the historic agreement.

The ISTEA agreement is also one of the first of its kind to bring together the state Departments of Environmental Protection and Transportation, the U.S. Army Corps and representatives of federal agencies involved in the management of our nation's coastal areas. These groups have forged a partnership that will pave the way for other states to take advantage of the assistance available through the ISTEA program. This cooperative effort has allowed the state Department of Transportation to recognize the need to protect, preserve and restore the state's environmental resources as it rebuilds and modernizes Connecticut's transportation infrastructure. Through the ISTEA program upwards of $8 million will be made available for tidal wetlands restoration work in Connecticut.

As highway and railway improvements are made in the state, the ISTEA funds will be accessed to restore wetland sites that were impacted in the past, or mitigate sites that might be newly affected. Connecticut has at least 358 bridges that could be affected by this program, and the Department of Environmental Protection has begun implementation of a wetlands compensation policy that will create a wetland banking program to be used in situations where unavoidable losses may occur. Unlike other wetland banking programs, this policy directs the state Department of Transportation to conduct restoration projects now, which will then be credited to the bank, thereby ensuring that when drawn upon, wetland credits will already be available rather than relying on potentially high risk "loans".

An initial step in the process will be a reconnaissance study to determine wetland restoration sites associated with Amtrak railbed upgrades. The U.S. Army Corps will provide $70,000 and Connecticut's Coastal Zone Management Program $30,000 to fund the study. ISTEA funding will then be provided to implement the results of the study, which is designed to produce a prioritized list of tidal wetland sites eligible for the program. The chosen restoration sites must exhibit degradation resulting from the development of transportation corridors through reductions in tidal flows, discharge of stormwater or the displacement of marsh vegetation through the invasion of common reeds in brackish tidal wetlands.

By making use of the ISTEA monies available for tidal wetlands restoration, Connecticut's Coastal Zone Management Program has set the stage for other coastal states to follow suit. In a difficult economy, this opportunity will provide a reliable source of funding to ensure that coastal protection will continue into the next century with the same dedication and success as has been exhibited over the last two decades.

Delaware

COASTAL MANAGEMENT PROGRAM

BACKGROUND

In 1972 Congress passed the Coastal Zone Management Act to encourage states to preserve and protect the resources of the coastal zone. Passage of the act was spurred by the recognition that unplanned and uncontrolled exploitation of coastal resources was resulting in the destruction of "important ecological, cultural, historic, and esthetic values in the coastal zone which are essential to the well-being of all citizens". Basically, this Federal program makes funds available to the states for the development and implementation of comprehensive land and water use controls and management plans for their coastal areas.

The State of Delaware has participated in this program since its inception. The purpose of the Delaware Coastal Management Program (DCMP) is to provide a systematic approach to decision making regarding the use of Delaware's coastal and marine resources in a manner that will provide for reasonable growth and development while conserving and protecting the State's irreplaceable resources. The current emphasis in the Delaware program is in sediment and stormwater control, wetlands rehabilitation, estuarine conservation, coastal hazards reduction, coastal access, and public information and education.

Sediment and Stormwater

Non-point source runoff of eroded sediments poses a major threat to the nation's coastal ecosystems and the local economies they support. Sediment erosion problems are particularly acute in the mid-Atlantic coastal plain, where extensive agriculture and expanding development annually discharge massive sediment loads into fragile watersheds and estuaries. The DCMP has responded to this situation through its support of and assistance with the implementation of the 1990 Erosion and Sedimentation and Stormwater Management Act and Regulations.

Wetlands Rehabilitation

Tidal wetland rehabilitation efforts, if undertaken at all, are undertaken in an incremental way. For those tidal wetland areas that have historically been degraded by man's misuse, neglect, and mismanagement, little in the way of comprehensive rehabilitation efforts have been attempted. Through the DCMP this issue is being addressed under the "Christina/Delaware Rivers Urban Wetland Corridor Rehabilitation" project. This project is designed to comprehensively address the issue of rehabilitating degraded urban wetlands with the goal of improving wildlife habitat, increasing public access, and providing opportunities for environmental interpretation and education.

Estuarine Conservation

Delaware has long recognized the economic, social and ecological importance of its two major estuarine ecosystems: the Delaware Bay and the Inland Bays. Environmental pressures on these critical areas include: habitat loss, degraded water quality, closed shellfish beds, and conflicting resource uses. To help address some of these issues, the DCMP has assisted in the implementation of the Inland Bays Recovery Initiative -- an integrated watershed approach that targeted some 38 specific tasks aimed at reversing the environmental degradation of the past 30 years.

Coastal Hazards Reduction

Delaware's Beach Preservation Act sets out to preserve the beach and primary dune, because of their ability to buffer storm wave energy. The Act does not directly treat construction standards in hazard zones. As was clearly evident in the January 4, 1992 storm, buildings located in these areas were damaged by storm waves. The DCMP has, as a priority, the need to improve upon its coastal hazard reduction efforts. This will be done through the implementation of a post-storm management plan and an evaluation of the need for and development of specific construction standards in high hazard areas.

Coastal Access

Public access to the Nation's coastline is a basic tenet of the Federal Coastal Zone Management Program. The DCMP supports this goal through its coastal access project. This project includes surveying and mapping work on State lands to protect against encroachment and to assist in the development of the State's Coastal Greenways Program.

Public Information and Education

The DCMP has had and continues to have a strong commitment to public information and education. This commitment has included providing the media and public information support for the Inland Bays Recovery Initiative, the development of a sediment and stormwater information video, and increasing the awareness of the public on Delaware's coastal management issues.

For Additional Information:

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ACCOMPLISHMENTS

The Delaware Coastal Management Program (DCMP) accomplishments are numerous and varied. Recent meritorious accomplishment include:

A. Successful completion of The Inland Bays Recovery Initiative.

An intensive two year effort (1990 - 1992) resulted in:

1. Development of Conservation plans for NPS pollution control on over half of the agricultural lands in the watershed (32,000 acres). The plans addressed erosion control, nutrient management, pest management, and farm profits with environmental gains.

2. Improving stormwater management in new developments. Over 40 sediment and stormwater plans for new developments based upon new regulations were approved. Three hundred and sixty five people completed a training and certification program. An Environmental Protection Officer position was established to inspect stormwater control projects in the watershed.

3. Developed and promulgated environmental regulations governing the location and design of new marinas. Regulations also require existing marinas to submit an Operation and Maintenance plan focusing on pollution prevention and control.

4. Management of water and wastewater facilities in a more environmentally sound manner. Central water supply systems are required for subdivisions serving more that 15 units. Central sewers are planned or in place for areas currently served by over 10,000 septic systems. Recycling and reuse of wastewater coupled with the preservation of open space is encourage by requiring spray irrigation systems wherever feasible.

5. Improved land use planning through the creation of a partnership between the State and Sussex County, assignment of a state planner to county planning and zoning meetings, and development of a build-out map for the watershed. During the Initiative over 465 acres were acquired by the Division of Parks and Recreation for Open Space.

6. Increased use of natural vegetation and stone to stabilize shoreline and provide wildlife habitat. Re-opened previous closed shellfish beds when conditions are favorable. Demonstration projects establishing the feasibility of re-establishing submerged aquatic vegetation and stocking shellfish were completed.

B. Reduction of Coastal Hazards

The beauty of Delaware's Coast has attracted hundreds of thousands of people from near-by metropolitan areas. Historically, construction standards for the developments housing these people has not addressed the effects of big storms. In January of 1992 a twenty five year storm pounded Delaware's coast. Fortunately Coastal Hazard Mitigation was on DCMP's agenda and plans were in place to develop a mechanism to plan for and manage the after effects of big storms. A Storm Preparedness and Response Plan has recently been completed that addresses (1)pre-storm planning, (2)post-storm recovery and (3)post-storm reconstruction.

The pre-storm plan articulates long-term goals, policies and objectives related to beach front management, condemnations and/or acquisition of property, beach nourishment and related topics. The post-storm recovery component addresses damage assessment, access control, debris removal and disposal, emergency food, water, ice and medical supplies, protective measures to prevent further damage and coordination between governmental agencies. The post-storm reconstruction component deals with specific reconstruction standards and procedures. It addresses repair/reconstruction of habitable structures, seawall, roads, infrastructure, etc.

C. Increased Public Access to Delaware's Coast

The DCMP continues to provide the tools needed to increase public access to the coast. Surveying and mapping work on state lands provides protection from encroachment due to natural processes such as accretion, sea rise, shifting sands, as well as encroachment effects from development in the highly desirable lands along the coast. These efforts are coupled with efforts to acquire and/or protect and preserve open space under the State Greenspace, Greenway and Cultural Heritage Greenway programs. DCMP supports a survey crew that is needed to monitor over 60,000 acres of state parks, conservation easements, Fish & Wildlife lands, forest and nature preserves. During the last eight years the State has spent over 31 million dollars to acquire 7,666 acres of public lands. The survey crew monitors boundary lines and establishes monuments to ensure public access to recreational areas within the Coastal Zone. Past experience has shown that without a monitoring and monumenting plan many acres of public lands will be lost for present and future generations.

DELAWARE NATIONAL ESTUARINE RESEARCH RESERVE (DNERR)

MISSION

The mission of DNERR is to establish a natural research and education area which is representative of the diversity of coastal ecosystems found within the Mid-Atlantic Region. The valuable natural and cultural resources will be protected for long term research and education by designation of the Reserve as a National Estuarine Research Reserve under section 315 of the CZMA.

BACKGROUND

During the early 1980's, the Delaware Department of Natural Resources and Environmental Control (DNREC) examined the NERR System's precursor, the National Estuarine Sanctuary Program, established in Section 315 of the Coastal Zone Management Act of 1972. While the old Sanctuary Program had several desirable attributes, it did not have enough flexibility or utility within the context of Delaware's resource needs to warrant the State's support. However, during the mid-1980's, the Estuarine Sanctuary Program evolved into today's NERRS program, having a greater emphasis on applied research and environmental education, while allowing more flexibility in the administration of the reserve sites to accommodate multiple uses and to respond to management needs. This change occurred when the Coastal Zone Management Act was re-authorized in 1986, in which Section 315 of the Act was changed to the NERRS program with its new emphasis. With this new direction at the federal level, the DNREC again became interested in the program for Delaware, and in 1988 started a pro-active inquiry.

MANAGEMENT

The Management of the Reserve will be provided by a complete integration of State wide coastal resource managers, scientists, educators, researchers, and citizen advocates operating from a common on site facility that will stimulate and refine interactions of these diverse groups. This collaborated effort will provide government officials, citizen representatives, estuarine users and other coastal decision makers additional sound information for the basis of their actions.

STATUS

Delaware has nominated and prepared a Draft Management Plan/FEIS for the Blackbird Creek and the St. Jones River as a two component NERR. NOAA is expected to approve the DMP/FEIS by this summer which will start the initial acquisition and development phase that is to last no longer than 3 years (NERRS Regulations, 15 CFR Part 921, Subpart C, section 921.20).

By taking advantage of market opportunities, Delaware has purchased with 100% State funds 910 acres of fee simple lands and conservation easements within the proposed Reserve boundary at a cost of $938,000 (this is matchable to NOAA federal funds when other key lands are available for purchase).

The State and NOAA have committed $175,000 to design the on site Education and Research facility as a commitment towards the operation of the Reserve.

The State has allocated and is spending $116,000 of State Greenway funds towards the construction of environmental/cultural trails, boardwalks, education stations, and a boat launch on the Reserve in order to further connect and collaborate the implementation of the Reserve's mission.

EXPECTATIONS

Delaware's participation in the NERR System will help strengthen the federal program by establishing the first System located in the NERRS' Middle Atlantic sub-region (Sandy Hook, N.J. to Cape Hatteras, exclusive of Chesapeake Bay) of the Virginian biogeographic region. Nationally, there are 27 biogeographic sub-regions recognized by NOAA's classification system. In terms of benefiting Delaware, the federal NERR System will provide financial assistance awards, on a 50:50 matching basis, to the State to acquire and develop estuarine areas as natural field laboratories and environmental education centers. NOAA also will provide up to 70% of the operation costs and education grants. Additionally, a NERRS program in Delaware will help to conserve open, undeveloped spaces and provide areas for outdoor recreation, all done in a manner which accommodates conservation-compatible, traditional resource uses.

Delaware's participation in the NERRS program will permit the acquisition and long-term management of selected estuarine areas to provide outdoor laboratories for studying ecological structure, functions and processes, as well as the effects of man-induced alterations or stresses. DNERR sites will also serve to educate students and the general public about the environmental roles and values of estuarine areas. Additionally, the protection of relatively undisturbed natural areas will permit the wise use of their natural resources to continue, typically in association with outdoor recreational activities.

Florida

COASTAL MANAGEMENT PROGRAM

Floridians are fortunate to have our nation's second longest coast—some 8,400 miles of tidally influenced shoreline, with no point in the state more than 65 miles from the shore. Along these coasts, we find many valuable resources in need of protection, including broad coastal wetlands, vast estuaries and some of the most beautiful beaches in the world.

The Florida Coastal Management Program is a network—of agencies, statutes and projects, dedicated to preserving these valuable resources.

THE NETWORK

The Florida Coastal Management Program is a partnership of 11 state agencies working together to encourage the protection, preservation and wise development of the coastal areas of Florida. The program is approved by the National Oceanic and Atmospheric Administration to serve as a guide for state and federal activities in the coastal zone.

The lead agency for the FCMP is the Florida Department of Community Affairs—the agency charged with implementing the state's growth management, emergency management and housing programs. Being in the DCA allows the FCMP to interact productively with 195 local governments in the coastal area. Working with local governments to identify methods for protecting coastal resources is one of the recent achievements of the coastal program.

The state agencies involved in implementing the state's FCMP include those actively involved in both the development and protection of the state's resources. The FCMP agencies include the Florida departments of Environmental Protection, Transportation, Commerce, and Labor and Employment Security, as well as the Office of the Governor, and the divisions of Environmental Health, Historical Resources, Forestry; the Marine Resources Commission; and the Game and Fresh Water Fish Commission.

The Citizens Advisory Committee on Coastal Resources Management, a 15-member board appointed by the Governor, provides advice and recommendations to the FCMP. The Citizens Advisory Committee has an extensive program for increasing citizen involvement, focusing primarily on involvement of local decision-makers and the business community.

The mission of the FCMP is to carry out the intent of the Coastal Zone Management Act, which is "to preserve, protect, develop, and where possible, to restore and enhance, the resources of the nation's coastal zone for this and succeeding generations" and to "achieve wise use of the land and water resources of the coastal zone, giving full consideration to ecological, cultural, historic and aesthetic values as well as to needs for economic development." The FCMP has three primary responsibilities: federal consistency review; financial assistance; intergovernmental coordination and communication.

FCMP agencies work together to resolve coastal issues and to prepare the annual Coastal Action Plan. These networked agencies also work cooperatively to review federal projects and permits for consistency with the coastal program and to initiate coordination efforts, such as regional training for environmental professionals and the Coastal Information Exchange Bulletin Board System (CIE-BBS).

COASTAL ACTION PLAN

The 1995 -1997 Coastal Action Plan serves three primary purposes. First, it clearly expresses the priorities for the Florida Coastal Management Program and its network of partners, including state agencies and the Governor's Citizens Advisory Committee for Coastal Resources Management. It identifies areas in which existing state and local programs can work together to sustain Florida's coastal resources.

Second, this plan serves as the basis for the expenditure of coastal zone management grant funds, awarded to the state from the National Oceanic and Atmospheric Administration. Third, this plan, reaffirms Florida's commitment to the federal Coastal Zone Management Act and Florida Coastal Zone Management Act. It is also a pledge to Floridians that this Coastal Action Plan will continue to address emerging coastal issues.

Three priority issues are detailed in the Coastal Action Plan. The first priority issue, a **comprehensive management program**, is to balance competing coastal uses through a cross-disciplinary approach to coastal management. The key to this issue is coordination among all appropriate participants, including local, regional, state and federal levels. It is also important to focus on all economic, social and environmental aspects of the coastal community. In particular, the plan addresses the importance of revitalizing Florida's working waterfronts.

The second issue, **coastal ocean resources**, is to restore, protect and/or acquire significant coastal and ocean sites that will be lost or destroyed without state, regional or local action. It is important to develop a comprehensive policy that balances the need to protect our natural resources with the need to provide public access and with the need to enhance deepwater ports.

The plan also seeks to implement a program for the enhancement of fish and wildlife habitats, as well as to advance Florida's program's of nonpoint source pollution control and land acquisition and preservation.

The third priority issue, **coastal hazards**, is to reduce risk and damage to Florida's population and resources through disaster mitigation planning. Every local government in the coastal area needs to have specific hazard mitigation plans that include measures to protect resources during recovery operations. The state needs to quickly coordinate efforts to facilitate recovery form each declared disaster.

SELECTED ACCOMPLISHMENTS

- Sponsored 33 workshops during which 950 environmental professionals were trained on topics, such as stormwater management, land acquisition, funding sources, marine education on coastal research.

- Conducted a three-day conference, *Weathering the Storm*, attended by more than 265 people.

- Reviewed thousands of actions for consistency with the FCMP. These actions have an economic value of more than $2 billion.

- Approved applications for subgrants from state agencies, water management districts, regional planning councils and local governments.

- Produced quarterly, critically acclaimed newsletter, as well as other publications, ranging from fact sheets to annual reports.

FUTURE ACTION ITEMS

- Production of a study of the economic value of coastal resources to economic activities, specifically of an estuary to adjoining communities.

- Identification of working waterfront neighborhoods in coastal communities and plans for revitalization.

- Development of plans for acquisition and development of beach access sites.

- Implementation of access programs for coastal heritage sites.

- Establishment of a proposal by a local government to develop and adopt a hazard-mitigation plan in accordance with state rules.

Guam

COASTAL MANAGEMENT PROGRAM

BACKGROUND

After nearly five years of program development, the Guam Coastal Management Program, or GCMP, was approved for implementation in 1979. Originally conceived in a "false boom" period, the GCMP was designed to be the bridge that linked the concerns of the environment in a nearly pristine arena, with the economic necessities of intrusive land development required to overcome the "dependent ward" role Guam had been thrust into by nearly eighty years of being on the receiving end of a Manifest Destiny oriented stewardship.

With a true economic boom which began less than five years after program approval, and which has resulted in many billions of dollars of development over less than a decade, the GCMP, through its network of agencies, undertook a wide range of efforts to develop a more thorough, comprehensive, and objective system for development review, permit application, resource management, and growth predictability. Through its educational efforts, the GCMP has affected the way in which non-expert, decision-makers review, approve and condition new development. Through its monitoring efforts, the GCMP has helped to foster a greater enforcement awareness of the impacts of unguided development. Through its policy making efforts, the GCMP has helped to design the fabric of the community for this and succeeding generations.

Although the funding for the GCMP has decreased, in terms of real dollars, to substantially less than what was available at program inception, and the problems associated with resource management have become more complex and costly, the GCMP has responded by becoming more active in defining problems and opportunities for both the natural environment and the developed community. Wetlands issues, public education, stormwater and nonpoint source issues, handicapped access, and coastal hazards are all at the forefront of GCMP efforts. These efforts run the gamut from research and policy development, to plan development and implementation.

Wetlands

In an area that is both limited in size and isolated from the translocational influences (inter-zonal special mixing), that larger and more diverse geographic systems are subject to, the importance of wetlands on Guam take on greater character. In developing the GCMP, the wetland issues, and their importance to the community, were defined for the first time, and regulations for guiding their management and protection were developed and adopted as one of the foundations of the Program. These regulations resulted in the requirements for a "wetlands permit" review and approval.

Public Education

In an area where, as a pre-boom community, environmental quality and resource protection were taken for granted, the GCMP began an early effort to acquaint the public with the potential threats that the anticipated development for tourism presented to the quality of the resource base. Through the printing and distribution of a series of environmental posters, teacher packets for wildlife education, monthly newsletters, video and audio public service announcements, and the availability of expert speakers for a wide range of forums, the public

has been better prepared for making decisions regarding the size, location, and speed of development. Impacts, both positive and negative, can be more readily assessed, and decisions to meet the needs of both environment and man can be more intelligently formed.

Coastal Access

As one of the eight development policies which form the foundation of the GCMP, the rights of the public for reasonable access to the coast and its resources has always been an important consideration in the review and/or formulation of policy-making and development application. This issue is of much greater importance in an island environment, where the entire population lives, and has always lived, within the coastal zone. An island is a coast, as opposed to a continental State which merely has a coast. The GCMP has been directly responsible for increasing accessibility to the shore.

Inter-Agency Coordination and Cooperation

Prior to development of the GCMP, the agencies responsible for the seemingly disparate authorities relating to land-use, environmental management, historic preservation, access, and infrastructure development, had no venue in which to coordinate their functions. Permitting, review, monitoring, enforcement, and planning, were undertaken individually and from somewhat limited perspectives. The creation of the GCMP in a network fashion, allowed for the parts to speak as a whole, thus creating a more comprehensive, and therefore more cost-effective and product-effective process. The GCMP was designed, and has operated as a conscience and voice for what may be conflicting means to achieve common goals.

Development Review

Representing the Bureau of Planning as a member of the Development Review Committee, the GCMP reviews all substantial development applications, as well as many more which are subtle in their potential for negative impact. Ranging from a two billion dollar resort request, to a request for a variance to the height of a business sign, the GCMP presents its comments to the decision-makers based on both short and long term impacts to the natural and man-made environment, as viewed through the intent of Territorial policy. This ability to input has prevented some unwise development from occurring, and has allowed for the modification of other requests in order to allow them to proceed in a manner consistent with community and environmental good.

Master Planning

The Guam Coastal Management Program, as representative for the Bureau of Planning, has and continues to play a major role in master plan development. The GCMP is responsible for the, as yet to be implemented, East Agana Waterfront Redevelopment Plan; initiating and playing the major role in creation and adoption of the Recreation Water-Use Management Plan; and continues to play a major role in the development of the Master Plan for Guam, through its efforts as a member of the Technical Advisory Committee for the Land-Use Element, which is the first element of the total plan effort. Through its roles in plan development, the GCMP has assured that the policies of the Program and the needs of both the natural and human environments can be addressed.

ACCOMPLISHMENTS

Lands acquired from the Federal Government on a portion of an off-shore, barrier reef island, were, to all intents and purposes, closed to public usage because of the lack of human comfort facilities. Being some two miles from mainland Guam, the isolation of the island offered an unique solitude for both resident and visitor alike. Using $45,000 of GCMP funds, the Department of Parks and Recreation was able to install a permanent toilet facility, as well as a fresh water shower. With those additions, the Government of Guam added a pier, thus increasing the use of this park area by approximately 20,000 visitor days per annum.

The Territorial Land-Use Commission, empowered to approve zone changes, zone variances, wetland permits, and seashore development, had acted for more than a decade without any clear, written direction for decisionmaking. The Guam Coastal Management Program developed and produced guidebooks for these appointed commissioners, outlining their duties, discussing the entire range of legal authorities they are responsible for, describing the impacts of their decisions and the reasoning behind the language of the land-use laws, and including all of the Attorney Generals' Opinions regarding the land-use issues. These books were disseminated to the Commission members, and have become the "bible" for land-use decision-making on Guam.

The advent of Jet Ski type recreational water craft brought the realization of conflicts between the various users in Agana Bay, and the potential for human and environmental damage. The GCMP initiated the government's efforts to develop a plan which could meet the demands of all the users while protecting the shallow, reef flat ecosystem. The GCMP chaired a coordinated government effort, held a series of public meetings, led the successful effort to develop and have signed an Executive Order prohibiting mechanized uses during the seasonal Manahac (juvenile Rabbit Fish) runs and adopting a map of the six mile long water area for all users. The GCMP also took the major responsibility for ensuring completion and adoption of the rules and regulations for recreational water use which will eventually be applied to all near shore waters. Because of GCMP's efforts, swimmers are no longer endangered by uncontrolled jet skis, hover craft are now banned within all enclosed lagoons and bays, shoreline residents are protected from unnecessary noise levels, commercial users are allowed to continue this viable tourism-related activity, and the nesting areas and fishing areas are protected for future generations.

In order to better maintain control, and allow for more thorough and reliable planning in a boom economy, various agencies of the government began to develop computerized Geographic Information Systems, for tracking their own narrowly defined needs. The GCMP has expended considerable time, effort and money into not only creating its own, more comprehensive system, but has taken the lead in coordinating the efforts of all government agencies to avoid unnecessary duplication of effort, and to ensure that all systems will be compatible in terms of abilities to transfer information from one agency to another. The GCMP has taken great efforts to assist the Department of Land Management in creating a more holistic, Land Information System, and has been instrumental in drafting the scope of work for the contractor, and in tracking the progress and resolving the problems as they become evident. Because of GCMP's efforts, the Government of Guam currently has an interacting Geographic Information System and will shortly have a complete Land Information System, which will allow for the maximum resource protection, economic development, and community supportive planning and decision-making.

Hawaii

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Hawaii's Coastal Zone Management (CZM) Program is a networked organization of state and county government agencies that adhere to common policies and objectives for managing the state's valuable coastal resources. The program also provides an effective coastal perspective for government agencies and the private sector in balancing the needs for economic growth, a clean environment, and coastal recreational opportunities that are important to both tourists and residents. Hawaii has many unique and limited resources that the CZM Program helps protect. Coastal resources include beaches, coral reefs, pristine water quality, scenic and open space areas, recreational areas, wetlands, fishponds, anchialine pools, marine mammals, sea turtles, marinas, commercial and small boat harbors, historic sites, and a variety of marine and terrestrial ecosystems. (Of all bird species presently endangered in the 50 states, 40 percent are from Hawaii) With no point in Hawaii located more than 29 miles from the shores, almost any activity that occurs inland will have an impact on our coastal and ocean resources.

In 1977, the Hawaii Legislature determined that the coastal zone was overregulated and undermanaged. Hence, the CZM Program was designed to complement existing regulatory systems by bringing more focus and emphasis to the management of coastal resources. As a result, the program mandates that all agencies comply with the CZM objectives and policies in their decisions and actions. Within this shared management framework, the various state and county agencies provide fiscal and human resources in implementing the CZM Program.

Hawaii's CZM Program deals with recreation, historic values, scenic and open spaces, ecosystems, natural hazards, beach protection, public participation, and economic uses as significant concerns because they apply to all land and water use activities. With respect to tourism, the State's main economic activity, CZM policies support coastal development and activities essential to maintaining tourism as an economically feasible industry while, at the same time, the policies protect and enhance the scenic and recreational resources and values that are important to residents. The current emphases of the program are public access, coastal hazard mitigation, shoreline setbacks, beach management, wetland management, nonpoint source pollution and coastal water quality, ocean recreation, and ocean resource management.

Public Access

The ocean and beaches are integral to Hawaii's heritage. Residents use them year round, and about 85% of visitors enjoy some form of ocean recreation. Virtually all of Hawaii's shoreline areas are under State ownership. As development pressures in nearshore areas continue, the provision and maintenance of public access is increasingly important. Innovative methods for acquiring public access are currently being investigated.

Shoreline Setbacks

Shoreline setback provisions are implemented by the CZM Program to protect life and property damage from storms, erosion, and other natural and human causes; to prevent interference with natural littoral processes; and to protect view

planes along the shoreline. In conjunction with public access and coastal view studies, the CZM Program is working on formulating effective setbacks to guide development patterns in the shoreline areas.

Beach Management

Hawaii's beaches respond to a variety of dynamic oceanographic, terrestrial, and human factors that determine erosion and accretion trends. Studies indicate that beach erosion problems and responses in insular settings differ from continental seaboards. Effective beach management in Hawaii is a critical concern in view of the role beaches play in maintaining the quality of life for Hawaii's residents and the health of the tourist industry. The CZM Program is involved in developing policies and programs to conserve and enhance beach resources while protecting nearshore properties and resources.

Wetland Management

Wetlands are essential habitats for endemic and endangered Hawaiian waterbirds. In addition to flood protection, they have recreational, scientific, environmental, and economic values. In the U.S., anchialine pools are found only in Hawaii. They are often discovered when undeveloped lands are surveyed for potential development. Anchialine pools are bodies of water that have measurable salinity, tidal influence, but no surface connection to the ocean. They are often discovered when undeveloped lands are surveyed for potential development. Rare species of shrimp and other marine life are found only in these pools. Their protection, management, or alteration are important CZM issues.

Hawaiian fishponds are important cultural and economic resources whose restoration is encouraged by the CZM Program. In addition to studies to assess their historic, cultural, environmental, and economic values, efforts are currently focused on restoring fishponds in the traditional way for aquaculture, cultural enhancement, and as tourist attractions.

Nonpoint Source Pollution and Coastal Water Quality

Nonpoint source pollution affects ground, surface, and nearshore water quality, and aquatic ecosystems in Hawaii. Sediment is the most visible and prevalent pollutant, originating primarily from agriculture, silviculture, urban, municipal, and industrial activities. Given the importance of high quality ground, surface, and coastal waters for residents and tourists, the CZM Program is currently developing a comprehensive statewide coastal nonpoint pollution control program. The strategy is to coordinate among, and streamline, existing nonpoint pollution control processes. The program is expected to be practically and economically feasible, and result in real improvements to water quality.

Ocean Recreation

Hawaii's coastal waters provide residents and visitors a diverse mix of recreational and economic opportunities such as fishing, swimming, SCUBA diving, boating, surfing, windsurfing, jet skiing, submarine expeditions, and parasailing. Use conflicts require ongoing management resolution. In addition, controversies over the use of public resources for private purposes have emerged. The CZM Program is actively involved with federal, state, county agencies and the public in resolving use conflicts in a way that balances the needs for environmental protection, economic development, and cultural enhancement.

Ocean Resources Management

Hawaii's archipelago extends 1,523 miles across the Pacific Ocean and has abundant and diverse natural resources such as marine minerals, fisheries, coral reefs, wildlife refuges, habitat for the humpback whale, and other endangered marine species. The CZM Program actively participated in the development of Hawaii's Ocean Resources Management Plan and has a major role in coordinating and implementing the plan.

CZM ACCOMPLISHMENTS

▸ The CZM Program has prevented inconsistent development along Hawaii's coastline. As a result, additional public access has been provided and developments are better designed to conform with the environmental values.

▸ Public access studies have been developed for the four counties. Building on these studies, the State Department of Land and Natural Resources developed and is currently implementing a statewide trail and access program extending from the coast to the mountain areas. In addition, public access signs and guides with maps have been prepared so that the public can identify public access routes and enjoy these public resources. The County of Maui has gone even further with the development and implementation of a community adopt-an-access program.

▸ Hawaiian fishponds were inventoried and assessed for historic, aquaculture, and recreational values to determine their disposition and management needs. For those fishponds with cultural and economic potential, the study was a catalyst for community based restoration projects.

▸ Beach management studies have been prepared, and the public is better informed about the causes and implications of beach erosion. Where seawalls or revetments are necessary to protect nearshore structures, more attention is being paid to design and location to minimize the loss of public sand beaches.

▸ After major hurricanes striking Hawaii within a decade, the Hawaii CZM Program is attempting to focus greater public awareness on ways to reduce Hawaii's vulnerability to hurricanes, tsunamis, and natural hazards in general. Coastal areas subject to hazards are being comprehensively mapped. In addition, tighter enforcement of existing floodplain and shoreline setback regulations, the designation of coastal high hazard areas, and the establishment of a hazard mitigation review process are being urged. The State's CZM policies and objectives now specifically address hurricanes and storm winds as coastal hazards, and additional legislation relating to disaster mitigation planning is presently being formulated to address the many related building construction, insurance, and land use issues.

▸ The State's computerized geographic information system, initiated by the CZM Program, is being expanded with additional ocean and watershed data to coverages, and newer, faster workstations. It is being used increasingly for land use planning and analysis at both state and county levels of government.

▸ Hawaii's coastal nonpoint pollution control program is being developed in cooperation with Department of Health and with extensive coordination among State, federal and county agencies, private sector representatives and public interest groups. This participation of the stakeholders will help ensure successful implementation of the program through an appropriate mix of regulatory and non-regulatory mechanisms.

Louisiana

COASTAL RESOURCES PROGRAM

BACKGROUND

The passage of the Coastal Zone Management Act (CZMA) in 1972 established national coastal zone management policy. The major thrust of the CZMA was that the coastal states and territories could voluntarily establish, and receive federal funding for, their own coastal zone management programs provided that the programs were developed in accordance with CZMA criteria. In 1978 the Louisiana Legislature opted to participate in the CZMA by passing the State and Local Coastal Resources Management Act (SLCRMA), which established the Louisiana Coastal Resources Program (LCRP). One of the major reasons for the state's participation in the CZMA was the recognition of the importance of Louisiana's coastal wetlands to the state and to the nation, particularly in light of the fact that the rate of wetland loss in Louisiana was becoming critical. However, SLCRMA recognized the need to balance conservation and development. An example of this recognition is demonstrated by two of the policies of the LCRP, which are to "...protect, develop, and where feasible, restore or enhance the resources of the state's coastal zone" and to "...support and encourage multiple use of coastal resources consistent with the maintenance and enhancement of renewable resource management and productivity, the need to provide for adequate economic growth and development and the minimization of adverse effects of one resource use upon another, and without imposing undue restriction on any user."

The LCRP was implemented on October 1, 1980, and the Coastal Management Division (CMD) was created to carry out the LCRP. The CMD is housed in the Office of Coastal Restoration and Management of the Department of Natural Resources. Its sister agency, the Coastal Restoration Division, administers a comprehensive strategy for restoring the state's coastal wetlands. The CMD is the regulatory arm of the state's coastal program, and its major focus is to reduce the impacts of coastal uses on wetlands and other coastal habitats. Another major component is reducing resource user conflicts. From 1300 to 1900 permit applications are processed each year by CMD.

Because Louisiana has an approved coastal management program pursuant to CZMA, it has the authority to review federal activities for consistency with the LCRP. The state has recently emphasized the application of consistency to federal navigation projects, which has not only resulted in a reduction in impacts caused by the construction and maintenance of these waterways, but also in the beneficial use of the material dredged from the waterways. Examples of beneficial use of dredged material include shoreline stabilization, wetland creation, and the enhancement of wildlife habitat.

Another important component of the LCRP are the local coastal programs. The State and Local Coastal Resources Management Act provides that a parish which develops a coastal management program that is approved by the state becomes part of the LCRP. Parishes which join the LCRP receive authority to regulate certain uses as well as partial federal funding of their parish programs. Eight of the nineteen coastal parishes have developed programs which have been incorporated into LCRP. These are Calcasieu, Cameron, Jefferson, Lafourche, Orleans, St. Bernard, St. James, and St. Tammany.

ACCOMPLISHMENTS

The Geological Review Procedure

This joint agreement between Coastal Management Division (CMD) and the New Orleans District Corps of Engineers allows the two agencies to evaluate the technical considerations of siting oil and gas drilling activities. It involves contracting the services of a petroleum engineer and a petroleum geologist to review proposed drilling sites with representatives of the applicant and the agencies involved in the permitting of the site. The goal of the process is to allow for oil and gas access with minimal impacts, and the application of this procedure is responsible for reducing the direct wetland impacts of the average oil and gas well access canal from 5.8 acres in 1982 to 2.9 in 1989. Average canal lengths also have declined by 79%.

Beneficial Use of Dredged Material

For many years the Corps of Engineers has been disposing of dredged material from navigation channels in the least expensive manner. This resulted in hundreds of acres of wetlands being covered with dredged material and in the waste of the valuable dredged material resource. The CMD has worked with the Corps through the federal consistency process to create wetlands and/or use the dredged material in such a way as to reduce erosion. Recently, CMD has begun developing a program for long term management of dredged material, which requires that a plan for dredged material disposal be developed for each waterway. The program already has provided funding for development of cost effective plans for several waterways.

Coastal Zone Data Base

The SLCRMA established that the secretary should develop a system to identify wetland, coastline, and barrier island areas that are undergoing rapid change or are otherwise consider critical, and the LCRP has done so. The CMD has an extensive computer data base as well as complete aerial photographic and map coverage of the Coastal Zone. The CMD had already mapped the wetlands of the Coastal Zone by 1980, but due to the rapid rate of wetland loss in the Coastal Zone, CMD needs to continually update its wetland maps. By combining its funding and expertise with other agencies and with universities, such as the U.S. Fish and Wildlife Service and Louisiana State University, CMD has developed a comprehensive interactive geographic information system which can provide information, not just to CMD, but to other agencies, universities, and the private sector.

Habitat Conservation and Restoration Programs

The Louisiana Natural Heritage Program and the Louisiana Coastal Restoration Program both had their origins in the Louisiana Coastal Resources Program (LCRP).

▸ The Louisiana Natural Heritage Program - The "seed money" to begin the Natural Heritage Program was provided by the LCRP, and the program was housed with thee Coastal Management Division (CMD) from 1084 until it was transferred to the Louisiana Department of Wildlife and Fisheries in 1986. During the program's stay with the LCRP, its task was to identify the important natural communities in the Louisiana Coastal Zone. Now that it is assigned to the Department of Wildlife and Fisheries, it is responsible for identifying and cataloguing all of Louisiana's unique habitats and natural communities.

▸ The Louisiana Coastal Restoration Program - This program, which is charged with restoring and enhancing Louisiana's coastal wetlands, originated with the LCRP. The State and Local Coastal Resources Management Act of 1978 (SLCRMA) established that the secretary of DNR should prepare a freshwater diversion plan in order to reverse or offset land loss and salt water encroachment in Louisiana's coastal wetlands and establish pilot programs to control shoreline erosion. The CMD staff

worked on these programs from 1980 to 1985 when both the task and the CMD staffers who were working on it were transferred to the Louisiana Geologic Survey. The Coastal Restoration Program is now administered by the Coastal Restoration Division (CRD), CMD's sister agency in the DNR Office of Coastal Restoration and Management. The CRD is responsible for planning and implementing Louisiana's Coastal Restoration Program which has already restored and enhanced hundreds of acres of coastal wetlands.

Simplified Regulatory Process

The CMD and New Orleans District Corps of Engineers (NODCOE) entered into an agreement to issue joint public notices in 1983. The Joint Public Notice Procedure (JPN) allows a permit applicant to submit his/her application to only one agency, CMD. although CMD and NODCOE still retain their individual permit review processes, only one public notice is issued for the purposes of both agencies. In 1993, the Louisiana Department of Environmental Quality joined the process and reduced expenses for permit applicants, who no longer have to pay for the cost of publication of Water Quality Certification public notices which are subject to the JPN process. Some of the Local Coastal Programs also participate in the JPN process. Further, costs are reduced because instead of each agency writing and publishing its own notice, only one public notice, which satisfies the legal requirements of all three agencies, is issued. Thus, the JPN has resulted in a reduction of the regulatory burden for permit applicants, saved taxpayer's money, improved interagency coordination, and provided concerned citizens with a comprehensive public notice system for activities in Louisiana's Coastal Zone.

Maine

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Maine's coastline extends 3,500 miles from New Hampshire to Canada. Nearly 65% of the state's population lives in coastal communities and 75% of all employment is found here.

Maine initiated its coastal management program in 1978. The legal basis of the Program are 11 statewide environmental and land use statutes that pertain to air and water pollution, siting of large projects, construction activities in wetlands and along beaches, shoreland zoning, operation of solid and hazardous waste sites, and marine resource management.

Maine Coastal Program (MCP) activities focus on three distinct areas:

- coastal land use and environmental regulation by the state and coastal municipalities;
- coastal planning and policy development; and
- public outreach and education on key coastal issues.

Regulation

At the state level, three state agencies implement the MCP through state regulations: the Department of Marine Resources oversees fisheries management; the Department of Conservation regulates land use activities in the state's unorganized territories; and the Department of Environmental Protection oversees various laws ranging from local shoreland zoning to oil and hazardous waste control.

At the local level, 144 coastal towns are responsible for reviewing subdivisions of land and all activities proposed within 250 feet of fresh or saltwater. A key aspect of local implementation is a local Code Enforcement Officer training and certification program which is administered by the Department of Economic & Community Development. In addition the agency offers periodic training for local boards such as Planning Boards and Boards of Appeals.

The Program provides annual financial support for better licensing and enforcement of environmental laws. Public education about the importance of these laws is a priority so that Maine citizens can better comply with state and local statutes. The MCP continues to work with the Legislature, state agencies, municipalities, and others to strengthen implementation of these laws. In 1986, the Coastal Program assisted the Legislature in reviewing state development and protection policies affecting the coast. The result was a legislative requirement that all state and local actions along the coast be consistent with the state's coastal management policies.

Planning and Policy Development

The MCP supports local and state agencies working on coastal issues and has funded more than 500 local planning and small-scale construction projects along Maine's coast. At the local level, for example, the MCP has helped towns prepare comprehensive plans, conduct regional shoreline-access studies, and prepare local strategies to manage areas

subject to flooding and erosion. At the state level, the MCP has funded coastal wildlife studies, supported better permitting of state laws, and analyzed Maine's marine resources. The Program has also developed public policies on how coastal resources are used -- for example, where new cargo ports should be located, how Maine aquaculture should be developed, and how state and local decisions affecting the coast should be made.

A major initiative of the MCP is support for the state's municipal comprehensive planning program. This legislatively enacted program provides financial and technical assistance to municipalities to prepare a comprehensive plan based on state standards. Once the plan is adopted by a municipality it is to develop and implement programs to direct land use, housing, municipal infrastructure and town services so they achieve the vision they want for their community.

Public Outreach and Education

Public outreach and education on important coastal issues are vital aspects of Maine's Coastal Program. Its educational efforts range from intensive public workshops and meetings to broader outreach efforts such as public service announcements aimed at the general public.

Coastweek, a national celebration of the nation's coasts, is held each year in October and involves more than 20,000 people. A lending library of videotapes, publications and traveling displays is available free to the public. Marine and estuarine curriculum for grades 3-12 are available for teachers and educators. Numerous popular and technical publications are also available. The Wells Reserve offers unparalleled hands-on educational and outreach opportunities. MCP staff also meet frequently with and offer technical assistance to marine trade organizations and the public. All of these efforts are intended to inform Maine citizens and visitors about the coast and make them stewards of coastal resources.

SELECTED ACCOMPLISHMENTS (1989 - 1992)

Local Code Enforcement Training and Certification

The State, in cooperation with municipalities, began a training and certification program for local officials in the state's coastal and natural resource laws. The Program uses training workshops and a training manual to teach local code enforcement officers how to enforce local laws. Workshops have focused on topics such as floodplain management, wetlands, and Maine energy and insulation standards, among others. The program is seen as one way to improve the effectiveness of coastal laws by involving and empowering local officials.

Growth Management

Local growth management was one of the chief concerns voiced by communities along the coast during the 1980s. In response, the Coastal Program joined with other state agencies and legislative leaders to create the 1987 Comprehensive Planning Act. The Comprehensive Planning Act provided a method for Maine communities to take stock of the resources and quality of life in their community and to devise a long-term comprehensive plan and subsequent local ordinances. The Coastal Program continues its involvement in growth management through review of coastal comprehensive plans. Furthermore, the Program provides towns with model Shoreland and Floodplain Management zoning ordinances, as well as publications on harbor management, estuary planning and management, and other pertinent topics.

Municipal Grant and Assistance

Each year the Coastal Program provides grants and technical assistance to the coastal communities. The following are a few examples of the more than 500 projects that have been supported.

Brunswick Receives National Award for Innovative Coastal Protection Zone

The Town of Brunswick with financial and technical assistance from the Maine Coastal Program began work to protect one of the state's most productive shellfish harvesting areas. The results of the project include the creation of a Coastal Protection Zone (establishing density limits for future development, incentives for retention of open space, stormwater management controls, and a septic system inspection and maintenance program) as well as the use of innovative public education techniques related to coastal water quality concerns. This project has received a national award as an example of a dedicated, local effort to control non-point sources of pollution in a highly valued and vulnerable marine setting.

South Portland Completes Coastal Walkway and Recreation Area

After 10 years of planning, fundraising, and hard work, the City of South Portland has recently completed the coastal portion of a Greenbelt Walkway connecting various neighborhoods along its coastline. The Greenbelt is also linked to the Spring Point Shoreway which was built during the 1970's with support from the Land and Water Conservation Fund. Funding from the Maine Coastal Program for development of the Greenbelt Master Plan and for construction of several portions of the Greenbelt Walkway has been critical to the project's success and has enabled the City to leverage additional funds from local businesses and organizations.

Machias Waterfront is Revitalized

In recent years, the Town of Machias has seen significant downtown waterfront revitalization efforts that originated with waterfront planning projects funded by the Maine Coastal Program more than a decade ago. Implementation of the Town's waterfront plan, which included rehabilitating their main street, stabilizing the shorefront along the Machias River, and constructing a downtown waterfront park and footbridge, was accomplished with financial assistance from the Maine Coastal Program and the Community Development Block Grant Program.

Local Stewardship for Coastal Resources

Many activities of the Coastal Program are premised on local involvement in devising strategies to protect and support appropriate development of the coast. Empowering communities to properly plan for and take care of the coast is the best method for assuring long-term stewardship of marine resources. As a result, the Shore Stewards Partnership was initiated by MCP in 1990, to encourage local stewardship and volunteer water quality monitoring efforts along the Maine coast. Recognizing the need for public-private financial support for Shore Stewards, the Maine Community Foundation established a dedicated trust fund for the Partnership, and a private Shore Stewards Board was formed to oversee the program.

The Partners in Monitoring element of the Partnership, providing technical expertise, financial support, and equipment to volunteer monitor groups, began in 1991 through Shore Stewards. Five local groups along the coast have received Partners in Monitoring awards and an additional five are slated to begin in 1993.

Coastal Access

In 1990-91 the Coastal Program assisted the Land for Maine's Future Board in purchasing three coastal access sites. Combined these sites total 685 acres and make accessible an additional 3.5 miles of shoreline for public use. Numerous private organizations and municipalities have also increased the amount of shoreline open to the public.

The Coastal Program also produced several public access publications for local officials including Coastal Right of Way Rediscovery Programs: A Handbook for Local Researchers

and A Guide to the Liability of Maine Landowners Providing Public Access, as well as a series of Public Access Inventory maps and an accompanying report.

Marine Uses

During the past decade, use of the state's coastal waters and upland areas intensified. The conflict among water dependent and non-water dependent uses was exacerbated by an unprecedented surge in population in the southern and mid-coast areas of Maine. The Coastal Program joined with private business and other state agencies to prepare a series of evaluative studies and long-range plans focused on equitable and efficient management of marine uses. Several of these included:

Completion of An Aquaculture Development Strategy for the State of Maine with specific mandates and time frames. Nearly 2/3 of the recommendations have been completed and aquaculture is now the state's second most important fishery.

Completion of Planning Study of Maine Coastal Port and Harbor Needs, which gives a priority ranking system with a list of 70 priority projects, out of 232, evaluated by an inter-agency Steering Committee. In 1992, working with the communities and legislature, the Coastal Program succeeded in obtaining state funding for nearly 15 projects.

Completion of An Evaluation of Marine Uses in Maine Waters that provides an analysis of marine uses and offers recommendations to resolving some of the more contentions issues Maine must address.

WELLS NATIONAL ESTUARINE RESEARCH RESERVE

I. Background

The Wells reserve is nestled in York County, within the town of Wells, on the southern coast of Maine and includes the historic Laudholm Farm. The reserve's diverse natural features form an ecosystem unique to the region with undeveloped marshes and transitional upland fields and forests along two contrasting watersheds -- the Little River estuary and the Webhannet River estuary. Two endangered species -- the piping plover and least turn - nest within the reserve. Three plant species under state protection, slender blue flag, eastern joe-pye weed, and arethusa, thrive at Wells. The Town of Wells managed and operated the reserve until 1990, when the state legislature created the Wells National Estuarine Research Reserve Management Authority as the State agency responsible for managing and operating the reserve.

II. Program Accomplishments

The reserve added several members to its staff, including a full time research coordinator and caretaker. With the addition of these staff members, the reserve focused on refining the research and monitoring programs. The volunteer corps increased to approximately 300 individuals, allowing the site to be open seven days a week.

Projects completed during the biennium include a historic restoration of the main barn and the construction of meeting rooms and a workshop. Restoration began on other historic structures, and maintenance work continues on the property. There are several historic structures on the property that are integral to future program development plan. Projected uses for these buildings include housing for researchers, a wetland lab and classroom space. In 1991, a small building located near the farmhouse was renovated and dedicated by the Governor

as the Adams-Nunnemacher Research Laboratory.

The reserve's final management plan was revised and then approved by the state; the reserve signed Memoranda of Understandings (MOUs) with the state and NOAA and most other state agencies, and other MOUs are in negotiation. Reserve regulations are also being promulgated. The management plan developed a zoning plan that directs the type and extent of activities allowed in different areas of the site. This will help minimize conflicts among various uses and will help protect the reserve's resources.

The Laudholm Trust, the primary non-Federal source of financial support for the reserve, completed a $3 million fundraising campaign to support development and operations of the reserve through 1992.

III. Research and Monitoring Programs

Much of the reserve research has involved collection of valuable baseline date. Researchers obtained additional baseline information from habitat mapping, bird and plant surveys, and deployment of an automated weather station and water sampling device. To improve the reserve's research potential, the Reserve Management Authority is exploring the addition of a running seawater lab system. The reserve manager also serves as the Governor's appointee to the state's Marine Research Board. Data from the reserve's automated weather station proved valuable to the monitoring project by the Jackson Estuarine Laboratory in understanding how the physical and chemical properties of the Webhannet Estuary respond to environmental factors. The reserve also installed a computerized resource map that enabled the staff and researchers to pinpoint locations on the reserve and to analyze geographical interrelationships. Another monitoring program established a benchmark index of the Webhannet estuary's environmental health. An associated plankton survey was the first of its kind completed south of Portland, and deemed a significant contribution to Gulf of Maine studies. Another monitoring project sought to document vegetation changes in a marsh where tidal influence is being restored.

IV. Education Program

The reserve sponsored two major interrelated education projects, the development of the Outreach and the on-site Discovery programs. The Outreach Program teaches K-6 grades estuarine ecology and resource protection. The reserve conducts workshops for teachers who then use the reserve's teaching kits to instruct students. The project involves an entire elementary school population. During its two-year cycle, the program will reach nearly 8,000 students in nine schools.

The Discovery Program complements the content of the outreach curriculum. Backpacks and equipment are loaned for use with trail guides that describes hands-on activities for children at stops along the reserve's five trail loops. Each loop uses a theme interpreted at two instructional levels. Approximately 500 students used the program in two years. In addition, the reserve completed its planned trail and boardwalk system of 14 trails grouped into five interpretive loops.

The education program actively integrated reserve efforts with other education and management programs in the region, such as with the New England Aquarium, the Association of Science and Technical Centers, and other reserve educators. The education coordinators became a member of the State Shore Steward Trust Advisory Committee which encourages local citizen education and action on water quality issues.

V. Evaluations

An evaluation was conducted in July 1991. Findings report that the state continues to operate and manage a strong reserve program that is consistent with the goals of the national program. The findings also indicated that the state made numerous accomplishments since the 1988 evaluation. Major accomplishments

include: the creation of the Wells Reserve Management Authority, the new state agency responsible for reserve management and operations; the hiring of a research coordinator; development and implementation of two major education programs; and completion of a $3 million fundraising campaign to support the operations of the reserve.

Designated: 1984
Biogeographic Region: Acadian
Size: 1,600 acres
Acquisition Status: 100% complete
Federal Funding FY90: $200,881
Federal Funding FY91: $110,000

Maryland
COASTAL MANAGEMENT PROGRAM

BACKGROUND

The Maryland Coastal Zone Management Program (CZMP) was established in 1978 in response to the Coastal Zone Management Act of 1972. The program was evaluated and approved by the National Oceanic and Atmospheric Administration (NOAA) and is eligible to receive federal funds through NOAA.

Maryland's coastal zone includes the entire land and water area of the local jurisdictions bordering the Atlantic Ocean, the Chesapeake Bay and the Potomac River up to the municipal limits of Washington, D.C. This area includes Baltimore City and 16 of the State's 23 counties. The coastal zone boundary extends seaward to the three-mile jurisdictional limit of the State.

Program Implementation

Maryland's CZMP is a networking program which makes use of the authorities and programs of existing State and local agencies. The Maryland Department of Natural Resources (DNR) is the lead agency overseeing the implementation of Maryland's CZMP. The Coastal and Watershed Resources Division (CWRD) of DNR is responsible for overall coordination of the CZMP and administration of federal funds. DNR has established Memoranda of Understanding with the following State agencies: the Office of Planning and the Departments of Agriculture, Environment, Housing and Community Development, transportation, and the Chesapeake Bay Critical Area Commission. Through these memoranda, State agencies agree to carry out their coastal zone activities in accordance with the goals and objectives of the State's CZMP. Contractual funding agreements are also established with State agencies for carrying out projects which address issues of concern in the coastal zone.

Within the coastal zone, the State identified a "Critical Area"—land lying within 1,000 feet of the Chesapeake Bay or tidal tributaries to the Bay. The Chesapeake Bay Critical Area Protection Act, passed by the Maryland General Assembly in 1984, places strict controls on development within the Critical Area. This program is recognized as a national model in fostering environmentally sensitive development in coastal areas. The Act is implemented through local Critical Area Programs, developed by local jurisdictions in accordance with State regulations.

Contractual funding agreements are used to ensure the active participation of local governments in the States's CZMP and Critical Area Program and to promote the consideration of coastal zone management concerns in local planning and regulatory activities. The contracts are administered at the local level by local planning and zoning agencies.

Public Participation

Opportunity for public participation in Maryland CZMP is provided through the Coastal and Watershed Resources Advisory Committee. The committee has approximately 100 members and is composed of citizens and representatives of business groups, civic organizations, environmental groups and academic institutions, as well as representatives of federal, States and local governmental agencies. The committee provides a forum for the discussion of coastal zone management issues and advises the Coastal and Watershed

Resources Division and the Secretary of DNR concerning CZMP policy.

Maryland's Estuarine Research Reserve

The Chesapeake Bay National Estuarine Research Reserve (CBNERR) consists of sites in Maryland and Virginia and is part of the National Estuarine Research Reserve System. The Maryland component of CBNERR (CBNERR-MD) is administered through the Maryland CZMP. CBNERR-MD was established in 1985 and now consists of three sites: Monie Bay, Jug Bay and Otter Point Creek. CBNERR-MD is responsible for coordinating research and public education activities at Maryland's reserve sites.

Federal Consistency

Section 307 of the federal Coastal Zone Management Act, as amended, requires that federally conducted, supported or permitted/licensed activities which affect the State's coastal zone be consistent, to the maximum extent practicable, with the State's federally approved CZMP. The Coastal Zone Consistency Unit of DNR's Water Resources Administration (WRA) is responsible for carrying out federal consistency review activities. Federal consistency review is based on the goals, objectives and policies of the State's CZMP. Though WRA is responsible for making official federal consistency determinations, decisions may be based partially or entirely upon the findings of a variety of agencies within the Maryland CZMP network, depending upon the nature of the proposed activity.

ACCOMPLISHMENTS

Resource Protection

CZM funds were provided to Maryland's Natural Heritage Program to identify significant plant and wildlife habitat areas in the State's coastal zone. The project determined threats to the habitat areas and identified management mechanisms and protection boundaries for each area. The resulting inventory of significant habitat areas is used by Natural Heritage Program staff in contacting private and public landowners to seek protection of these areas.

A study was undertaken to analyze the role of boat wakes in shore erosion in Anne Arundel County. One of very few studies on the impacts of boat wakes, this effort tested three hypotheses: (1) boat wake energy is a substantial contributor to the overall wave-energy budget at study sites; (2) erosion off shoreline sites is higher during the boating season that at other times of the year; and (3) different boat designs and passage characteristics can change the levels of wave energy in boat wakes. This study found that boat wakes significantly contribute to total wave energy and potential erosion only when there is a high frequency of boat passages close to shore.

An investigation of existing information on vegetated buffer areas was undertaken which resulted in a report on the value of buffers in sediment control, stormwater management, provisions of riparian habitat and shading of streams. An annotated bibliography on the topic of buffer areas was also prepared as a complementary document. The report was among the documents cited in development of the 100-foot vegetated buffer requirement in the State's Critical Area Regulations.

CZM funds supported the establishment of elevation bench marks and the development of tax map overlays depicting the 100-year floodplain for several eastern shore counties.

A study of the groundwater-surface water system in the Zekiah Swamp Run basin was prepared in cooperation with the Tri-County Council for Southern Maryland, the Maryland Geological Survey and the U.S. Geological Survey. Increased water demand in and around the basin poses a threat to the stability of the swamp which was designated an area of critical concern by the State of Maryland. The study investigated the hydrologic conditions existing in the basin and provided a foundation for future swamp preservation efforts.

Computerized maps of the State's nontidal wetlands are being developed. This effort will provide updated and more accurate information concerning their location and extent. These maps will be important in achieving full implementation of the State's Nontidal Wetlands Act.

A vessel management plan was developed for the South River, a tributary of the Chesapeake Bay. The plan established designated use areas and speed limits. Minimum wake areas were established for shoreline areas with high erosion rates and for those containing habitat of threatened or endangered species. Enforceable boating regulations were adopted pursuant to the plan.

CZM funds were used by Queen Anne's County to promote comprehensive planning and the establishment of mechanism to achieve the best and highest uses for the Kent Narrows area while reinforcing the environmental and social values of the community. CZM funds were utilized to conduct investigations that resulted in the development of a Market Support Analysis and Interim Management Guide, as well as organization of the Kent Narrows Development Foundation. These actions will allow the county to guide future development and redevelopment in the county to guide future development and redevelopment in order to realize the potential of the Kent Narrows area as an asset.

Somerset County used CZM funds to produce a Groundwater Protection Report which identified aquifers and confining layers. As a result, management measures were established to protect groundwater resources in the county.

With CZM funds, Calvert County completed a biological survey and map of the Flag Pond area, a natural park adjacent to the Chesapeake Bay. This area is known to be a critical habitat for the Tiger Beetle which is included on the federal threatened species list and the Maryland endangered species list.

Prince George's County utilized CZM funding in its effort to map the county's Primary Management Preservation Areas. These are chiefly the 100-year floodplain and all adjacent wetlands, steep slopes and buffers.

Improving Government Programs

Maryland's Nontidal Wetland Program, Non-Structural Shore Erosion Control Program and Boating Administration each grew from CWRD program initiatives which used CZM monies to fund research and management activities. The Maryland legislature recognized that these programs dealt with important natural resource issues and passed legislation to increase the stature of the programs with DNR.

The Maryland CZMP sponsors workshops for local government planners in the coastal zone. The purpose of the workshops is to provide a forum for local government coastal zone planners to freely exchange information and ideas about projects, studies, initiatives, etc., that they have undertaken or are currently involved in for the protection of the Chesapeake Bay and other critical natural resources.

For cases involving ocean incineration off Maryland's Atlantic Coast, CWRD staff worked with NOAA to establish the State's right to have its determination of CZMP consistency play a role in the federal permitting process.

Public Access

The following projects were undertaken in Ocean City with CZM funds:

A boardwalk and crabbing/fishing pier were constructed adjacent to the town's convention center. This project improved public access to the water and increased the site's recreation capacity.

An elevated boardwalk was constructed over the wetland at Northside Park. The project also included construction of an observation deck and gazebo and provision of educational displays. In addition to providing visual access to the wetland, the elevated boardwalk also provides fishing and crabbing areas.

At Rock Point Park in Baltimore County, a facility was constructed which provides swimming access to the Chesapeake Bay for the handicapped. A concrete ramp was constructed and a floating pier was attached to the ramp. This facility was the first of its kind in the State of Maryland.

National Estuarine Research Reserve funds supported the development of design plans for the visitor center at the Otter Point Creek component of CBNERR-MD and the design and initial construction phases of the visitor annex at the Jug Bay component of CBNERR-MD.

Coastal Hazards

A CZM-funded study that analyzed and recommended solutions to shore erosion at Ocean City played a significant role in the decision by the State of Maryland and local governments to commit over $12 million to a beach renourishment project. Property protected through the renourishment project is valued at $2 billion.

CZM funds were used to support updating the State's Historic Shoreline and Erosion Rate Maps. Once complete, the maps will define areas of concern based on shoreline retreat.

CZM support was provided to the State's Non-Structural Shore Erosion Control Program. This program provides matching grants to shoreline property owners in suitable areas for application of non-structural (vegetative) shore erosion control techniques.

A shoreline stabilization project was undertaken in the Town of Rock Hall. The project consisted of the construction of three stone breakwaters and a stone sill and the addition of clean sandy fill. Two species of sea grass were planted in the fill area for stabilization purposes. Two unvegetated beach areas were also provided. This project was completed in cooperation with EPA, the Soil Conservation Service and Maryland's Shore Erosion Control.

CHESAPEAKE BAY NATIONAL ESTUARINE RESEARCH RESERVE IN MARYLAND (CHESAPEAKE BAY NERR - MD)

The Chesapeake Bay National Estuarine Research Reserve in Maryland is one of twenty-two Research Reserves across the country which provide opportunities for estuarine education, research, and monitoring. The Reserve Program is managed through a federal-state cooperative venture in conjunction with local government and interest group partners.

The Chesapeake Bay NERR-MD consists of three designated components: Monie Bay, located in Somerset County; Jug Bay, located in Anne Arundel and Prince George's Counties; and Otter Point Creek, located in Harford County. Monie Bay Component was designated in 1985. Jug Bay and Otter Creek Components were added to complete the Chesapeake Bay NERR-MD in late 1990. Through memoranda of understanding and conservation easements, the Reserve currently provides protection to over 4,500 acres of natural habitat. The purpose of the Reserve is to augment the existing programming of the partners short-term and long-term programming in estuarine research and environmental education.

In the last year, the Chesapeake Bay NERR-MD accomplished the following:

- Dr. Grace Brush studied the land use of the Otter Point Creek Component based upon markers and indicators found in the sediments of the marshes. Her research has permitted her and her students to map the progression of Native American and European settlements in the vicinity of Otter Point Creek and their impact on both the land and nearby waterways.

- Reserve staff and partners at Jug Bay Component developed an informational guide

for volunteers who work in and around the Jug Bay area. The Volunteer's Guide to Jug Bay is a synopsis of the cultural and natural history of the middle Patuxent River region as well as a reference about the partners involved in the Jug Bay Component: Patuxent River Park and Jug Bay Wetlands Sanctuary.

▸ The Education Coordinator has been working with the staff at each site, at each component, to devise a Five Year Education Plan for the Reserve. The plan includes special events for the general public, technical workshops for land use planners and managers, a lecture series on a wide range of topics related to estuaries, workshops for teachers interested in environmental education, and school programs.

▸ The Reserve hosted a "Wetlands and Wildlife Field Day" at Monie Bay Component for 150 Somerset County fifth graders. The teachers accompanied their students to stations located near the marsh where the students could help seine for fish, learn about oysters or crabs, find out about different birds or other critters in the marsh, and contemplate their surroundings to either draw or write about their experiences.

▸ At Otter Point Creek Component, volunteers helped remove 2.4 tons of trash and debris from the forest, creek, and outer marshes. Students from area high schools, neighbors, the Izaak Walton League (the property owner and Reserve staff removed tires, both with and without rims, bottles, cans, paper trash, a refrigerator, lawn furniture, and an industrial air conditioning unit.

▸ Harford County Department of Parks and Recreation (a Reserve partner) and Reserve staff have been working closely to get the final plans and construction specifications for the Reserve visitors center. The plans for the Anita C. Leight Estuary Center needed some revision after preliminary reviews within the county. The Reserve applied for and received a federal grant for the construction costs of the facility. It is anticipated that construction will begin in 1995.

▸ The Reserve hosted a "Bat Chat," a special Halloween program about the biology and needs of bats. Guests observed bats feeding, heard bats vocalizing (with the aid of special devices), and enjoyed learning about the bats' role in the ecosystem.

▸ The Reserve, at Otter Point Creek Component, was the host site for the Harford County Envirothon 1994. Sixty students from six area high schools competed as five-person teams in ecological subjects such as forestry, soils, aquatic biology, and zoology. The Envirothon Chairperson, who is the Reserve Education Coordinator, organized the Envirothon committee, Reserve staff, and volunteers as to what was needed to make the day a success.

▸ The Reserve hosted a lecture by a naturalist at the Jug Bay Component and a researcher/grad student. The topic of their talk was the sora rail, a small elusive marsh bird which feeds on the wild rice in the Jug Bay area of the Patuxent River. The researchers' collaboration has permitted them to collect, band for release, and observe more sora rails than had been previously observed. Their research techniques and results were of great interest to the audience.

▸ The Reserve publishes a quarterly newsletter: Network. It is distribute to Reserve supporters within Maryland, all Reserves, all Sanctuaries, and all coastal managers statewide and nationwide.

Massachusetts

COASTAL MANAGEMENT PROGRAM

BACKGROUND

Massachusetts, also known as the Bay State, has long treasured its coastal resources. These resources both improve quality of life and provide significant economic opportunity for the state. In fact, the improtance of tourism and commercial fishing to the state's economy show that in coastal Massachusetts, the economy is the environment.

After passage of the Coastal Zone Management Act in 1972, the state legislature; local, state and regional officials; and hundreds of interested citizens combined efforts to develop a coastal zone management plan. In 1978, the Massachusetts Coastal Zone Management Program became the first on the eastern seaboard to receive federal approval. In addition, recognizing the importance of this program to Massachusetts, the state legislature formally established the Coastal Zone Management Office within the Executive Office of Environmental Affairs (EOEA) in 1983.

MCZM brings together a staff of technical specialists in marine sciences, policy, law, and public outreach, along with regional coordinators who serve as liaisons to communities and local organizations. MCZM develops and implements coastal policy with the primary goal of protecting natural resources in the coastal zone while promoting responsible economic development. In addition, MCZM provides policy and planning advice to the state's Congressional delegation, the Governor, the Secretary of EOEA and EOEA departments, other state agencies, local officials, and the public.

From 1978 through 1991, Massachusetts has received a total of $23.8 million in grants from the National Oceanic and Atmospheric Administration (NOAA) for implementation and continued development of the Massachusetts Coastal Zone Management Program.

Some of MCZM's major efforts include:

- **Federal Consistency Review**—While MCZM is not a regulatory agency, it does review coastal projects that require a federal license, are implemented by a federal agency, or use federal funds, to ensure that they are consistent with state policy.

- **Technical Assistance**—MCZM staff scientists, planners, lawyers, and regional coordinators assist local decision-makers with harbor planning, tidelands protection, water quality, ocean management, public access, and other topics. MCZM also holds workshops and produces publication to provide technical information to local officials and the public.

- **Water Quality Protection**—MCZM works to protect coastal waters from nonpoint source pollution, is active in National Pollution Discharge Elimination System (NPDES) permitting for coastal discharges, and makes recommendations to the Secretary of EOEA on coastal water quality issues and monitoring plans.

- **Waterfront Programs**—MCZM helps communities develop harbor plans, assesses dredging needs and dredged material disposal options, provides assistance to local officials for managing growth in high-hazard coastal areas, promotes aquaculture where appropriate, and provides access planning assistance to local officials.

■ **Education and Public Information**—
MCZM produces a information a variety of brocures, guidebooks, maps, and other materials to help inform and educate the public on coastal issues.

MCZM is also involved in writing new regulations, resolving policy questions, and acting as a facilitator—bring together appropriate local, state, and federal officials to help keep important coastal projects moving. Above all, MCZM seeks to develop and implement sound coastl policy by incorporating science into the decision-making process. To achieve this goal, MCZM supports the development of al reliable information base and strives to provide access to scientific information, natural resource inventories, and mapping projects.

This breadth and depth of involvement provides MCZM with a big picture perspective on Massachusetts coastal issues. This unique perspective, along with the extensive local knowledge acquired by MCZM's Regional Coordinators, is sought by other agencies when questions arise about coastal policy. This broader perspective allows MCZM to provide leadership in the effective management of Massachusetts coastal resources.

ACCOMPLISHMENTS

The Massachusetts Coastal Zone Management Office, located within the Executive Office of Environmental Affairs (EOEA), has successfully coordinated a variety of state, federal and international coastal initiatives. For example, MCZM administers two U.S. Environmental Protection Agency National Estuary Programs (NEPs) -the Buzzards Bay Project and the Massachusetts Bays Program. MCZM has also participated in the development of a third NEP, the Narragansett Bay Program. The Buzzards Bay Program and the Narragansett Bay Program have completed Comprehensive Conservation and Management Plans (CCMPs) and have begun implementation of these plans. The Massachusetts Bays Program is finishing up their CCMP.

MCZM also participates in the Gulf of Maine Program, which brings together represenatives from Massachusetts, New Hampshire, Maine, New Brunswick, and Nova Scotia to develop and implement a sustainable management strategy for the Gulf. In addition, MCZM was fully involved in efforts to designate Stellwagen Bank as a National Marine Sanctuary, which occurred in 1993. MCZM was involved at many stages of the designation process, from facilitating public meetings to providing detailed input into the final planning documents.

Direct results of MCZM activities are evident throughout the state. Over 400 acres of shellfish beds have been reopened because of the efforts of the Massachusetts Bays Program's Shellfish Bed restoration Program, which was developed by MCZM. In 1994, the state's coastl program issued *Guidelines for Barrier Beach Management in Massachusetts*, a state-of-the-art reference guide that provides detailed information on how to balance preservation and development of these vital natural resources. Implementation of these guidelines has been instrumental in helping to increase the number of piping plovers in the state, as well as to reduce controversy between competing user groups.

Finally, COASTSWEEP, the state-wide beach clean-up campaign coordinated by MCZM, is a tremendous success. Every year, over 5,000 people participate and clean up almost 200 miles of Massachusett's shoreline. MCZM also coordinates with the Center for Marine Conservation to make COASTSWEEP part of the international coastal clean-up.

WAQUOIT BAY NATIONAL ESTUARINE RESEARCH RESERVE

The Waquoit Bay National Estuarine Research Reserve, designated in 1988, straddles the towns of Falmouth and Mashpee on the south shore of Cape Cod, Massachusetts. It is cofunded and managed by the Department of Environmental Management (DEM) and NOAA. Administered by the Division of Forests and Parks' southern office (region 1), the Reserve is linked programmatically to the Division of Resource Conservation, the Coastal Zone Management (CZM) Office and other Executive Office of Environmental Affairs agencies. In addition, the Reserve works closely with the Department of Environmental Protection (DEP), Division of Water Pollution Control, the Environmental Protection Agency and the Cape Cod Commission. A 13-person Advisory Committee, appointed by the Secretary of EOEA, serves to provide in-put from affected interest groups. Other committees are the Education Subcommittee, the Research Advisory Committee and the Resource protection Subcommittee which is made of regulatory officials from both towns with jurisdiction over Reserve resources.

The Reserve has signed a Memorandum of Understanding with the Citizens for the Protection of Waquoit Bay (CPWS) for the group to function as the Friend's Group of the Reserve. The Reserve also works with The Association for the Preservation of Cape Cod (APCC).

Included in the reserve is South Cape Beach State Park, acquired in 1982, which boasts a beautiful barrier beach where Least Terns and Piping Plover nest and Roseate Terns feed. In June 1983, the Commonwealth purchased Washburn Island, 330 undeveloped acres on the western side of the Bay. With federal assistance, the former Swift Estate at the head of the Bay was acquired. This 24 acre site, which includes a salt pond, a section of saltmarsh, and a mansion house with three outbuildings serves as the Reserve's headquarters. The Reserve Headquarters is one of only two confirmed localities in the commonwealth where the Federally Endangered plant Sandplain Gerardia grows. Finally, in 1987, 400 acres on either side of the Quashnet River, a tributary of the Bay were acquired to protect the Bay's watershed.

A total of 3.35 million federal dollars and some 20 million state dollars were used to protect the 2,500 acres that now fall within the boundaries of the Waquoit Bay Reserve. Another $900,000 of federal dollars has been spent on renovating the Gate House, the Carriage House and the Boat House into facilities offering library, office, laboratory, dormitory, classroom and meeting space. The exterior of the Mansion has also been renovated and includes an indoor/outdoor classroom and a stage. The Commonwealth has just released funds to renovate the interior of the Mansion which will offer space for exhibits, large meetings, and offices. The Reserve will pursue additional funding for exhibit design, fabrication and installation.

The Reserve claims one of the most extensive research programs within the NERR System due to the significance of local resources and the Reserve's close proximity to prestigious institutions of higher learning in Woods Hole and elsewhere. A number of major, ongoing research projects have enabled scientists to form a preliminary picture of the primary processes contributing to several disturbing trends in the ecology of Waquoit Bay and in many other coastal areas in Massachusetts and other New England States. The largest of these projects, the Land Margin Ecosystem Research (LMER) grant called "Coupling of Watershed and Coastal Waters in Waquoit Bay", is a multidisciplinary research effort designed to assess the impacts of changing land use patterns over time on groundwater and, in turn, on coastal waters. It

is jointly funded by NOAA, the National Science Foundation and EPA. The project will provide important information and methodology on nutrient loading to the Cape Cod Commission and to programs such as the Buzzards Bay Project. The Reserve will train town planners how to use the nitrogen loading computer model developed by this project.

Other research is looking at eelgrass populations dynamics, shorebird populations, the effects of macroalgae on fisheries, shellfish larvae dispersal, shoreline dynamics and circulation patterns. During the annual Research Exchange Day, Waquoit Bay scientists discussed their findings among themselves and with community leaders.

At the same time, the Reserve has been initiating and fostering programs that use the results of the research to educate the public and decisionmakers about the coastal issues and how human activities impact the estuary. A Research Translator position is funded by a NOAA Education Award and EPA. A Watershed Fieldtrip curriculum which includes indoor activities and five hour trip through a watershed, teaches the public concepts such as watershed, watertable and groundwater needed to understand the research and policy issues. The Reserve offers the "Evening on the Bluff" series in the summer. People are invited to picnic on the lawn in front of the Mansion while they listen to or participate in presentations on research and policy issues.

Because the research demonstrated that much of the nutrient loading polluting the Bay was coming from on-site wastewater systems in the watershed, the Reserve was funded by EPA to organize a conference called "Nitrogen Removal Onsite Wastewater Treatment Systems: Technologies and Regulatory Strategies." People from about a dozen states that currently permit advanced on-site wastewater technology were brought in to share the pros and cons of managing these systems. Massachusetts Department of Environmental Protection was invited to participate in the planning sessions to insure their participation and attendance. A position paper from the conference has been distributed to local, regional and state health agents, conservation agents and planners. Because of this conference and several other meetings and workshops on this topic, the Waquoit Bay Watershed has been named as one of 8 National On-Site Advanced Waste\Water Treatment Systems Demonstration Project Sites. We will receive $200,000 worth of technology and expertise from Small Flows Clearinghouse, an EPA sponsored project at the West Virginia University.

The Reserve also produces a Science and Policy Bulletin Series which has included issues on Computer Models and on Alternative Denitrifying Wastewater Technology. The Reserve library is accessible through a bibliographic computer program with 1000 entries. An unusually high response to our boating survey has provided us with information that will contribute to a No Discharge designation in Waquoit Bay.
Working closely with CPWB and APCC, the Reserve has provided technical support for an outreach effort that has included presentations, the formation of a Citizen's Action Committee, a Waquoit Bay Watershed Action Plan and the formation of an intermunicipal committee to respond to the plan.
Over 100 volunteers help with every aspect of Reserve operations including monitoring, administration, buildings and grounds, press releases, design and outreach. A Resource Protection Internship Program and Research Internship opportunities provide training and experience to college students and community members.

Michigan
COASTAL MANAGEMENT PROGRAM

BACKGROUND

Michigan was among the first states to join the federal Coastal Management Program. Michigan's Coastal Management Program is housed within the Land and Water Management Division of the Department of Natural Resources. The Land and Water Management Division administers several environmental statutes that protect the State's bountiful natural resources.

Michigan's coastal zone, bordering Lakes Michigan, Huron, Superior, Erie and Lake St. Clair comprises the longest freshwater shoreline in the world. A unique mix of shore geography is found on each of the Great Lakes' shoreline, including, clay bluffs, white sandy beaches, sandstone cliffs, rock bluffs, rock beaches, low plains, and freshwater wetlands.

Approximately thirty percent of Michigan's shoreline is held in public ownership. The submerged lands of the Great Lakes are State owned and held in public trust. The coastal region provides an important habitat and nursery area for many commercial and sport fisheries, migratory birds and furbearing animals. Coastal waters supply municipal drinking water, recreational boating opportunities and the transport of over 200,000,000 tons of industrial and agricultural materials through the Great Lakes commercial shipping industry.

Coastal Hazards

Michigan's Shorelands Protection and Management Act charges the DNR with identifying and designating high risk erosion areas and flood risk areas and establishing construction setbacks. Coastal wetlands that provide habitat for fish and wildlife are also protected under this statute.

Public Trust

▸ The Great Lakes Submerged Lands Act establishes a fixed elevation, referred to as the "ordinary high water mark" as the landward boundary of state-owned bottomlands. The law protects Michigan's harbors, bays, channels and other bottomlands from uncontrolled dredging and filling. It also allows the wise and careful development of bottomlands while requiring the DNR, through a permit- review process, to protect sensitive resources.

Protection of Coastal Resources

▸ The Sand Dunes Protection and Management Act regulates the mining and development of Michigan's unique sand dunes, the largest accumulation of fresh water sand dunes in the world. The law prohibits construction on dunes with slopes greater than 25 percent and has provisions for local governments to assume administration of Act.

Historic Preservation

▸ Michigan protects historical and archaeological underwater resources through legislation designating nine Great Lakes Underwater Preserves. The Preserves comprise over 5% of Michigan's Great Lakes' bottomlands and protect many of the 6,000 shipwrecks that have gone down in Michigan waters. This statute also regulates underwater salvage activities.

Wetlands

▸ Michigan is the only state to have received authority from the Environmental Protection Agency to administer Section 404 of the Federal Water Pollution Control Act. Michigan's assumption of 404 program authority relied upon the existence of several state statutes that establish regulation over the discharge of dredge and fill materials into state waters. Michigan recently adopted administrative rules under the Wetlands Protection Act to strengthen the enforcement of permitted activities.

Public Access

▸ In addition to more than 200 public access sites, 42 of Michigan's 94 State Parks are located along the Great Lakes or on coastal lakes within Michigan's coastal zone. These parks provide public access to over 115 miles of prime shorelands. With over 67 Harbors of Refuge, boaters are rarely more than 15 shoreline miles from a safe harbor. Federal ownership in National Parks, U.S. Forests and numerous local parks also provide public access.

Coastal Zone Management Grants

▸ Since 1978 Michigan has annually passed through approximately 40% of it's federal grant to local coastal communities for research, planning, design and low-cost construction projects. Local projects have created or enhanced public access, protected sensitive coastal resources, preserved or restored historical structures and rehabilitated urban waterfronts.

For Additional Information:
Michigan Coastal Management Program
Michigan Department of Natural Resources
P.O. Box 30028
Lansing, Michigan 48909
517 373-1950

ACCOMPLISHMENTS

▸ The Great Lakes Information System (GLIS), funded in part by the MCMP is a computerized geographical information system designed to consolidate Great Lakes resource data. This information system emphasizes environmentally sensitive areas and critical habitats. The GLIS compliments the Michigan Resource Inventory Program, a land-based statewide geographical information system.

▸ Michigan was the first and only demonstration state that used Federal CZM funds for low cost construction projects. Due to the success of this pilot program, the Coastal Zone Management Act was amended to allow all participating coastal states to apply for (306A) low cost construction project funds to enhance public access to their states' shoreline. Local officials state that the impacts of these low cost projects usually have a greater than expected economic benefit, particularly in attracting private investment.

▸ The revitalization of Detroit's deteriorated waterfront was initiated by a CZM funded "Linked Riverfront Parks Master Plan". This linked park system has stimulated millions of dollars in private investment and has created an estimated 1,200 new jobs. The project is designed to create several parks along the Detroit River that are linked by a bike path system.

▸ The revitalization of Houghton's waterfront in Michigan's Upper Peninsula has resulted in substantial private and public investment for the cities of Houghton and Hancock (Houghton's sister city). Redevelopment of the waterfront resulted from a waterfront development plan funded by the MCMP. With the assistance of CZM funding the City of Houghton has purchased, renovated and opened to the public all but 200 feet of the 1.25 miles of shoreline in the downtown area.

- Michigan has a Memorandum of Agreement with the Army Corps of Engineers which provides for the issuance of joint public notices and allows the use of one permit application which is shared by both agencies for statutes regulating the land and water interface, including Section 10 of the Rivers and Harbors Act and 404 of the Clean Water Act, Michigan's Wetlands Protection Act, the Inland Lakes and Streams Act and the Submerged Lands Act.

- The MDNR has developed a Coastal and Inland Waters Permit Information System (CIWPIS) for permit processing. CIWPIS is a computerized data base management tool which allows all permit applications to be efficiently processed and tracked, and all information relative to permit applications to be available to all Division staff. The CIWPIS system can identify a wide variety of parameters and is very useful in identifying areas of special interest or concern.

- The Saginaw Bay Area Initiative is an integrated management plan for the Bay that targets DNR development priorities and resources in a joint effort with local interests. The goal of this initiative is to pool resources from the DNR, local government and private investors to develop new economic growth opportunities for this area while protecting sensitive areas and avoiding hazardous areas.

- The Michigan Department of Natural Resources reviews and issues project permits under a consolidated permit process that currently encompasses a total of nine state statutes and four federal programs.

Mississippi
COASTAL MANAGEMENT PROGRAM

BACKGROUND

The Mississippi Department of Marine Resources is the agency responsible for implementing the Mississippi Coastal Program (MCP). The DMR administers the MCP which receives and administers the program's federal funding. The DMR and the Office of Pollution Control (OPC) and the Land and Water Resources (LWR), both in the Department of Environmental Quality and the Department of Archives and History (DAH), administers the regulatory permits that are required for activities affecting the coastal zone. The DMR coordinates the activities of the various state agencies through their policy procedure.

The Mississippi Department of Marine Resources, by legislative action, gained department status July 1, 1994. The DMR is governed by a seven member selected commission representing the three coastal counties and the 5th Congressional District of Mississippi. In addition to MCP activities, coastal wetland permits and federal consistency, the new commissioners also address marine fisheries, coastal preserves and the use of tidelands funds.

MAJOR PROGRAM ACCOMPLISHMENTS

Historically, the emphasis of the Mississippi Coastal Program is coastal wetlands protection and conservation through regulatory permits, planning, land acquisitions, public waterfront access and development, special management area planning, marine resource education and information and most recently dockside gaming, coastal reserves and offshore aquaculture activities.

Wetlands Protection and Conservation:

The Wetlands Protection Law of 1973 requires the issuance of a coastal wetlands permit for certain regulated activities in coastal Mississippi as well as requiring the development of a plan for wetlands in the coastal area in recognition of the CZMA of 1972. A major accomplishment includes the Mississippi Regional Coastal Zone Permit which was developed in cooperation with the Mobile and Vicksburg COE's. This regional permit meets one of the objectives of Mississippi's coastal management legislation which is to establish joint permitting procedures and streamline the regulation process. The MSCRP is issued by the Department of Marine Resources and meets the requirements of the Coastal Wetlands Protection Law as well as the COE as well as the state water quality office.

Special Management Area Planning

1. Special Management Area Planning (SMA) is provided for in the MCP and can be applied to specific coastal areas such as Industrial and Ports Areas, Shorefront Access Areas and Urban Waterfronts. SMA's apply the general provisions of the coastal program to specific geographic areas; streamline the regulatory process; coordinate regulatory decisions and provide assistance to local governments to plan for public facilities and services in areas whose use is historically, economically, and culturally tied to coastal waters.

Most of the SMA plans have three elements that include a development plan, a dredge material disposal plan, and a mitigation plan to offset damages that may occur to coastal wetlands or marine resources.

Public Access

1. Waterfront Access Program. This program has been extremely popular with the local cities and counties and has been used to construct boat ramps, finger fishing piers, in addition to the associated parking areas and shoreline stabilization structures. These facilities are jointly developed and funded by BMR and a local sponsor such as a city or county.

2. Waterfront Planning in most all of the coastal urban areas have been completed which included recommendations for access to the nearshore waters, the full utilization of the adjacent coastal resources in the urban setting, achieve economic development while maintaining the local environmental values. Sand beach master plans for both Hancock and Harrison Counties have been completed and is currently being used and has been used for beach re-nourishment activities. The Sand Beach Plans have been helpful in identifying items for funding of needed access improvements, beach erosion, and traffic control and long term maintenance.

3. Conservation of waterfront industrial sites. The MCP provides for the selected use of certain coastal industrial sites restricting their use to a proven need of water dependency.

Fisheries Enhancement

Launch facilities, fishing piers, and parking lots that are constructed through the waterfront access program. The boat ramps, piers and adjacent amenities are used by both small commercial and recreational fishermen.

Coastal Hazards

At the Bellefontaine Beach area in Jackson County an erosion study is underway that is looking at offshore water-movements and tidal heights, plus certain geological features. The study will, make recommendations for erosion controls.

Educational and Information Program

1. DMR supports the two coastal marine museums through funding and educational material.

2. Major educational and informational efforts have resulted in the development of an series booklets written for use of the middle grades students that attempts to bring about a greater appreciation of the coastal area and resources. Workbooks are also part of the educational efforts as well as numerous pamphlets and posters ranging in material from oysters, crabs, shrimp and fish.

3. DMR wrote and produced several Public Service Announcement (PSA's) addressing marine resources, wetlands permitting and marine litter.

4. News releases, public hearings and meetings, and staff presentations to various groups are also part of the educational and information program at DMR.

MERITORIOUS PROGRAM ACCOMPLISHMENTS

1. Port of Pascagoula Special Management Area (SMA) Plan.
The SMA plan was developed through the cooperative efforts of the federal and state regulatory agencies in conjunction with the Jackson County Port Authority, the City of Pascagoula and has recently added to its membership Ingall's Ship Building (Litton). Planning and agreement efforts were just completed when Pascagoula was selected as one of the homeports for the Navy. Only minor adjustments were made to the plan to accommodate the Navy. For partial mitigation of impacts and losses occurring to the coastal wetlands in the port area, the State accepted in perpetuity, 3,265 acres of coastal wetlands in the Bangs Lake area of Jackson County.

The Port of Pascagoula SMA is reviewed and updated every year and all findings resulting from the review are forwarded to the SMA participants.

2. Marine Debris. Over the past several years, the DMR, in part through the MCP, has addressed various aspects of the marine debris issue. DMR staff worked with state legislators to pass the Marine Litter Law of 1989. This law, amended in 1991 was the nation's first state regulation which incorporated provisions of MARPOL V. The DMR has been instrumental in the formation of the Mississippi Marine Trash Task Force. Task Force members have carried out a variety of educational programs related to marine debris, including annual beach cleanups.

New Hampshire
COASTAL MANAGEMENT PROGRAM

PROGRAM OVERVIEW

New Hampshire's Coastal Program was established in two phases. The Ocean and Harbor Segment was approved in 1982, covering the communities along the Atlantic Coast from Seabrook north to Portsmouth. The Great Bay Segment was approved in 1988, which expanded the program boundaries to all areas under tidal influence, including Great Bay, Little Bay and all estuarine rivers and wetlands. New Hampshire's coastline totals 150 miles in length (18 miles on the Atlantic and 132 miles along its estuaries and tidal rivers) and includes 7,500 acres of saltmarsh. All told, seventeen communities are within the Coastal Program boundaries.

The Coastal Program operates under the auspices of the New Hampshire Office of State Planning. The program staff works closely with other state agencies to implement a networked approach to coastal resource management. The Coastal Program does not have any laws or regulations of its own, rather, the program's implementation authority comes through existing state laws and regulations which are carried out by other departments within state government. Therefore, New Hampshire's Coastal Program emphasizes coordination and consultation in its efforts to implement the program's mission.

Although the Coastal Program incorporates the laws and regulations of many state agencies, the principal enforcement agency for the program is the Department of Environmental Services. The department uses Coastal Program funds to enforce laws and rules for coastal wetlands, erosion and sediment control, subsurface septic disposal, and municipal and industrial sewage treatment plant operations.

The Coastal Program administers an annual pass-through grant program on a competitive basis to municipalities, the University of New Hampshire and other educational institutions, nonprofit organizations, regional planning commissions, and other state agencies. The grants are awarded on the basis of which grant applications most closely implement the 16 guiding policies of the New Hampshire Coastal Program. The grants can be for small-scale capital improvements, such as boardwalks and boat launches, or they can be for planning and management projects such as municipal water resource plans and water protection related ordinances. Local technical assistance is offered to communities in conjunction with the two regional planning commissions which cover the seacoast area.

Coastal Program staff have also become involved with interagency coordination through the CZMA consistency review authority. Any direct federal action, federal permit, federal grant award which may affect New Hampshire's coastal zone or activity on the outer continental shelf requires Coastal Program review to determine consistency with the program's guiding policies. A wide variety of activities come under the auspices of this authority, including, for example, review of U.S. Army Corps of Engineers' harbor dredging activities and wetlands permitting activities.

PROGRAM ACCOMPLISHMENTS

Highlights of New Hampshire's recent program-sponsored projects are presented in the following paragraphs. It should be noted that hundreds of projects have been completed by a wide variety of sponsors and that the following descriptions are only intended as a representation of the total.

The Coastal Program organized New Hampshire's participation in the national Coastweeks program. Coast-weeks is an annual three week celebration of the beauty and diversity of the nation's coasts. Held in October of 1994, this year's Coastweeks celebration included a number of festivities aimed at seacoast residents and school-aged children. A coastal clean-up project was quite successful, drawing participation from roughly 800 volunteers. This year, over 14,300 pounds of garbage was collected and disposed of. Private sector sponsorship and participation was at an all time high.

Program staff continued working on the new pollution-control mandate contained in the Coastal Zone Management Act Reauthorization of 1990. In an effort to comply with the newly created Coastal Nonpoint Pollution Control Program (Section 6217), the staff began a number of activities including: defining the project boundaries, conducting a review of New Hampshire's regulatory framework to identify existing management measures (or lack of), continuing a water quality sampling program and preparing a local outreach strategy. A pilot local outreach strategy was begun in July of 1994. This project involves working with local decision makers in the coastal Exeter River/Squamscott River Watersheds to prepare some guidance as to how to integrate enforceable management measures into their local regulatory frameworks.

In July of 1994, New Hampshire's Coastal Program began its first project under the CZMA's Enhancement Grants Program (Section 309). In conjunction with the Department of Environmental Services and the University of New Hampshire's Jackson Estuarine Laboratory, program staff began a study to assess the impact of septic systems on coastal water quality. The study focused on the Town of Seabrook. Seabrook offered a unique opportunity because every house in Town was about to be connected to a municipal sewage treatment plant, therefore, household septic systems could be evaluated with no fear of penalty to the homeowner. Field evaluations have begun for 13 properties located along the coastline. For these properties, monitoring wells have been installed to document groundwater flow rates and direction, and the extent of bacterial and nutrient contamination from septic systems. The results of this study will be available after July of 1995.

The Coastal Program's collaboration with the Jackson Estuarine Laboratory extends to two other projects as well. With the assistance of program funds, Jackson Lab is currently working to develop strategies for assessing nonpoint source pollution impacts on the Squamscott River coastal watershed. Several municipal wastewater treatment plants located in the watershed have been upgraded in the past few years; thus, Jackson Lab hopes to identify some of the nonpoint pollution sources which were masked by improperly treated wastewater from the old treatment plants. In conjunction with the Division of Public Health Services, Jackson Lab is working on a study of pollution sources and environmental factors affecting the water quality of Great Bay. This project is essentially an update of the most recent Great Bay Sanitary Survey. It will be completed according to NSSP standards, and will hopefully result in allowing more of the Bay to be open for recreational shellfish harvesting.

Several municipalities are currently using program funds for a variety of projects. The Town of Rye is sampling the water quality of Berry's Brook. This is a follow-up of one of the recommendations made in the recent Berry's Brook Management Plan (also completed with Coastal Program assistance). The City of Dover

is using program funds to refurbish a waterfront park along the banks of the tidal Cocheco River. This project is part of the City's larger strategy for revitalizing its central business district. The City of Portsmouth is using program funds for the planning and design of a 1,400 foot, water-based boardwalk which will connect the City's working port to the Strawbery Banke Museum and Presecott Park (the City's main waterfront museum and public park). More than half of the communities covered by New Hampshire's Coastal Program are receiving technical assistance on a variety of planning projects from the Rockingham Planning Commission and Strafford Regional Planning Commission.

Knowing that nitrogen is the limiting nutrient for plant growth in the Great Bay Estuary, the Coastal Program is partially sponsoring a project with the University's Complex Systems Research Center to conduct an assessment of atmospheric nitrogen input to the Great Bay Estuary and surrounding watershed.

Two non-profit organizations have received program funding for the 1994 federal fiscal year. The Society for the Protection of New Hampshire Forests is working on a project known as the "Coastal Initiative", which is a land protection project covering the 17 Coastal Program communities. Generally, the project entails working with local decision makers to identify and prioritize important parcels of land for future protection. Those familiar with New Hampshire may remember that a similar project was the precursor to the New Hampshire Land Conservation Investment Program which helped to permanently protect thousands of acres during the late 1980's and early 1990's. The Audubon Society of New Hampshire is also utilizing program funds for the development of educational programs on coastal resources for public and municipal audiences.

During the past several years, the Coastal Program has worked closely with the Great Bay National Estuarine Research Reserve and the N.H. Fish and Game Department to establish the Sandy Point Discovery Center located on the shoreline of Great Bay. This facility opened in late 1994, and houses a number of educational exhibits detailing marine life and the marine environment. There is a small boat launch on-site, as well as a nature trail system which leads to a wooden boardwalk that extends out to the salt marshes along the bay's edge. Coastal Program staff have been working with a group of volunteers to increase the amount of salt water reaching a particular marsh area by digging a series of trenches within the marsh. Once completed, the trenches will allow salt water to reach a large marshland which has been cut off from tidal influence.

The recently completed Stuart Farm Marsh Restoration Project in Stratham, and the ongoing Awcomin Marsh Restoration Project in Rye are excellent examples of interagency cooperation. For the Stuart Farm project, the Coastal Program worked with several state agencies and the Rockingham County Conservation District to replace and enlarge a driveway culvert which had disrupted tidal flow to a large marsh area. Completed in spring of 1994, the damaged marshland is already showing signs of recovery. The Awcomin Salt Marsh had been negatively impacted over the course of many years as a disposal site for dredged materials. Several acres of degraded salt marsh will be returned to productivity once the project is completed.

The New Hampshire Coastal Program has been involved in the creation of the interstate and international Gulf of Maine Council on the Marine Environment. The states of New Hampshire, Maine and Massachusetts, along with the provinces of New Brunswick and Nova Scotia have formed the Council with members appointed by the respective state governors and province premiers. The Council has met several times since its inception to give direction to the staffs of the coastal agencies involved to develop cooperative solutions for the environmental problems facing the Gulf of Maine. New Hampshire is currently hosting the rotating Gulf of Maine Secretariat position.

GREAT BAY NATIONAL ESTUARINE RESEARCH RESERVE

The Great Bay National Estuarine Research Reserve (NERR) was designated in 1989 and is managed by the NH Fish and Game Department. In addition to the 4,500 acres of tidal waters that encompass Great Bay, 830 acres of salt marsh and uplands are included within the Reserve.

The Reserve features the newly opened Sandy Point Discovery Center with indoor and outdoor exhibits as well as interpretive trails. Education programs for elementary and secondary students are offered at the Center and a curriculum for grades 1-6 is under development. Utilizing local volunteers, the Reserve and the NH Coastal Program have undertaken a salt marsh restoration project at Sandy Point.

Public events sponsored by the Reserve include an annual Duckers' Day. Held during Coastweeks, this event examines the history of waterfowling on Great Bay while promoting efforts to preserve its rural character.

Research projects underway include water quality and waterfowl monitoring as well as examining the effects of nonpoint source pollution within the estuary. As part of this effort, the Reserve has provided funding to the Great Bay Watch which utilizes local citizens and high school students to conduct water quality sampling. The Reserve is also actively involved with oil spill contingency planning.

In 1992, the Reserve published The Ecology of the Great Bay Estuary, New Hampshire and Maine: An Estuarine Profile and Bibliography and in 1993, a technical report on wintering eagles was released. A second technical report on wintering waterfowl is in production. To support a comprehensive educational program, the Reserve has prepared two trail guides (Sandy Point and Adams Point), six marine resource species brochures, a bird checklist, and an eagle viewing guide over the past two years.

New Jersey
COASTAL MANAGEMENT PROGRAM

BACKGROUND

The New Jersey Coastal Management Program was developed in the 1970's by the Department of Environmental Protection and Energy (Department) and received federal approval from the U.S. Department of Commerce in two phases. The first approval given in 1978 was for the Bay and Ocean Shore segment defined by the state law, the Coastal Area Facility Review Act (N.J.S.A. 13:19-1 et seq.)(CAFRA). The second phase was approved in September, 1980 and includes the entire State under one program incorporating the Bay and Ocean Shore segment, the Hackensack Meadowlands, and the tide-flowed waters along the Hudson and Delaware Rivers.

New Jersey's coastal zone extends from the New York boarder on the Hudson River south to Cape May Point and then north along the Delaware River to the head of tide in Trenton. The coastal zone encompasses the waters and varying widths of adjacent land areas next to these tidal waters. The boundary encompasses approximately 1,792 miles of tidal coastline, including 126 miles along the Atlantic Oceanfront from Sandy Hook to Cape May. It ranges in width from one hundred feet to twenty-four miles)near Batsto and the Mullica River, in Burlington County where the coastal zone overlaps with the Pinelands Area). The total land area of the Bay and Shore region is approximately 1,376 square miles or 17 percent of New Jersey's land area.

Regulatory Authorities

Within the coastal zone, the State, through the Department of Environmental Protection and Energy, has the authority to regulate land and water uses that have a significant affect on coastal resources. These authorities include CAFRA, the Wetlands Act of 1970 (N.J.S.A. 13:9A-1) and the Waterfront Development Law (N.J.S.A. 12:5-3). CAFRA regulates the design, location, and construction of housing developments of 25 or more units and most major industrial, sewer, and energy facilities. The Wetlands Act of 1970 regulates activity in mapped, coastal wetlands. The Waterfront Development Law regulates all development on or adjacent to navigable waterways. The Rules on Coastal Zone Management (N.J.A.C. 7:7E - 1.1 et seq.) define the policies of the Coastal Management Program and guide the Department in reviewing the permit applications under the three permit laws.

Within the Department, the Office of Regulatory Policy, the Land Use Regulation Program, and the Office of Enforcement are the lead management components for implementing New Jersey's Coastal Management Program. The Office of Regulatory Policy is responsible for overseeing the planning and administration of the Coastal Management Program. The Land Use Regulation Program is responsible for administering the coastal permitting program, along with other state-wide permit functions: the Office of Enforcement is responsible for enforcing all laws and regulations associated with coastal and water resources as well as other enforcement activities. In addition, other Departmental programs, such as the Wastewater Facilities Regulation Element, Water Quality Management Program Element, Engineering and Construction Element, Green Acres Program and other programs responsible for regulating and funding development in the coastal zone must also insure that their

decisions are consistent with the Coastal Management Program, to the extent statutorily possible.

Major Accomplishments

New Jersey's coastal management efforts have reversed several destructive trends. The loss of coastal wetlands to development was occurring at an average rate of 1,500 acres per year in the 1960's and early 1970's. With the enactment of the Wetlands Act of 1970, the filling of coastal wetlands has been significantly reduced. New high-rise developments that disrupt scenic vistas, intrude low rise neighborhoods and coast long shadows on bathing beaches have been controlled to lessen these effects. Public access to coastal waters has been enhanced through the permit review and local funding programs. Special coastal resources such as dunes, beaches, threatened and endangered species, shellfish growing areas, shallow water habitat and submerged vegetation, and other significant sensitive resources are given special protection status under the Coastal Rules.

Selected Accomplishments

Supported through a multi-year effort using coastal management funds, the Department completed several studies on the development, implementation, and management of long-term public access to the Hudson River. As a result of these studies, the Department successfully established a Hudson River Waterfront Walkway Special Area policy within the coastal rules. The policies provide a set of extensive guidelines for the development and redevelopment of the existing waterfront piers to protect the scenic views to thee Hudson River and Manhattan skyline and promote public access and open space along the Hudson Waterfront Walkway.

After a multi-year contractual effort, NJ's Coastal Management Program now has the ability to generate computer-based shoreline maps which depict historical positions of mean high water for the state's coastline. With this system, a site-specific prediction of shoreline change can be calculated and used during the review of waterfront development permit applications. This shoreline prediction capability has provided a sound basis for revising the Coastal High Hazard Areas and Erosion Hazard Areas policies prohibiting selected coastal development and setting a 30-year and 60-year setback threshold.

In 1988, the Department completed a major reorganization to consolidate permit programs and functions by region rather than by statute. This major step was taken to accommodate an expanded scope of regulatory functions and to produce a consolidated and streamlined regularity process to serve the public interest more efficiently. Benefits have improved coordination with local governments and more effective protection of the State's natural resources.

New Jersey recently adopted a State Development and Redevelopment Plan (SDRP) which is meant to foster "sound and integrated Statewide planning with local regional planning in order to conserve its natural resources, revitalize its urban centers, protect the quality of its environment and provide needed housing and adequate public services at a reasonable cost while promoting beneficial economic growth, development and renewal..." The Department of Environmental Protection and Energy played a significant role in the adoption of the SDRP. During the development of the SDRP, NJ's Coastal Management Program successfully worked with the State Planning Commission, the Pinelands Commission and coastal counties to initiate a process to coordinate coastal planning issues with local and regional agencies to better protect NJ's coastal resources. This effort has been successful in beginning to bring compatibility between local, regional and state programs affecting NJ's coastal area and in achieving consensus on how best to protect and enhance coastal resources. Building upon these efforts and now that the Plan has been adopted, the Department will be reviewing the entire coastal planning process to enhance compatibility to the Rules on Coastal Zone Management with the

objectives and strategies of the SDRP.

In July 1991, the Department established the Office of Regulatory Policy which consolidated the coastal planning component of NJ's Coastal Management Program with the Statewide Water Quality Management, the Nonpoint Source/Stormwater Management Program and the Water Quality Standards and Systems Analysis Program. This reorganization brought water quality and CZM functions together within the same office which will be an asset as the State begins to develop the Coastal Nonpoint Control Program in response to Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990.

New York State

COASTAL MANAGEMENT PROGRAM

BACKGROUND

New York's coast stretches for 3,200 miles and includes the fresh waters of two Great Lakes and the Niagara and St. Lawrence Rivers; the tidal waters, both fresh and salt, of the Hudson River estuary; and the marine waters of New York Harbor, Long Island Sound and the Atlantic Ocean.

Home for 85% of the State's 17 million people, the State's coastal zone includes its largest cities, vast suburban expanses, some of its most rural areas, industrial zones, and highly productive ecosystems. The problems of the coastal zone are as extensive and diverse as its demographic, economic and environmental characteristics.

The New York Coastal Management Program carries on a variety of activities to achieve a set of coastal policies providing for resource use, development and protection. These efforts range from review of development proposals and building consensus to advance the coastal program goals, to managing coastal resource crises, furthering program objectives through public and private partnerships, and targeting fiscal and technical resources on critical issues.

Review of Development Proposals

With its regulatory responsibilities, the Coastal Program has a key role in the decision-making process for approving public and private development proposed for the coastal zone. Over 800 projects or activities are reviewed annually to ensure their compliance with State and local coastal law.

Consensus Building

Significant shifts in public policy are more readily achieved if those affected are involved in setting and enforcing that policy. A major emphasis of the Coastal Program over the past eleven years has been to use a grass roots approach to achieve the goals of the State Coastal Management Program. The program has worked closely with local officials and citizens in the preparation of over 100 local government waterfront revitalization programs. These programs foster consensus on what should be done for the coast. Over 2,000 volunteers are working to implement these local coastal programs. New parks are being developed and existing parks restored. Boat launch ramps, coastal trails and greenways have been developed and wetlands have been restored.

Science and Resource Management Policy

Faced with recent coastal resource crises and no public funds for traditional responses, the Coastal Program has convened a series of science and public policy workshops to confront such crises as the collapse of Long Island's Peconic Bays caused by brown tide algae blooms, and increased flooding and erosion of Long Island's Atlantic coast.

In the case of Peconic Bays, in cooperation with leading research institutions, the program established a long term research agenda to find the cause and identify actions necessary to reduce brown tide in the Peconic Bays. The resulting research has served as a catalyst for the recent designation of the Peconics as a national estuary pursuant to Section 320 of the Clean Water Act.

With $10 billion of private and public properties at risk, Long Island's South Shore is venerable to severe flooding and erosion damage as evidenced by the December, 1992 nor'easter. In 1989, the Coastal Program convened leading scientists to frame a new approach to managing the flooding and erosion problems.

Partnerships

In 1985, a coalition of maritime labor unions and maritime industry employers joined together under the leadership of the Coastal Program to identify steps needed to maintain the $12 billion dollar maritime industry in the Port of New York. Through this labor/management/government partnership, tax issues have been resolved, cheaper alternatives to moving cargo through the port have been explored, port promotion activities have increased, and expanded economic benefits of the Navy Homeport have been pursued.

Targeted Initiatives

With limited funds and technical resources, the Coastal Program has focused on resolving those issues and protecting natural and cultural resources that can be addressed with few public dollars. One such critical issue is the need for improved public access to the waterfront. The program targets technical assistance, supplemented by limited funds, to local communities for local public access projects. Other targeted issues include promotion of the State's commercial fishing industry, improved management of small harbors, the provision of suitable space for traditional maritime activities, and solving the problems that constrain port and harbor dredging.

Areas with special natural and cultural characteristics are being identified and designated for protection, including critical coastal fish and wildlife habitats. A major initiative - one of the first in the county - is underway to protect significant coastal scenic vistas.

SELECTED RECENT ACCOMPLISHMENTS

Redefining Coastal Management - After a decade of coastal management, Governor Mario Cuomo convened a Governor's Task Force on Coastal Resources to assess the Coastal Management Program, propose recommendations to strengthen existing State and local management activities, and address emerging coastal issues ranging from non-point source coastal water pollution to economic dynamics affecting water dependent commerce. In 1991, the Governor's Task Force presented its recommendations and today State agencies and the Legislature are implementing recommendations. The key recommendations call for stronger environmental protection at every level of government to protect water quality and natural resources; the development of a comprehensive economic strategy to reflect business needs of the maritime, tourism and recreational boating and fishing industries; targeted efforts for revitalization of urban waterfronts; and expanded public access to coastal areas and resources. Together, these recommendations affirm a decade of coastal management and challenge the State and coastal communities to access the issues and capitalize on the opportunities of New York's coastal regions.

Local Waterfront Revitalization Programs - Currently, 115 of 250 coastal communities are preparing or implementing waterfront revitalization programs. These communities have jurisdiction over 70% of the more than 3,200 miles of shoreline and represent over 90% of the 143 million people living in the State's coastal communities.

East Hampton Water Quality Initiatives - A major component of the New York Coastal Program is advancing non-point source pollution management measures to protect coastal water quality. Through negotiation offered by the Coastal Program, the Town of East Hampton and the Association of Marine Industries agreed to best management measures for inclusion in the town's local coastal program. The measures include new

government regulations, a public information campaign, and voluntary industry initiatives to reduce marina non-point sources of water pollution.

City of Newburgh National Recognition - The City of Newburgh, with technical and financial assistance from the Coastal Program, recently received an award form the National Oceanic and Atmospheric Administration for outstanding contributions in coastal zone management in the local government category. The city's award recognized a unique and innovative project, as part of its local waterfront revitalization program, to protect its magnificent, panoramic views of the Hudson River and surrounding mountains.

Village of Saugerties Implementation Project - Having an approved local waterfront revitalization program has enabled many communities to focus on a variety of waterfront projects and programs. The Village of Saugerties on the Hudson River was able to leverage a $50,000 coastal management grant to obtain an additional $250,000 to refurbish the historic Saugerties Lighthouse. Historic preservation objectives were achieved, public access to the river was greatly improved, and Coast Guard Aids to Navigation - previously abandoned at the deteriorated lighthouse - were restored.

Public Access - Since 1989, the Coastal Program has assisted the Hudson River Greenway Council. The Greenway trail is intended to provide continuous access along the Hudson River from New York City to Troy. With 40 Hudson Valley communities preparing local waterfront revitalization programs, the Coastal Program has been instrumental in working with communities and the Council to acquire easements, develop local land trusts and ensure public access to the river as a condition of development.

Habitats - Over the past six years, the Coastal Program has designated over 200 Significant Fish and Wildlife Habitats to build upon and improve State and local habitat management efforts. Designation provides for regulation to protect habitats at several levels of government and the development of habitat management plans which serve to maintain the integrity of critical coastal ecosystems.

Coastal Landscapes - Recognizing the importance of coastal landscapes as an integral part of the coastal environment, the Coastal Program has begun to designate Scenic Areas of Statewide Significance in the historic Hudson River Valley. Once designated, scenic areas receive unprecedented protection from incremental development to ensure protection of scenic landscape qualities.

HUDSON RIVER NERR

The Hudson River National Estuarine Research Reserve (HRNERR) is a network of four sites located along a hundred miles of the Hudson Estuary. Designated in 1982, the Reserve currently protects nearly 5000 acres of tidal wetlands and uplands at four components: Piermont Marsh, Iona Island, Tivoli Bays, and Stockport Flats. These sites represent the diverse biological communities situated along the broad salinity gradient of the Hudson Estuary.

Research Activities

The Reserve sponsors a wide variety of research activities, including studies of ecosystem ecology, non-point pollution, exotic species, wetland-river exchanges of materials, sediment pollutant profiles. In addition, the Reserve undertakes ongoing monitoring of water quality and selected plant and animal species. Research tools such as vegetation maps, watershed geographic information systems, and research bibliographies assist scientists in planning and conducting their work. The Reserve sponsors a competitive summer research fellowship program that attracts graduate and undergraduate students from around the nation. Selected research activities are highlighted below.

Nonpoint Source Pollution Assessment - Reserve scientists monitor physical and chemical attributes of water in HRNERR marshes and tributaries on a monthly basis and during selected storm events. This information is used to describe variations in water quality and to assess whether they are natural or human-induced.

Quantification of the Annual Water Balance of Tivoli Bays - Researchers at Yale University are measuring water movements at the Tivoli Bays Reserve site, including atmospheric inputs, evaporation, surface water and groundwater inflow from uplands, and tidal exchange with the Hudson River. This study will result in a better understanding of how short-term events and long-term changes, whether they are natural or human-induced, affect resources in coastal waters.

Watershed Geographic Information System (GIS) - Researchers from Yale are also developing a GIS for Tivoli Bays watersheds. These will be used to delineate critical stream flow source areas, predict annual soil loss, and forecast the effects of proposed land use changes, watershed management alternatives and future development.

Education Activities

The Hudson River NERR offers year-round educational programs to promote public awareness and understanding of estuarine resources, habitats and ecosystems, and encourage use of the sites as outdoor classrooms for research and instruction in the natural sciences.

Particular emphasis is placed on two areas: 1) the training of teachers and other educators in estuarine ecology and the development of curricula materials to supplement existing school programs; and 2) the translation of pertinent scientific knowledge and research results into information that will be directly useful to resource managers charged with developing and implementing management strategies.

Facilities

The Reserve currently operates out of a field station on the Hudson River at the Tivoli Bays, on the campus of Bard College. The field station houses offices, laboratories, classroom, library, herbarium, bunkrooms, scientific specimens, field gear, boats, and canoes.

New York proposes to establish a *Hudson River Center for Education and Research* at the Iona Island Reserve site in an existing 20,000 square foot structure. This Center will be a focal point for research, education, and programs to protect the river, providing access to interpretive exhibits, offices, laboratories and classrooms, resource center and library. The Center will bring together a variety of institutions in a cooperative initiative to protect, restore, and enhance the Hudson River Estuary.

North Carolina

COASTAL MANAGEMENT PROGRAM

BACKGROUND

In 1974, North Carolina responded to the CZMA challenge by passing the Coastal Area Management Act (CAMA) which established a comprehensive resource management program for the state's 20 coastal counties.

A 15-member Coastal Resources Commission designates areas of environmental concern, adopts rules and policies for coastal development and resource protection, and certifies local land use plans. The Coastal Resources Advisory Council provides technical assistance and links local governments to the Commission. The Division of Coastal Management administers the North Carolina Coastal Management Program (NCCMP).

The NCCMP includes the rules and policies of the CRC, local land use plans, and enforceable rules and policies of other resource agencies.

Permitting

One of the principal ways the coastal management program protects natural resources is through the permitting program. Permits are needed for any development proposed in an area of environmental concern (AEC). All types of construction, associated land clearing and land alteration are considered to be "development."

Major permits are required for activities that require another state or federal permit, projects that cover more than 20 acres and for any structure larger than 60,000 square feet. Applications for major development projects are reviewed by 11 state and four federal agencies, and have an average processing time of about 75 days.

General Permits authorize routine development projects, such as bulkheads and some breakwaters. Emergency work is also authorized under a general permit (including sandbagging or beach bulldozing after a storm). General permits can often be issued the same day the permit is requested.

Minor permits are required for smaller projects such as building a single-family residence. They are issued by a representative of the county or municipality. These Local Permit Officers (LPOs) are trained by the division's permit staff.

Federal Consistency

Any project in the coastal area that is proposed by a federal agency, requires a federal permit, or uses federal funds must be consistent with all the rules and policies of the N.C. Coastal Management Program. The division coordinates a state-agency review of the project and then issues the determination of state program consistency.

Enforcement

One of the most demanding responsibilities of the program is enforcing the Coastal Resources Commission's rules and policies. This includes monitoring permitted projects to ensure that the development complies with permit conditions and identifying unpermitted development. Every six weeks the staff conducts aerial surveillance of the coastal area.

Policy & Program Development

The division works to identify future issues and formulate policies to address those issues, thus

enabling the program to respond to changing needs to protect coastal resources. Technical studies and evaluations are critical to the decision-making process.

Land Use Planning

Long-range planning is vital to the protection of North Carolina's coastal resources. CAMA requires each of the 20 coastal counties to develop and update land use plans. A well-designed plan can conserve valuable resources and guide growth to areas best suited for development. Projects must be consistent with the land use plan before a CAMA permit or consistency determination is issued. About 65 municipalities also participate in the program by preparing local land use plans of their own.

Coastal Reserve

The division preserves and manages more than 12,000 acres of undeveloped natural areas for research, education and public enjoyment at seven sites along the coast: Currituck Banks, Buxton Woods, Rachel Carson, Permuda Island, Masonboro Island, Zeke's Island, and Bald Head Island. Four of these sites (Currituck Banks, Rachel Carson, Masonboro Island and Zeke's Island) also are designated as the North Carolina National Estuarine Research Reserve. Acquisition of reserve land is an ongoing effort and includes plans to purchase additional lands representative of the diverse coastal regions in North Carolina.

Beach & Water Access

The public access program provides residents and visitors with improved accessways to the state's beaches and waterways. The economy of North Carolina's coastal region is dependent on tourism, so a strong access program is important to the economic health of the region. The division provides grant funds and technical assistance to local governments for the identification, acquisition, improvement and maintenance of public accessways and facilities.

Public Information

The division encourages public participation in coastal management and recognizes the need for education and information initiatives. Information efforts focus on increasing public and media awareness of the program and coastal issues.

For more information contact:

Division of Coastal Management
P.O. Box 27687
Raleigh, North Carolina 27611-7687
(919) 733-2293

Maritime Forest Protection Initiative

Concerned over the gradual loss of the few remaining stands of undisturbed maritime forest, in 1989, the NC Coastal Resources Commission (CRC) created a Maritime Forest Working Group to: study various options for the protection of our remaining maritime forests; prioritize the most important maritime forest areas for protection; and work with local governments and property owners regarding strategies to best protect the ecological values of maritime forests.

The final report of the Maritime Forest Working Group concluded that land acquisition for conservation purposes is the most effective way to preserve the maritime forest ecosystem. The report recommended: acquisition and conservation management of the few remaining high-quality tracts of maritime forest; that the State assist developers and lot owners in preparing site plans that minimize the impact of development on maritime forests; and that the State encourage and assist local governments in developing local ordinances to protect maritime forests. Finally, the working group recommended that if the high quality maritime forest sites identified "cannot be adequately protected through timely acquisition and/or local regulation, the Coastal Resources Commission should consider designating all or a portion of those threatened sites as Areas of Environmental Concern (AEC) on a site-by-site

basis with specific use standards designed for each individual site." The CRC endorsed the report in May 1990.

In June 1990, the nine highest-ranking maritime forest sites were nominated by a coalition of environmental groups for designation by the CRC as Coastal Complex Natural Areas of Environmental Concern (AECs). The sites: Kitty Hawk Woods - 575 acres; Nags Head Woods - 755 acres; Buxton Woods - 2,500 acres; Roosevelt Natural Area - 330 acres; Emerald Isle Woods - 100 acres; Huggins Island - 100 acres; Bluff Island - 70 acres; Middle Island - 100 acres; and Bald Head Island - 452 acres.

As a result of these AEC nominations, the CRC directed the DCM staff to work with local governments, property owners and other state agencies to ensure the nominated maritime forest sites received an effective level of protection, either through public acquisition or adoption of local protection ordinances. Throughout late 1990 and all of 1991, the CRC and DCM staff worked closely with local officials, property owners and other state agencies to develop adequate protection measures for the maritime forest sites.

In addition to these local actions, the Corps of Engineers Wilmington District has placed regional conditions on nationwide "404" permits that in effect prohibit the issuance of nationwide permits in North Carolina's remaining high quality maritime forests. Beginning in 1992, development activities proposed in Corps jurisdictional wetlands require a full "404" permit. These special "404" regional conditions apply to all of the maritime forests in North Carolina nominated for AEC designation.

In summary, comprehensive protection for the remaining high-quality maritime forest areas on the North Carolina coast has improved significantly. State acquisition on Bald Head Island and final adoption of the Onslow County Land Use Plan Update will complete the protection strategy endorsed by the CRC and culminate three years of work by the Division of Coastal Management, the CRC, local governments and private property owners to save our remaining maritime forests from gradual destruction. Of the approximately 5,000 acres of high-quality maritime forests that were nominated in 1990 for AEC designation, about 3,300 acres will be managed as natural areas for conservation and long-term preservation. Of the remaining 1,700 acres, more than 95 percent are subject to strict local protection ordinances.

Public Beach and Water Access Program

North Carolina's Coastal Public Access Program was established in 1981 when the state legislature authorized funding for access sites to the ocean beaches. This action was in response to the building boom of the 1970s which engulfed many places the public had traditionally used for access to beaches, sounds, rivers and creeks. In 1983, the legislature authorized an expansion of the program to include funding for projects on estuarine waters.

Each year DCM requests state funds in the form of a special appropriation from the legislature. In 1985, North Carolina began to supplement available funds by using federal 306A funds from its annual federal CZMA award. Since 1981, this program has administered more than three million dollars in state and federal funds for about 230 projects.

Since the access program began, demand has always exceeded available funds. For example, for Fiscal Year 91-92, DCM had $300,000 reserved for access grants, yet received applications requesting over $1.6 million.

North Carolina access sites offer different facilities. There are small unimproved local access areas, larger neighborhood access facilities with parking, trash cans and dune crossovers, and regional access areas with large (60-car) parking lots, bathrooms, lighting and picnic facilities.

All of the access facilities clearly are meeting a demonstrated need. On a given day, there is stiff competition for parking at many of the popular sites. Occasionally, adjacent property owners complain of noise, trash and minor vandalism, but overall local governments manage and maintain their facilities with few problems. This is significant, keeping in mind that with the expanding tourist seasons, facilities are subjected to more use for a longer period of time.

An innovative technique for public access facilities exists through the affected local government subdivision ordinance (assuming it has adopted one) by requiring access. DCM advises local governments of this possibility and of other tools such as negotiated easements in lieu of purchase fee simple, donations, and condemnation.

In 1994, the state legislature approved a dedicated funding source for the access program, which could yield up to $500,00 each year for additional access facilities.

Plans for the Future

A blue-ribbon panel spent most of 1994 studying North Carolina's coastal region and the status of its natural resources. The panel recommended a number of improvements, including additional assistance for land-use planning and expanding the state's coastal reserve program. DCM already is working to put many of these recommendations in place.

North Carolina National Estuarine Research Reserve

Background

In 1982 the State of North Carolina received the first federal award from NOAA to initiate the North Carolina National Estuarine Research Reserve (NCNERR). Because of the large (over 2.3 million acres) and diverse estuarine area found in North Carolina, NOAA and the North Carolina Division of Coastal Management (DCM) decided to develop a multi-component Reserve to include representative examples of different topologies and biogeographic regions. Four Reserve components associated with the state's barrier island system were chosen and acquired: 2. Currituck Banks (960 acres 0.2 mile north of Corolla, Currituck County) 3. Rachel Carson (2,600 acres 0.1 miles south of Beaufort, Carteret County) 3. Masonboro Island (5,000 acres between Wrightville Beach and Carolina Beach, New Hanover County) and 4. Zeke's Island (1,200 acres 3 miles south of Kure Beach, Brunswick/New Hanover Counties). These components protect popular estuarine/upland natural areas from the ever-increasing pressures of coastal development and are situated near existing marine science facilities that cooperate with the NCNERR program (e.g., North Carolina Aquariums, UNCW Center for Marine Science Research, Duke Marine Laboratory, North Carolina Maritime Museum). The four components are managed for estuarine research, education and compatible traditional uses. In 1988, the North Carolina legislature created the Coastal Reserve System to acquire and preserve additional undeveloped coastal natural areas. The four NERR components also are part of the seven-site Coastal Reserve.

Administration

The NCNERR is managed by the North Carolina Department of Environment, Health and Natural Resources/Division of Coastal Management. The Reserve program consists of three staff: Dr. John Taggart (Coordinator), Dr. Steve Ross (Research Specialist) and Ms. Joyce Atkinson (Education Specialist). Drs. Taggart and Ross have offices situated on properties owned by the University of North Carolina at Wilmington (UNCW). They are also adjunct faculty members. Ms. Atkinson has her office in Beaufort. This administrative arrangement is necessary because of the multi-component composition of the NCNERR.

The current state budget for Reserve program funds the salaries for Drs. Taggart and Ross plus office expenses. Ms. Atkinson is funded by NOAA operations and management cooperative agreements, but her position has been recommended to the state Legislature for permanent funding.

Research and Monitoring

The Reserve components serve as protected estuarine systems and are used for research relative to coastal management issues. Eleven federally-funded research projects have been completed at the Reserve components. Among the topics investigated by scientists from various universities are: acid rain effects on estuarine eutrophication; relative habitat values of two sea

grasses -- implications for global warming; sediment-water nutrient exchange; the role of benthic microalgae and estuarine ecosystems; eel grass declines in east coast estuaries and feral horse impacts on salt marsh vegetation. Current national priorities will focus research on nonpoint source pollution. Considerable non-federally funded research has also occurred at the components through such institutions as UNCW, UNC-Chapel Hill, Duke University and North Carolina State University.

An ongoing monitoring program is being conducted at the Reserve's Zeke's Island and Masonborough Island components. Dr. Steve Ross, graduate students and undergraduate student interns take biological, chemical and sediment samples to characterize the nature of the estuarine systems. A similar program is being implemented at the Rachel Carson component and is planned for the Currituck Banks component. The results will be used to develop a database for each component that will be available to researchers and anyone else interested in these estuaries.

Education/Public Information

Educational opportunities offered by the Reserve program include field trips and outreach activities for school groups and other organizations. During 1992, for example, Joyce Atkinson presented 33 field trips to 602 persons and traveled throughout the state to perform 74 outreach programs for 2,610 persons. She also organized a teacher certification workshop, estuarine art display and several Reserve clean-ups. A self-guided interpretive trail and brochure were developed for the Rachel Carson component. In addition, more than 1,500 persons visited Reserve components during field trips coordinated through such affiliated institutions as the North Carolina Maritime Museum, the North Carolina Aquariums and Duke University Marine Laboratory.

Information about the Reserve program is available to the public through various avenues. Management plans, brochures, the Project Estuary curriculum guide and Reserve field guide are distributed by the Reserve offices, N.C. Aquariums and Maritime Museum. A newsletter is mailed biannually to more than 400 recipients. Monthly lectures are presented at the North Carolina Maritime Museum in Beaufort. Also, Reserve staff give presentations at various expositions/formal meetings and to civic organizations, church groups, governmental agencies and conservation groups.

Future Needs

The North Carolina program has made considerable progress since 1990 when it was moved to the coast, and the current staff was hired. However, to realize the full potential of the Reserve, the following are priority needs:

- Development funds (one million dollars) to assist UNCW with the construction of a Marine Science Center that would house the Reserve program near the Masonboro Island component;

- Increased levels of funding to promote more consistent and integrated research at all four components; and

- Creation of a second Reserve in North Carolina (Florida and California each have two) to encompass low salinity, lagoonal sites, particularly in the Albemarle-Pamlico area.

Commonwealth of the

Northern Mariana Islands

COASTAL RESOURCES MANAGEMENT PROGRAM

BACKGROUND

Pursuant to the 1972 Coastal Zone Management Act (CZMA), which encouraged states and territories to preserve and protect their coastal resources, the Commonwealth of the Northern Mariana Islands (CNMI), developed an OCRM-approved Coastal Resources Management program (CRMP) in 1978. The year 1992 marks the twelfth year of the CRMO's operation with CZMA Section 306 funding.

In order to develop a CRMP which would meet the needs of the CNMI and maintain consistency with the National OCRM management program regulations, the Coastal Resources Management Office (CRMO) worked extensively with both federal and commonwealth government representatives and the general public during the establishment phase of the program.

Faced with the demands of a growing population and with the needs of an expanding economy, the intent of the CRMP is to enable the Commonwealth to better prepare for growth while minimizing adverse impacts on its rich natural, cultural and historic resources.

In 1980, CRMO was created by Executive Order No. 15, which directed all CNMI agencies to carry out projects in a manner consistent with the CRMP. "The Coastal Resources Management Act of 1983" (Public Law 3-47), was passed by the CNMI Legislature and signed into law by the Governor. This law placed the CRMO directly under the Governor's Office.

From its inception, the CRMO has worked to achieve its goal of promoting conservation and wise development of the CNMI's coastal resources. Some of the emphasis of the CNMI's CRMP includes implementing resource planning and preservation practices, preventing sedimentation, promoting and maintaining public access to the coast, and conducting public education programs.

The CRMO is responsible for the receipt of funding under the CZMA, for all CRMP fiscal and administrative requirements, and for applying the federal consistency procedures. CRMO must also ensure that each element of the CRMP—as identified in Public law 3-47, CRM Rules and Regulations and in grant applications—is fully implemented and complied with. CRMO also provides the CRMP Agencies, CRM Appeals Board, and Coastal Advisory Council with staff and program support.

With the passage of Public Law 3-47, CRMP goals and policies were codified and Commonwealth departments, agencies, offices, and instrumentalities were required to incorporate CRM policies into their programs. The new law was an important step in institutionalizing the CRM Program, clarifying administrative responsibilities and improving accountability for resource management decisions.

Regulations were established for a coastal permitting program to implement the CRMO land and water management policies. Standards and priorities for activities within designated areas of particular concern and for large scale projects outside these areas were also developed.

Coastal Activity Permitting and Enforcement

Public Law 3-47 and the CRM Regulations provide a well-defined criteria for determining whether a CRM permit is required for a particular project and establishing penalties for noncompliance. Depending on the nature of the project and its location, CRM permit applications are reviewed by the CRM Administrator and/or the CRM Board of Program Agencies. When a permit application is submitted for large scale projects, it is distributed to the CRM Program Agencies for review. Among the various technical and environmental parameters included in the review is an evaluation of the following: Are practical or reasonable alternatives available? Does the project fit with nearby land and shoreland use? Does the project meet federal and CNMI air and water quality standards and other applicable laws?

Permits for these large scale projects (referred to as "major sitings") must be signed by each of the agency directors and the CRM Administrator to be in effect. A provision is made for a conflict-resolving determination by the CNMI Governor. Smaller scale projects that are proposed to occur in certain identified areas of particular concern are subject to obtaining a minor coastal permit signed by the CRM Administrator. Specific CRM policies and procedures must be followed by the permit granting authorities. Persons denied a permit or who are otherwise adversely affected by a permit decision have certain identified appeal rights afforded to them, including the ability to refer the matter to an appointed CRM Appeals Board. Penalties for non-compliance are severe, including potential fines of $10,000.00 per day and the imposition of civil fines which can be much higher.

Monitoring efforts have minimized unpermitted development activities and illegal dumping. Fishing vessels calling on the CNMI ports have been regularly monitored which has resulted in reduced fish waste dumping, the control of minor oil spills, and cleaner harbors.

Assessment and Multi Year Strategy Development

In 1992, CRMO completed an Assessment of and developed a Multi-year Strategy for addressing certain CNMI coastal issues. A concerted effort was made to actively involve the general public in this process, including public hearings and news publications. Working with the Office of Oceans and Coastal Resources Management (OCRM), the CNMI's strategy targeted addressing coastal hazards issues.

In the future, such comprehensive reviews of coastal issues will continue to be conducted. As the operation and management costs of the CRMP increase and local and federal program support funding continues to decline because of budget cuts, the CNMI must prioritize coastal issues to address. This is particularly important in coastal zone management where the issues are so many and so diverse. Additionally the CRM program must be accountable to the public which it serves.

PROGRAM ACCOMPLISHMENTS

Siapan Lagoon Use Management Plan.

Begun in 1983 and finalized in 1985, one of the first major program development undertakings by the CRMO was the Saipan Lagoon Use Management Plan (SLUMP). It incorporated site specific user conflict and management regime analysis along the extensive Saipan Lagoon shoreline. SLUMP also made prescriptive suggestions for improving the CRM shoreline protection program, a good deal of which was incorporated as CRM regulatory policies by the CRM Board of Agency Directors. With Saipan's rapid development increase however, much of SLUMP's planning projections and interagency coordination procedures have been dated and are in need of revision.

Saipan Comprehensive Wetlands Plan

As the rate of growth in the 1980's continued to spiral upwards on the CNMI Island of Saipan, the CRMO initiated a comprehensive study of existing wetlands on Saipan to devise a judicious policy for managing these valuable resources. The study included a complete inventory of Saipan's existing wetlands, the identification of wetland-associated flora and fauna and the proposing of a ranking, mitigation, and targeted-site preservation strategy for managing the existing wetlands. The plan is a useful tool for all the CNMI regulatory agencies whose mandate includes the protection and preservation of this unique resource.

Sedimentation Control Management Planning and Guidebook.

Non-point source runoff of eroded sediments poses a major threat to the CNMI's lagoon ecosystems and coral reefs. For the CNMI the sediment runoff problem was found to be particularly acute during the mid 80's through 1991, its peak period of growth and development. The CRMO responded to this problem by establishing standardized erosion control-planning permit conditions and by incorporating an active monitoring program for major project sites. At places where erosion problems are considered to be particularly serious, ponding basins must be built to settle and hold the sediments. Additionally, the CRMO, together with the U.S.D.A. Soil Conservation Service and the Commonwealth's three Soil and Water Conservation Districts, funded the development and publication of a comprehensive CNMI stormwater control handbook for use by the local engineering firms and by the general public.

Saipan Indigenous Plant Guide.

In order to provide a more complete understanding of the unique flora of Northern Marianas and to encourage better methods to preserve and enhance it, the CRMO and the CNMI's Forestry Department sponsored the compilation of a pictorial plant guide. This guide includes plant descriptions, natural history/distribution, economic uses, taxonomy (scientific names and common names in Chamorro, Carolinian, and English), and propagation/revegetation techniques that can be accomplished using native species.

Environmental Education.

CRMO has been very successful in promoting public awareness and action by leading and participating in numerous island beautification and public education campaigns. CRMO has recently conducted and/or participated in several workshops for the public as well as for government employees and policymakers on relevant environmental topics such as erosion and stormwater control, wetlands, indigenous plants, groundwater, solid waste management, and environmental impact assessments.

Upon request the CRMO staff makes presentations to school children on coastal resources and accompanies teachers during field trip events. CRMO has also recently published in the local media several press releases on current affair topics including coral spawning events, whale sightings, sand mining effects, nonpoint source pollution control efforts, and public participation and general environmental awareness.

Ohio

COASTAL MANAGEMENT PROGRAM

BACKGROUND

In March 1989, Ohio adopted a law for the comprehensive management of Lake Erie. The statute has been amended three times to (1) establish the Lake Erie Commission and Lake Erie Protection Fund, (2) create a program to establish submerged lands preserves and regulate underwater salvage activities, and (3) modify the erosion hazard area management provisions of the law.

The Ohio Department of Natural Resources (ODNR) is designated the lead agency for development and implementation of the coastal program and the law confers important authority upon the Director of ODNR. The law directs all agencies of the state to cooperate with ODNR in the development and implementation of the coastal management program and that their action be consistent with the program.

The Coastal Resources Advisory Council advises the Director and Department on policies and actions necessary to preserve, protect, develop, restore or enhance coastal resources of the state and makes recommendations on development of policies, plans and programs.

The Ohio Coastal Management Program (OCMP) is in the final phases of program development. The state has entered into two cooperative agreements with the National Oceanic and Atmospheric Administration since October 1, 1992, to assist preparation of the final program document and environmental impact statement. Federal assistance is helping ODNR accelerate the identification and mapping of the Lake Erie erosion hazard area as well as promulgating rules for controlling development in the erosion hazard area.

The collective provisions of Ohio's coastal management law provide for a comprehensive and coordinated program consistent with the federal Coastal Zone Management Act. The state of Ohio is already in the business of coastal management and has many accomplishments to its credit as it moves toward full implementation of the program.

ACCOMPLISHMENTS

▸ Public Trust - the proprietorship responsibility over the waters and submerged lands of Lake Erie was transferred from the Ohio Department of Administrative Services to ODNR as an integral part of Ohio's comprehensive coastal management program. On April 20, 1992, ODNR adopted Ohio's first-ever rules for the administration and leasing of the territory of Lake Erie. These rules contain objective criteria for evaluating applications to lease Lake Erie submerged lands. ODNR also produced an educational brochure in collaboration with the Chicago Title Company and State Attorney General on the Public Trust Doctrine and Ohio law as it pertain to conveyance of submerged lands.

▸ Lake Erie coastal flood hazard area rules were adopted July 16, 1990. These are the floodplain management requirements for counties and municipalities containing coastal flood hazard areas.

▸ Ohio's Lake Erie erosion hazard areas are being mapped based on amendments to the coastal management law. Enforcement rules are being drafted, and a streamlined state permit program is being developed. Control of

development within erosion hazard areas by local governments through similar zoning ordinances or resolutions is allowable under the law.

▸ Public access - Ohio's public access facilities and sites on Lake Erie were inventoried in ODNR's Lake Erie Access Study. This report responds to the need for up-to-date information on recreation resources along the Lake Erie shoreline. A survey of user issues helps to determine future trends and insight into possible cooperative projects for outdoor recreation on the lake. The Lake Erie Access Study will be periodically updated to reflect new trends and provide additional recommendations.

A financial assistance program has been established to provide up to 50 percent matching funds to local agencies for public access projects in ODNR's "Lake Erie Access Program." Due to the positive response from local lakefront agencies, many sites originally listed as having potential for public access are now existing facilities for boating, launching and shoreline fishing.

▸ Coastal Barriers - Ten units have been mapped and included in the federal Coastal Barrier Resources System (CBRS) along Ohio's 262 miles of Lake Erie shore.

▸ Ohio Lake Erie Commission/Ohio Lake Erie Office - The Ohio General Assembly created the Ohio Lake Erie Commission in 1990 for the purpose of ensuring the coordination of state and local policies and programs related to Lake Erie water quality, toxic pollution control and resource protection. The Commission is comprised of the directors of the Ohio Environmental Protection Agency and Departments of Natural Resources, Agriculture, Health, Development and Transportation. In 1992, the Governor established the Ohio Lake Erie Office to act as staff for the Commission. The Office administers the Lake Erie Protection Fund, organizes Ohio's Coastweeks celebration, prepares the Governor's State of the Lake Report, and represents the state in numerous Great Lakes forums. The Commission and its staff serve the coastal management program in education and outreach activities.

▸ Lake Erie Protection Fund - The Lake Erie Protection Fund (LEPF), established by statute in 1990, is used to award grants that will help protect and enhance Lake Erie through research, monitoring, demonstration and education projects. Since 1992, over $1 million has been awarded from the LEPF. The LEPF is administered by the Ohio Lake Erie Office, on behalf of the Ohio Lake Erie Commission. The LEPF is supported through payments from the Plate and Lake Erie Credit Card programs, and donations from individuals, organizations an corporations.

▸ Submerged Lands Preserves - a program enacted March, 1992, as an amendment to Ohio's coastal management law provides for the establishment of submerged lands preserves for areas of historic and archaeologic resources such as shipwrecks, and other areas of scientific, cultural or ecological significance. The Ohio Historical Society cooperates with ODNR in the administration of this program and has approval authority for areas nominated as preserves as well as for applications to perform salvage work on shipwrecks or abandoned property.

▸ Wetlands - Ohio is acquiring and restoring wetland habitats in the Lake Erie Marshes region, a priority focus area of the North American Waterfowl Management Plan. The acquisition-protection of coastal wetlands, wetlands restoration, and increasing the effectiveness and efficacy of wetlands regulation are key components of Ohio's efforts to conserve and protect this critical natural resource.

The OCMP was instrumental in securing $392,000 in federal funds for the acquisition/protection of wetlands at Mentor Marsh, also a unit of the federal Coastal Barrier Resources System. The U.S. Fish and Wildlife Service selected the project for 75% funding under the National Coastal Wetlands Conservation Grant Program.

Partnership projects at Maumee Bay State Park, Sheldon Marsh and Mentor Marsh State Nature Preserves, and Pickerel Creek, Metzger Marsh, and Pipe Creek State Wildlife Areas all involve public/private partnerships and state/local/federal cooperation. This is resulting in the protection, restoration and interpretation of thousands of acres of coastal wetland habitat.

OLD WOMAN CREEK NERR

Background

Ohio boasts the nation's only reserve on the entire Great Lakes, the Old Woman Creek State Nature Preserve and National Estuarine Research Reserve. Following the suggestions of the National Oceanic and Atmospheric Administration (NOAA), the state of Ohio developed a formal administrative linkage between the Old Woman Creek NERR and the Ohio Coastal Management Program.

The reserve, a Great Lakes-type freshwater estuary, is located near Huron, Ohio, on a drowned stream mouth that drains into Lake Erie. Ohio has already lost nearly 90% of its original wetlands so information gained from scientific studies carried out at OWC NERR is extremely important to coastal resource managers and decision makers in Ohio and throughout the Great Lakes region.

Within the reserve, several aquatic and terrestrial habitat types have been identified including: embayment marshes, swamp forests, mud flats, oak-hickory upland forests, barrier beaches, and the open waters of the estuary. Hundreds of species of algae, vascular plants, invertebrates, mammals, reptiles, amphibians, fishes, and birds inhabit the reserve. Several are threatened, endangered or species of special concern such as the American bald eagle, sharp-shinned hawk, eastern fox snake, and the spotted turtle. The reserve also serves as an important nursery and spawning area for numerous species of Lake Erie forage and sport fish.

Administration

The OWC NERR is administered as a cooperative state/federal partnership. Budgetary and policy decisions are shared by the on-site reserve manager and staff from various offices of the Ohio Department of Natural Resources (ODNR) and NOAA's Office of Ocean and Coastal Resources Management (OCRM).

Staff - Four permanently assigned staff have been provided by ODNR to carry out the daily operations of the reserve: a manager, research coordinator, education coordinator, and natural resources coordinator. When state or federal financial assistance is available, seasonal staff are employed to conduct critical ecological monitoring, education, and resource protection projects.

Support Facilities - The reserve administrative offices are located on-site in the Ohio Center for Coastal Wetland Studies which also includes a visitor center, classrooms, research laboratories, and library. A 16-bed dormitory, maintenance facility, boardwalk and trail network, and observation decks have also been completed in the reserve.

Goals of Old Woman Creek NERR

The goals of the OWC NERR are to protect the natural integrity of the estuarine ecosystem; conduct long-term studies in the reserve to gain a better understanding of natural and human process occurring within the reserve and watershed; develop information for improved coastal decision making; and to enhance public awareness, understanding and stewardship of estuarine resources in the Old Woman Creek Reserve and other Great Lake coastal wetlands.

Education and Outreach Programs

The reserve provides an array of educational programs that increase public awareness of estuarine ecosystems and coastal zone management issues. Over the past two years,

thousands of people from 49 states and 21 foreign countries visited the reserve and/or participated in educational programs, classes and workshops. Program components include professional seminars for natural resource managers and coastal decision makers, college-level estuarine ecology classes, natural history lectures, environmental curricula for schools, and interpretive materials such as brochures, color posters, and slide talks.

▸ The NERRS Program is currently providing financial assistance for the OWC NERR to develop an educational stewardship program for watershed residents and agricultural producers. the goal of this effort is to improve and sustain good water quality in the watershed and estuarine wetlands by encouraging improved agricultural land use and by identifying other non-point source pollution problems.

▸ Initiated a cooperative education project with the National Aeronautics and Space Administration (NASA) Lewis Research Center, Cornell University, and the Hudson River NERR to develop materials and activities for NERRS & NASA educators throughout the nation. The project has incorporated remote sensing techniques and skills into educational programming throughout the system.

Research and Monitoring

Research on coastal saltwater estuaries has demonstrated the importance of these wetlands in providing many natural and economic benefits. Studies undertaken at OWC NERR are directed towards determining the extent that Great Lakes-type freshwater estuaries perform similar functions. Reserve staff and regional scientists have developed a broad-based program of basic and applied research, coupled with long term environmental monitoring.

▸ Nearly 80 research publications completed by scientific investigators on such topics as exotic species in the Great Lakes, the effects of toxic pollutants on Lake Erie fisheries, nutrient dynamics, and wetland ecosystem modeling. Results of these studies have been disseminated to libraries, universities, and resource agencies throughout the Great Lakes region.

▸ More than a dozen monitoring projects have been completed by OWC NERR staff and regional scientists on such topics as the impact of highway construction on estuarine water quality, floral and faunal community profiles, and non-point source pollution.

▸ As part of the national Water Quality Initiative, the OWC watershed has recently been chosen as a demonstration project by the U.S. Dept. of Agriculture and ODNR for intensified efforts to improve water quality. Participating landowners are applying best management practices to mitigate non-point source pollution of ground and surface water, thus improving water quality in the stream and Lake Erie.

As a direct consequence of strong institutional relationships between the Old woman Creek NERR and the OCMP, Ohio is fully integrating its National Estuarine Research Reserve into a broad-based approach to managing coastal resources.

Oregon
COASTAL MANAGEMENT PROGRAM

BACKGROUND

Oregon's Coastal Management Program (OCMP) has its roots in state plans and policies developed in the early 1970's. In 1977, Oregon's program was the Nation's second to be approved under the federal Coastal Zone Management Act. The OCMP consists of three major elements: 19 statewide planning goals, local government comprehensive plans and ordinances which are consistent with the planning goals, certain state agency programs.

I. Enhanced Management Capability: Planning Procedures and Process -- An Established State-Local Planning Partnership for Managing the Cumulative Effects of Development.

Coastal development pressures are directed to a relatively small but very diverse and valuable land base. Oregon's coastal communities tend to be small and could be overwhelmed by sheer numbers and scale of development proposals. To meet these conditions, all cities and counties have developed comprehensive plans, zoning ordinances and site specific urban growth boundaries to carry out state planning goals to manage growth and protect coastal resources.

The Department of Land Conservation and Development (DLCD), Oregon's coastal management agency, administers the statewide goals, coordinates the various coastal program elements, and assists local governments financially and technically. The periodic review process creates an opportunity for the local community and the state to evaluate the effectiveness of comprehensive plans. Where plans are shown to be ineffective, DLCD is empowered to use the process to require changes to local plans.

II. Improved Resource Management: Specific Issues

Water Quality: Oregon's 1988 Statewide Assessment of Nonpoint Sources of Water Pollution and Coquille River basin project, part of the EPA Near Coastal Waters initiative, demonstrate technical expertise in water quality and a is record of innovative work with citizens in watershed pollution problems. Oregon is prepared to implement the federally required Coastal Nonpoint Pollution Control Program (Section 6217) on a comprehensive watershed basis pending receipt of adequate financial resources.

Wetlands: OCMP agencies secured new (1989) legislation integrating land use planning and wetland management. Adopted wetland conservation plans, modeled on recommendations of the National Wetland Policy Forum, will be fully coordinated with local comprehensive plans. A state wetlands inventory and a notice system coordinating local land use decisions that may affect inventoried wetlands is nearing completion.

Natural Hazards: OCMP agencies are: 1) providing new geologic information to local governments to ensure that comprehensive plans and ordinances and state agency programs address the potential for catastrophic earthquakes, tsunamis, ocean inundation, land slides, and other chronic natural hazards; 2) assisting local governments to develop and implement technical standards for geotechnical reports and standards for reviewing, analyzing, and using geotechnical information in making decisions about development proposals

Public Access: 90% of the Oregon coast is in public ownership and the under Oregon law the public retains a paramount right of access to the other 10%. OCMP agencies funded a detailed inventory of some 1000 public access points, developed a logo sign for coastal public accesses, and prepared a draft model ordinance for use by cities and counties to implement state requirements to retain public ownership of public lands which improve access to coastal waters. Oregon has dedicated its 306A funds to purchasing and constructing public accesses to coastal waters. The 306A program is very popular with local governments and the public. Resources available are far short of demand.

Ocean Resources: Oregon has prepared and adopted (1990) a comprehensive framework plan for ocean resource management within the 200 mile U.S. Exclusive Economic. The plan emphasizes stewardship of renewable ocean resources and protection of marine habitats. Eight state agencies and five federal agencies participated directly in the extensive public process. An Oregon territorial sea plan, due in 1994, will provide a mandatory framework for local, state, and federal agency plans, programs, rules and regulations pertaining to resource management within Oregon's territorial sea.

Public Information & Publications: Oregon produces publications for use by local governments, state and federal agencies and of interest to the public, some examples:
-- Citizens Guide to the OCMP
-- Oregon Estuary Plan Book
-- Oregon Ocean Plan
-- Federal Consistency Brochure
-- 306A Field Guide
-- Highway 101 Visual Management Study
-- Foredune Management Handbook
-- Destination Resort Handbook
-- Waterfront Revitalization Guide

Pennsylvania

COASTAL ZONE MANAGEMENT PROGRAM

BACKGROUND

In 1972, Congress passed the Coastal Zone Management Act (CZMA) to provide for "a national program for the management, beneficial use, protection and development of the land and water resources of the Nation's coastal zones." Coastal states have two incentives to participate in the national program. The first is the availability of federal funds to develop and implement state programs. The second is the federal consistency requirement of the CZMA. All federal activities, permits or funding that affect a state's coastal zone must be consistent with the enforceable policies of the state's federally approved coastal program.

Pennsylvania's Coastal Zone Management Program (CZM) was approved in 1980. From the beginning, CZM's goal has been to create and maintain a balance between environmental protection and economic development in the state's two coastal zones: Lake Erie and the Delaware Estuary. The backbone of the program is a strong federal, state and local partnership that ensures the preservation of Pennsylvania's coastal resources. The program's current emphasis is on coastal hazards, public access, wetlands, public involvement and education, and the Delaware Estuary Program.

Coastal Hazards

Pennsylvania's Bluff Recession and Setback Act provides a long-term, regulatory approach to reducing property losses from bluff recession along Lake Erie. The act requires municipalities in bluff recession hazard areas to develop, adopt and administer bluff setback ordinances. The ordinances restrict new development from bluff areas and limit improvements to existing structures within the minimum bluff setback distance. Currently, the act restricts development only from the bluff crest landward. CZM wants to strengthen the law by including the regulation of structures placed lakeward of the bluff crest in a high hazard area known as the bluff face. CZM also plans to improve its bluff recession monitoring techniques; for example, by establishing additional control points to monitor the rate of recession.

Public Access

Improving public access to the coastline is a major initiative of the federal coastal program. In Pennsylvania, public access to the coastal areas has been constrained by industrial development, private ownership and natural barriers. Although CZM has made great progress in providing public access to coastal waters, the program wants to expand and improve its efforts. Some areas that CZM is exploring to improve public access include using public rights of way for stairway access to Lake Erie; identifying other sources of public and private funding for public access projects; and using public lands for experimental projects, such as stairway construction.

Wetlands

CZM takes the preservation and protection of wetlands within its coastal zone boundaries very seriously. The program has taken innovative approaches, beyond the normal coordination and review process, to ensure all coastal wetlands are identified, monitored and vigorously protected or restored. The state Dam Safety and Encroachments Act and its amendments adequately protect wetlands within

the coastal boundaries. However, coastal wetlands are significantly affected by activities in wetlands and waterways beyond the coastal boundaries. CZM is looking into the possible expansion of its boundaries to include hydrologically connected wetlands and waterways.

Public Involvement and Education

CZM provides the public with opportunity for early and continuous involvement in managing the state's coastal resources. The locally run Coastal Zone Steering Committees are CZM's main vehicles for disseminating program information in the coastal areas and for receiving feedback on CZM issues and activities. Current public education material includes a quarterly newsletter, information pamphlets, program booklet and fact sheets. CZM is increasing its public awareness efforts with a reconstituted slide show and portable exhibit.

Delaware Estuary Program

CZM continues to coordinate Pennsylvania's participation in the tri-state Delaware Estuary Program. The Program is a commitment of Pennsylvania, New Jersey, Delaware, the U.S. Environmental Protection Agency and numerous advisory committees to promote long term planning and management of the Estuary's resources. Through a cooperative effort, the Delaware Estuary Program has developed a Comprehensive Conservation and Management Plan (CCMP) which both documents and recommends approaches for correcting and preventing problems in the estuary. The "Draft" CCMP was published for public review in February, 1995 and is currently being reviewed by both agencies and the public. The "Final" CCMP is scheduled for EPA and the States' approval in October 1995.

Protection of Coastal Waters from Nonpoint Source Pollution

CZM is developing a coastal nonpoint pollution program. It will help coordinate existing laws and regulations to target specific types of water pollution originating in coastal watersheds. The program will help ensure that management measures designed to reduce polluted runoff from a variety of activities are put into place through education, voluntary activities, and existing regulatory programs. Already funded are projects to produce educational materials, and to map land use and water quality in coastal watersheds using a Geographic information System. Anticipated activities include a citizens' monitoring program, an anti-freeze recycling effort, and demonstrations of wetlands and streambank protection projects that will help to reduce sediment pollution of coastal waters.

ACCOMPLISHMENTS

▸ Since 1981, CZM has provided a free site analysis and recommendation service to Lake Erie property owners affected by shoreline erosion and bluff recession. The service consists of on-site inspections and recommendations on surface and groundwater control, bluff stabilization and the role of vegetation to stabilize loose soil conditions. In the first seven years of the service, approximately three-fourths of the surveyed property owners followed CZM's recommendations, resulting in an estimated property damage savings and property value enhancement of $5,250,000. Pennsylvania is the <u>only</u> Great Lakes state to offer this service.

▸ In 1991-92, CZM helped detect approximately 17 coastal wetlands violations through the use of aerial photography and the program's annual helicopter overflight program. Enforcement has begun on a majority of the sites.

▸ In an economically depressed area of Chester, Delaware County, CZM provided more than $217,000 for construction of a public fishing and boating facility. The Commodore Barry Bridge Public Access Site has four boat ramps, two permanent piers, two floating docks, and parking for more than 150 cars and trailers. This is the only publicly owned fishing and boating facility on the estuary in Delaware

County and serves the tri-state region of Pennsylvania, New Jersey and Delaware.

▸ CZM has played a strong supporting role in Erie's downtown revitalization efforts. More than $170,000 in federal funds were used to enhance the waterfront area with such amenities as wooden sidewalks, benches and decorative lighting. These improvements have helped focus attention on the area and, consequently, many private developers are committing funds for future development efforts.

▸ CZM assists waterfront developers along the Delaware Estuary through its Urban Waterfront Action Group. The group conducts meetings with developers and federal, state and local government officials during the initial stages of a waterfront project. The meetings help identify and resolve potential problems that could incur costly delays in securing federal and state permits.

▸ CZM certifies Lake Erie shoreline structures for claims under an amendment to the National Flood Insurance Program. The Upton-Jones Amendment provides reimbursement to property owners for the relocation or demolition of insured structures that are in danger of collapse over the bluff because of erosion caused by high lake levels. The amendment has been repealed however, and the claims can no longer be filed after September 1995. CZM has been monitoring federal regulations development for a grant program directly to states to administer a similar flood insurance program.

Puerto Rico

COASTAL ZONE MANAGEMENT PROGRAM

OVERVIEW

The Commonwealth of Puerto Rico is the smallest and easternmost island of the Greater Antilles chain. The coastal areas include rocky cliffs, sand dunes, beaches, fresh and salt water lagoons, forests, mangroves, swamps, flood plains, coral reefs, and seagrass meadows. Agriculture has been largely supplanted in the Island's economy by manufacturing, wholesale and retail trade, business and personal services, and tourism. The coastal area is vital for the Island's tourism, as well as for local recreation. The Island's population has increased from 2.7 million in 1970 to 3.6 million in 1990, which produces a current density of 1,025 persons per square mile.

The Puerto Rico Coastal Management Program (PRCMP) was adopted in 1978 by the Puerto Rico Planning Board (PB) as an element of the island-wide Land Use Plan; it reflects the PB's 1977 Statement of Land Use Policies and Objectives. The Department of Natural Resources (DNR) is the designated lead agency for administration of the PRCMP. Other Commonwealth agencies that participate in program implementation are the PB, the Environmental Quality Board (EQB), and the Regulations and Permits Administration (RPA). At the present time, Puerto Rico's 78 municipal jurisdiction do not regulate planning, zoning or building permits, which are the functions of the PB and RPA at the state level.

The boundary of Puerto Rico's coastal zone extends inland 1,000 meters from the shoreline, and further inland in places where it is necessary to include critical drainage basins, plus all offshore islands and waters within the 3-mile limit set by the Coastal Zone Management Act of 1972 (CZMA). In 1980, Congress amended the Puerto Rico Federal Relations Act to define the territorial waters of the Commonwealth as extending 3 marine leagues (10.35 nautical miles) from the shoreline, reflecting the Spanish antecedents of the Commonwealth, which also apply in Texas and Florida.

The PRCMP covers four major elements, including:

- Guiding development on public and private lands;
- Active management of coastal resources;
- Promoting coastal development; and
- Research

The process for guiding development is implemented by the four agencies mentioned above. The primary responsibility is with the PB, which is charged with regulating all land use, and with reconciling conflicts among policies and objectives. In the review of proposals for development, DNR serves as advocate for the natural resources, commenting to the PB on both the proposals and their environmental impacts, if any. This enables the PB to balance the needs for economic development against the need for conservation or preservation of critical resources. The adoption of the PRCMP by the PB as an element of the Land Use Plan established four new policies: protection of mangroves; access to beaches; protection of sites required for water-dependent development; and criteria for diking, filling, dredging, and the deposit of dredged materials. The adoption of the PRCMP also designated eight Special Planning Areas, one of which covers also fringing coastal mangroves. The PRCMP also identified a list of sites recommended for

designation as Natural Reserves, and established the Coastal Management Office (CMO) within the Office of the Secretary of DNR. The PB was assigned the responsibility of certifying Federal Consistency with the PRCMP for all Federally sponsored or assisted projects in the coastal zone.

Active management emphasized field services and facilities; management of the natural reserves (once they are designated by the PB); clarification and extension of public property rights; and the adoption of regulations to deal with sand extraction, the protection of coral reefs and archeological sites (including historic shipwrecks), and squatter communities on lands in the public domain.

Promotion of coastal development concentrated on a search for alternative sites for construction aggregates, to reduce the pressure for taking sand from beaches and sand dunes.

Research activities include: studies of coastal erosion; vulnerability of various areas of the Island to natural hazards (earthquakes, floods, hurricanes, landslides, and storm surges); mapping of coastal high hazard areas, as a basis for mitigation planning; conducting inventories of coral reefs, beaches, and the resources of Special Planning Areas and proposed Natural Reserves; and field laboratory activities in coastal forests.

OUTSTANDING ACCOMPLISHMENTS

1. Hazard Mitigation: The Natural Hazards Program in DNR, created in response to the PRCMP, has played a major role in hazard mitigation planning and project implementation, as follows:

a. Hazard Mitigation Plans were prepared or updated following Presidential disaster declarations in Puerto Rico, including:

FEMA 597-DR August/September 1979 (Hurricanes David/Frederick)
FEMA 736-DR May 1985 (Floods)
FEMA 746-DR October 1985 (Floods and Landslides)
FEMA 768-DR May 1986 (Floods)
FEMA 805-DR November/December 1987 (Floods)
FEMA 842-DR September 1989 (Hurricane Hugo)
FEMA 931-DR January 1992 (Floods)

b. As an outcome of the first hazard mitigation document, a Flash Flood Warning System has been designed and installed in stages; it now serves about one million people (one-third of the total population).

c. The first flood areas has been completed, at a cost of $43 million in local funds. It involved the relocation of 1,300 families, clearing floodways and removing obstacles, and restoration or construction of protective dikes in the lower reaches of the Río Grande de Loíza, east of San Juan.

2. Resources Protection: PRCMP tasks provided the basis for several activities of importance for the conservation/preservation of critical resources:

a. Designation of 19 Natural Reserves was accomplished, out of a total of 28 suggested for consideration in the PRCMP document.

b. Studies conducted by staff of the Research Area who received special training provided the evidence of damage to coral reefs resulting from the grounding of the ferry A. Regina, which brought about the settlement of the case with an agreement to remove the wreck and to compensate the Commonwealth for damages to the resources.

c. The Jobos Bay National Estuarine Research was designated in 1981; located on the south coast, it involves offshore sea-grass beds, coral reefs, and mangrove areas.

OTHER ACCOMPLISHMENTS

1. Guiding Development: A pate from the routine processing of applications related to development in the coastal zone, the following are the major accomplishment worthy of mention:

a. The PB adopted Planning Resolution Number 17, to regulate development in coastal areas and access to the beaches of Puerto Rico; the new regulation tool effect 31 March 1983.

b. The PB's Federal Consistency Unit has been increased to accommodate a higher level of activity, and to be able to respond with alternate courses of action for projects that are denied consistency certificates.

c. The DNR is developing a new draft of a Regulation for the Maritime Zone of Puerto Rico, which relates primarily to lands in the public domain and to potential siting of water-dependent activities.

d. The DNR Natural Hazards Program, working in support of the State Civil Defense Agency, has developed 16 acres-specific hazard mitigation plans. The Sea Grant College Program at the University of Puerto Rico/Mayaguez has developed the preliminary bathymetric and storm surge data. The National Hurricane Center in Coral Gables, Florida, has prepared and delivered to DNR a Storm Surge Atlas for the Puerto Rico Area, for use in developing evacuation plans. The evacuation plan for the San Juan metropolitan area, which was put into effect is some coastal communities for Hurricane Hugo, proved its value, since only 4 lives were lost in that event.

e. The Flash Flood Warning System was expanded in two additional stages to cover additional parts of the Island, using local funds.

2. Active Management of Resources: The CMO and the DNR's Area of Forests, Sanctuaries, and Natural Reserves conduct most of the management activity, supported by the Operations Area.

a. A model mangrove management plan was prepared, as well as a manual for restoring mangrove stands.

b. An evaluation was made of the protection offered by sand dunes, and a dune restoration manual was prepared. A pilot project to demonstrate the feasibility of dune restoration is under consideration.

c. Full-time management teams have been established at the La Parguera and Tortuguero Lagoon NRs, and resource management plans have been prepared and are being implemented.

d. A major environmental education program has been undertaken, with five environmental educators assigned to various regions of the Island.

e. The study of public access to the beaches has been updated; a section will be added on needed facilities to promote the use of public beaches.

f. The Legislative Assembly enacted Law Number 48, which assigns to DNR the responsibility for registering small vessels, as well as for delineating areas to be reserved for swimming at the most popular beaches, so as to keep recreational boats, jet skis, etc., away from swimmers.

3. Promotion of Coastal Development: The Puerto Rico Ports Authority has the primary responsibility for port zones, as defined by special regulations. Thus a long-term renovation of the Old San Juan waterfront is being guided by a special commission. DNR's jurisdiction is relatively limited, but it has undertaken two major projects:

a. A search for offshore sand deposits was carried out, to provide alternate sources of sand for construction. Three such sites were identified.

b. A marine siting study was conducted over the course of several years, to identify potential sites, and to developed.

4. Research: A number of major activities have been undertaken in DNR:

a. A vulnerability Atlas was prepared to indicate critical areas that are to receive priority attention in case of spills of oil or other toxic materials.

b.The DNR is seeking way to coordinate research projects with the Sea Grant College Program at the University of Puerto Rico at Mayaguez.

c. The Legislative Assembly established a Natural Heritage Program in DNR, which is charged with identifying critical habitat and environmental areas and assigning a rank order for protection and possible acquisition.

d. Through a contract for the evaluation of potential archeological sites in the Boca de Cangrejos-Vacía Talega coastal area, more than 250 such sites have been identified. An Underwater Archeological Council was created by the Legislature to deal with shipwrecks.

South Carolina

COASTAL ZONE MANAGEMENT PROGRAM

PROGRAM OVERVIEW

The S.C. Department of Health and Environmental Control's Office of Ocean and Coastal Resource Management (OCRM) is the state agency that implements South Carolina's Coastal Zone Management Act and federal coastal zone policies. The agency's two-pronged charge is easy to state: protect coastal resources and promote responsible development. Development and environmental concerns, however, are often polar opposites, making the agency's mission easy to state but seemingly difficult to implement. OCRM overcomes this by running a program based on scientific fact and sound management policies.

South Carolina's Coastal Zone Management Act was approved in 1977. OCRM has direct permitting authority over South Carolina's beaches, coastal waterways and salt marsh. The agency reviews a variety of projects and addresses a myriad of concerns. Boat docks, marinas, fishing piers, impoundments, access roads, bridges, shopping malls, sewage treatment plants, and a clam farm are just a few of the types of projects the agency reviewed last year. Through the certification program, the agency is involved with the regulation of freshwater wetlands and non-point source pollution as well.

With 44 employees, the agency is considered small, yet powerful. An estimated 85% of the projects that are built in South Carolina eight coastal counties need OCRM approval before construction can begin.

OCRM was recently named the first winner of NOAA's Coastal Zone Excellence Award, a competition to name the nation's best coastal zone management program. There is no one aspect of the program that caused the agency to win this prestigious award. OCRM's overall commitment to being fair to the developer and yet offering a high level of protection to the environment is the guiding principle that makes the agency a model for others.

South Carolina's coastal program can be divided into the following categories:

Permitting

- Beaches - Tourism is the State's second largest industry. Wide, healthy beaches are just an important to this industry as the conveyor belt is to the factory. South Carolina's coastal program is making sure the State's continuing development doesn't kill the goose that is laying the golden eggs. The agency's jurisdictional boundaries are determined by erosion rates (the higher the rate, the farther landward the jurisdiction); in this zone there are size and location restriction for homes and businesses. Hard erosion control structures, which can damage the beach, are prohibited. Dune stabilization measures and beach nourishment is encouraged.

The private sector is joining in these efforts. The insurance and banking industry is starting to encourage property owners to move landward. Local government ordinances are doing the same.

- Docks - Access to the resource is becoming a problem. Like most things, access is good, but not if it is excessive. Without proper controls, in many areas one could "walk on water" by hopping from dock to dock, and there would be a marina on every bend, just like a

convenience store. OCRM's permitting program strives for adequate, appropriate public access.

Certifications

Before any state or federal permit is issued in the coastal zone, OCRM must first certify that the application is consistent with state coastal management policies. Through this program, the agency is able to review projects that impact freshwater wetlands which are present on virtually any large all tracts of land carved out of the coastal zone. The agency has created many model programs for the protection of this resource.

In the certification department the agency also implements their stormwater management program. Non-point source pollution (stormwater) is thought to be the source of most water pollution. OCRM's stormwater program keeps this pollution to a minimum.

Planning

The best way to eliminate a problem is to avoid it in the first place. OCRM practices this "avoidance" through their planning department. The agency looks at issues (dock proliferation, water quality concerns in the Charleston Harbor) or specific areas (the historic Ashley River), makes a thorough computation of current conditions, projects the future, and makes recommendations (and charges). The "prevention is the best cure" mandate has served this agency and South Carolina's coastal zone well.

Enforcement

Enforcement actions take many forms, from a simple reminder to a stiff penalty. The violations themselves are varied, from someone building a dock that isn't in compliance with his permit, to someone filling in the marsh in the middle of the night.

As is true for the rest of the program, the goal here is to be fair and effective.

For additional information, contact:

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PROGRAM ACCOMPLISHMENTS

A. Beachfront Management

While South Carolina's coastal programs have always been strong, State lawmakers gave their program Hercules strength in 1988 and 1990. Realizing the folly of living too close to the sea, legislators enacted a retreat policy. New buildings and reconstruction are subject to size limitations and must be built as far landward as possible. In some particularly erosional areas, construction is prohibited. All new erosion control structures are prohibited. Old ones will be removed as they fall into disrepair or are destroyed by storms and erosion. All 182 miles of shoreline are impacted by these new laws. Due to their location within the State's forty year setback, an estimated 1600 homes and multi-family dwellings are regulated by this agency. In erosional areas, the setback zone will be adjusted periodically to account for continued erosion.

B. Protection of Wetlands & Storm Water Controls

While national wetland policies are under constant fire, South Carolina has created a freshwater wetland program that pleases both the environmentalist and the developer. This program is called "wetland master planning."

Wetland avoidance is foremost, but smaller (less than one acre) wetlands can be altered if all of the larger, more productive wetlands on the tract are given a greater level of protection through natural surrounding buffers. Wetland functions are preserved and the developer maintains use of his developable property. The wetlands master planning concept offers

freshwater wetlands as much protection as the "no net loss" plan, but is more effective because developers find it more flexible.

Golf courses, which are plentiful in the coastal zone, provide the agency with a particularly interesting challenge. It is almost impossible to build a golf course along the coast without running into an abundance of freshwater wetlands. Runoff impacts can be severe due to the heavy maintenance that is required. OCRM recently combined these two negatives to make a positive, using the natural "kidney" action off the freshwater wetland to filter the storm water runoff. The same process was used at a sewage treatment plant in Myrtle Beach.

This past fall the entire state participated in for the first time a state-wide stormwater management program. OCRM's program will include binding maintenance agreements, additional compliance inspections, and strengthened enforcement authority.

C. Enforcement

While all of the aforementioned sounds good, talk is cheap. No regulatory program can expect to succeed if the policies aren't backed with solid penalties for those who choose to mismanage coastal resources. OCRM practices the "big stick" theory and supports an enforcement team that get results.

With regular patrols, the agency handles an average of 200 cases per year. Fines range from a flat fine of $100 to $1000 per day for civil penalties or up to $5000 per day for criminal penalties. Restoration is almost always required.

The OCRM's enforcement program recently expanded. The same penalties that await those who do not follow permitting directives can now be used against those who violate the policies on the agency's certification department. The staff no longer has to depend on the actual permitting agency to ensure compliance. Stormwater ponds that aren't quite right or mitigation plans that were never carried out can result in strong penalties. A golf course owner that illegally altered freshwater wetlands, for instance, was required to complete a restoration plan that is estimated to have cost $250,000.

While OCRM is very involved in the protection of freshwater wetlands, the U.S. Army Corps of Engineers is the lead permitting agency for this resource. The recently completed Section 309 Assessment said enforcement was the Corps most serious shortcoming in their freshwater wetland regulatory program. This year, the Corps of Engineers is attempting to correct this in part by contracting with OCRM to help the federal agency track down wetland violations and violators. The Environmental Protection Agency Region IV is also a party to this contract. To our knowledge, OCRM is the first state agency to offer this type of support to a federal program.

Ashepoo-Combahee-Edisto (ACE) Basin National Estuarine Research Reserve

As coastal development and human populations have increased throughout the United States, the ACE Basin of South Carolina has remained remarkably pristine. This quality has drawn national attention to the biologically-rich basin of the Ashepoo, Combahee and Edisto (ACE) rivers. Some 350,000 acres that lie about 45 miles south of Charleston and include portions of Charleston, Colleton, Beaufort and Hampton counties make up the basin.

Recognizing the need to protect the exceptional natural resources of the ACE Basin, federal, state, local and private interests are working together in an unprecedented conservation

initiative. The ACE Basin National Estuarine Research Reserve (NERR) is one environmental project that Congressmen, environmentalists, developers, sportsmen, and government agencies agree on. Commercial fishermen see it as a way to protect their livelihood; developers know that good natural areas make good neighbors; and scientists see the ACE Basin as an unparalleled outdoor laboratory for long-term research and monitoring.

As part of the National Estuarine Research Reserve System, administered by NOAA, the ACE Basin program is committed to certain national, state and local goals and objectives. However, the present level of funding is inadequate to successfully expand related activities. Additional funds and talent must be enlisted through Congress. Why should Congress support the ACE Basin NERR? The answer is simple--the Reserve is an outstanding investment because of its societal returns in terms of practical application.

Since the ACE Basin remains much as it was at the turn of the century, it provides an important benchmark to measure man's impacts in disturbed estuaries. Comparing these altered sites with the Reserve helps reveal both obvious and subtle impacts on coastal resources. Of particular importance, research results are made available to federal, state and local agencies responsible for making coastal management decisions. Such information benefits not only those directly involved in research, but the nation as a whole when results are applicable to other coastal areas.

An example of such research can be seen in three large-scale projects proposed for 1993-1994 in the ACE Basin NERR. All three studies are focused on non-point source pollution within the watershed. Although methodologies and parameters are defined differently, each project is designed to answer the same standardized, management-oriented question: "How will non-point source pollution affect estuarine ecosystems?" Results from these studies will benefit the state and local governments and may be applicable to other coastal areas.

The inexorable trend toward more intensive use of our estuaries is generating new research requirements throughout the nation. The ACE Basin NERR, because of its pristine qualities and great biological diversity, has the potential to attract top level scientists to carry forward expanded programs, embracing many disciplines. However, Congressional support is needed to see that personnel, facilities and fiscal resources are made available. Such support will also bolster a strong relationship with the state's research-oriented university groups. Scientists already have established confidence in the integrity of the ACE Basin study sites. They also know that data collected will contribute to a growing data bank of increasing scientific significance.

The Reserve also plays an important role in environmental education.The education program focuses on values of the estuary and its wise use. On-site programs are provided in association with elementary and secondary school systems, civic and environmental organizations, colleges and universities and other groups to foster individual responsibility and stewardship of estuarine resources.

The Reserve serves as a training ground for science teachers. Special workshops are designed to introduce teachers to marine science and provide hands-on examination of the physical and biological features of various wetland habitats. Since the ACE Basin is an "outdoor laboratory", it offers an excellent opportunity to capture the student's interests in the scientific world, where textbooks cannot. Perhaps the most important benefit to be derived from the Reserve is the support it gives to quality education programs which emphasize natural resources and wildlife as a way to understand our responsibilities to all living things.

As land use changes and human impacts progressively decrease the availability of suitable monitoring sites, scientific interests in the ACE Basin will surely increase. Therefore, the Reserve does in fact represent a significant public investment in estuarine research, education and

stewardship--an investment that Congress must support if the Reserve is to fulfill its mission.

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NORTH INLET-WINYAH BAY NERR, SOUTH CAROLINA

In October 1992, the North Inlet-Winyah Bay National Estuarine Research Reserve (NI-WB NMR) was dedicated as the 21st site in the network. The NI-WB NERR is operated by the Belle W. Baruch Institute for Marine Biology and Coastal Research (generally known as the Baruch Institute) of the University of South Carolina (USC) in cooperation with the South Carolina Coastal Council (SCCC), the state's lead agency in coastal zone management.

The NI-WB NERR encompasses a core area of approximately 9000 acres of tidally flushed wetland, riparian habitats, and a limited amount of uplands. With the exception of the state - controlled navigable waters, most of the Reserve and the surrounding uplands are owned by the Belle W. Baruch Foundation, which was established in perpetuity to preserve and conserve the environmental, historical, and cultural qualities of the property. The area is at the southern end of the Waccamaw Neck, immediately east and south of the city of Georgetown in Georgetown County.

The Reserve includes most of the North Inlet Estuary, which is widely recognized for its pristine character, and a portion of Winyah Bay Estuary, specifically the Mud Bay area, which has been influenced by human activities. North Inlet is a salt marsh which is donated by tidal exchanges with the coastal ocean; the marsh is almost entirely surrounded by an undisturbed pine and hardwood forest. In contrast, the Winyah Bay portion of the Reserve is a low salinity embayment which tends to accumulate sediments and contaminants. Discharges of a wide spectrum of materials from an industrial harbor, agriculture, and developments upstream result in degraded water quality within the estuary. In addition to inputs which may affect the ecology of the system, managed activities such as dredging, spoiling, and commercial fishing result in Winyah Buy being a much more altered system than North Inlet. Research and education programs will gather and make available information necessary to improve understanding, appreciation, and management of these estuaries and others of national concern.

The Baruch Institute is a world class research organization which has been conducting studies in these estuaries since 1969. Biologists, chemists, geologists, and others interested in the science, and management of estuaries comprise a group of Associates. They conduct research and train students through undergraduate and graduate programs in Marine Science. Although most of the senior scientists are based in facilities on the USC campus in Columbia, some are in residence in Georgetown. The Baruch Marine Field Laboratory of the University of South Carolina is located on Hobcaw Barony adjacent to the North Inlet salt marsh. A modem research laboratory (about 19,000 sq. ft) completed in winter 1993 serves as the base of operations for studies in the area. With a well equipped and established research laboratory and a resident research staff, opportunities for visiting scientists are especially good. The North Inlet Long-Term Ecological Research (LTER) program, supported by the NSF since 1981, has yielded a comprehensive database for key ecosystem variables. These data plus ecosystem models, GIS maps, and archived collections provide a baseline of information which will be used to detect and interpret changes in the years ahead. Currently, a NERR monitoring program is being implemented to expand our understanding of Winyah Bay and other ecosystem variables,

including pollutants. We also have a far-reaching public education program that provides students, teachers, and citizens with a greater appreciation for estuaries.

Although our research program is established and focused on problems of interest to regulators, managers, and users of coastal resources, adequate grant support for this important task is difficult to obtain. Keen competition for limited dollars for basic and applied research reflects our ability to deliver much needed answers to questions and recommendations to regulators and managers in a timely fashion. The funding levels for research in the NERRS does not begin to reach the level of effectiveness which was anticipated and expected in the establishment of the Reserve System, On a local level, we have many important management issues that need to be addressed so that uninformed decisions which may result in irreversible damage to our estuaries can be avoided. We need your help in identifying and securing additional financial support, especially for technical staff and equipment.

Please feel free to call upon us if we can help you with any information about the North Inlet - Winyah Bay NERR, We would be glad to show you our facilities and the estuaries, In the meantime, thank you for your interest in our program and in the nations' estuaries.

Contact:

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Virginia

COASTAL RESOURCES MANAGEMENT PROGRAM

BACKGROUND

The Virginia Coastal Resources Management Program was established in 1986 as a "networked" program managed by the Council on the Environment (COE). The Program's goals include: prevention of environmental pollution and protection of public health; prevention of damage to the Commonwealth's natural resource base; protection of public and private investment; promotion of resources development and public recreation opportunities; and provision of technical assistance and information. The Program is enforced through state laws and regulations related to fisheries management, subaqueous and tidal wetlands management, dunes management, and point and nonpoint source pollution control. Program activities and improvements include:

Tidal Wetlands

Virginia has approximately 215,000 acres of vegetated tidal wetlands within its coastal zone. Protection of this resource is an important element of the Coastal Program and has been improved through a variety of means.

- In 1990, as a consequence of a study undertaken by the Marine Resource Commission (MRC) and the COE, the legislature granted the MRC new authorities to issue restoration orders, require scientific monitoring to assure adequate restoration, and levy civil fines for violations of the Wetlands and Subaqueous Lands acts. MRC can now apply these penalties for violations such as unpermitted docking facilities, boat ramps, and bulkheads and unauthorized or improperly undertaken dredging.

- The Virginia Institute of Marine Science (VIMS), with Coastal Program funding, has developed legal and educational materials that are being used by all 35 local wetlands boards.

- Boardwalks over wetlands with signage explaining the values of wetlands have helped to educate the general public to support the protection of this resource. As well, since FY 1991 the Coastal Program has helped to acquire nearly 200 acres of sensitive wetlands and their upland buffers.

Fisheries

The goals of fisheries management are to protect food fish stocks from overfishing, to rebuild and maintain the spawning stock of critical species, and to preserve and improve finfish and shellfish stock. The cash value of finfish and shellfish landings in 1990 approached $73 million.

- An important element in improving fisheries within coastal Virginia has been the completion of new fisheries management plans, strengthened regulations, and the development of improved fisheries information. Management plans have recently been completed for bluefish, spot, croaker, American eel, summer flounder, red and black drum, and grey and speckled trout.

- The development of crabbing and fishing piers that include interpretive signage in Suffolk and Charles City County has provided individuals in these rural communities with access to the area's fisheries.

Dunes

Virginia is fortunate in that the majority of its barrier islands are protected either by state or federal ownership or by the Nature Conservancy.

- Nevertheless, development on available barrier islands led the Marine Resources Commission to revise and strengthen its Barrier Island Policy to better protect both this important resource and those investing on these lands. The policy places tight restrictions on the location of development and on vehicle access to the barrier islands.

- Additional protection has been afforded to Bayside dunes in the Commonwealth's newly purchased Kiptopeke State Park through a coastal grant which will provide dunes crossings.

Nonpoint Source Sewerage Pollution

Virginia's coastal zone contains over 5,000 miles of tidal shoreline: ocean frontage, the Chesapeake Bay, five major rivers, and hundreds of small tributaries. Some 6,000 boats use these waters and approximately 10,000 houses along the shoreline rely on individual septic systems. Both general water quality protection and the protection of valuable shellfish grounds are important coastal issues.

- One way to protect coastal waters is through the careful siting of marinas. In 1988, the Marine Resources Commission established new guidelines which discourage siting marinas in areas having highly valuable natural resource such as shellfish beds, seagrass communities or endangered species.

- In order to improve the siting and design of household septic systems, the Department of Health, using a Coastal Program grant, has developed comprehensive educational materials and a training course for local sanitarians. To date over 165 individuals have taken the course which will be repeated again within the next year.

- As the boating population increases, especially in smaller creeks and backwaters, overboard discharge of sewage has increasingly become an issue. A current Coastal Program study is looking at opportunities and options for the creation of "no discharge" zones. Meanwhile, the Council on the Environment and the Health Department have joined together to develop and distribute information encouraging boaters to bring their septic waste ashore. To assist them, 1000 large metal signs identifying marinas that have holding tank pumpout and dumping facilities have been distributed.

Local Government Assistance

- Grants to local governments have provided the resources to assure the implementation or significant improvement of the comprehensive plans and ordinances of the 29 counties and 15 independent cities within Virginia's Coastal Zone.

CHESAPEAKE BAY NATIONAL ESTUARINE RESEARCH RESERVE SYSTEM IN VIRGINIA

York River Research Reserves dedicated June 1991.

The York River sites of the Chesapeake Bay National Estuarine Research Reserve System in Virginia are the beginning of a system that will extend to the James, Rappahannock and Potomac rivers and the Eastern Shore. The Chesapeake Bay Estuarine Research Reserve in Maryland contains three additional sites.

The York River Sites

Goodwin Islands - An archipelago of saltmarsh islands surrounded by submerged aquatic vegetation beds, oyster reefs and

shallow, open estuarine waters. Location - Mouth of the York River in York County. Salinity - 18-22 parts per thousand. Size - 1,607 acres.

Catlett Islands - Parallel ridges of forested wetlands surrounded by saltmarshes, shallow water and sandy shoals. Location - 19 nautical miles upstream from the mouth of the York River in Gloucester County. Salinity 8-18 parts per thousand. Size - 910 acres.

Taskinas Creek - Tidal creek with marshes brackish at the creek's mouth and freshwater at its upper limits. Location - 24 nautical miles upriver from the mouth of the York in York River State Park in James City County. Salinity 3-13 parts per thousand. Size - 525 acres.

Sweet Hall Marsh - Extensive tidal freshwater marsh with adjacent nontidal bottomland forests on the mainland side and shallow flats on the seaward side. Location - 37 nautical miles from the mouth of the York River in King William County on the Pamunkey River, a tributary of the York. Salinity - Freshwater, 0.5 part per thousand or less. Size - 1,393 acres.

Activities

General - The York River sites correspondence to the York Regional Ecosystem Model developed at the Virginia Institute of Marine Science. The model stresses the importance of ecological study over time and space. The Reserve system fits this plan well, being designated for long-term study at sites representing the watershed's ecological diversity. This is important to the program's research, monitoring and education goals.

Research includes diverse studies in physical, chemical and biological estuarine processes and coastal heritage. Projects include oxygen production and nutrient exchange in submerged aquatic vegetation communities: associations between oysters and submerged aquatic vegetation; the distribution of amphibians and reptiles; and documentation of historic and prehistoric habitation.

Monitoring - The following are monitored: surface water quality; groundwater nutrient and chemical levels; birds; plants; estaurine debris. Plans call for monitoring of amphibians, reptiles, mammals, insects and estaurine invertebrates.

Education and Communications - Estuarine ecology programs are given on request to groups ranging from school and college classes to resource managers. Datasets will be offered to teachers via Learning Link, a computer conference system; this has broad application nationally. Publications and exhibits emphasize program activities and estaurine ecology for many audiences.

Support

In addition to NOAA, the program is funded by the Commonwealth of Virginia and private doners. It is managed by The College of William and Marry's Virginia Institute of Marine Science.

Washington
COASTAL ZONE MANAGEMENT PROGRAM

BACKGROUND

With passage of the state Shoreline Management Act in 1971 (SMA), the Washington Department of Ecology became the lead agency for developing a program to manage the state's shorelines. The Department cooperates with local government agencies in administration of a program to maintain and improve shoreline quality, while at the same time, allowing for reasonable and appropriate shoreline uses.

In 1972, Congress enacted the Coastal Zone Management Act (CZMA) to promote active state involvement in preserving, protecting, and developing our nation's coastal zones. Because this federal law meshed well with Washington's Shoreline Management Act, Washington became the first state in the nation to have a federally approved coastal zone management program in 1976.

Since 1976, Washington state has received federal coastal zone grants of $1.5 to 2.0 million annually. In addition to supporting the state program, grant money has also gone to other state agencies, local and regional governments, and Native American tribes to benefit the state's coastal zone and its inhabitants. For example, local governments have used federal grants to help fund city and county shoreline projects designed to protect and restore shorelines and increase public access to shorelines.

Washington's Shoreline Management Act applies throughout the state. Lakes over 20 acres, all streams where the mean annual flow is greater than 20 cubic feet per second, and all marine waters are under the jurisdiction of the Act. Marshes, bogs, and swamps associated with the lakes, streams, and marine waters are also covered, as is a 200-foot wide shoreline area landward from the water's edge. The federally approved coastal zone management program benefits the fifteen counties bordering Washington's 2,337 miles of marine shoreline.

In the years ahead, the coastal zone faces ever increasing pressures from a growing population with demands for public access and expectations of a clean environment. The need for continued cooperation between the local, state, and federal agencies will remain high.

Local Shoreline Master Programs

Uses and activities along the state shorelines are managed under city and county shoreline master programs. Each local government's shoreline master program is a combined planning and regulatory document for its shorelines. Local governments tailor their programs to meet physical characteristics and management needs of their own shorelines. (based on policy guidelines developed and maintained by the Department of Ecology) Most master programs include goals, objectives and policy statements, use regulations for twenty three defined uses, and mapped environment designations, such as urban, rural, natural, and conservancy. Master programs are required for Washington's 39 counties and for 160 incorporated towns.

Cities and counties continually update and refine these documents. Amendments to shoreline master programs usually begin with citizen or local government action, and often at the recommendation of the Department of Ecology. Once adopted by the local

government, proposed amendments are submitted to the state for review and adoption into the state master program. The Department of Ecology conducts at least one public hearing, soliciting testimony to assist the director in making a decision to adopt or deny the proposed amendment.

Shoreline Permits

In most cases "shoreline substantial development permits" are required to build or to conduct activities on shorelines.

Permits are issued by local governments. The Department of Ecology reviews them to ensure that permitted developments are consistent with the local shoreline master program and policies of the SMA. If inconsistencies are found the Department may appeal the decision to the Shorelines Hearings Board, a quasi-judicial body established by the SMA to hear appeals. In fact, any party affected by the decision has the right to appeal to the Board.

The Department also must approve or deny all shoreline conditional use and shoreline variance permits. The objective of the conditional use provision is to provide more control and flexibility for implementing the master program's regulations. A variance permit is used to grant relief when there are practical difficulties or unnecessary hardships in the way of carrying out the strict letter of the master program.

The Department of Ecology works closely with local governments to ensure that the SMA is enforced by providing technical enforcement assistance when requested and interceding when local government is not successful. Enforcement responsibilities are shared with the state Attorney General's Office.

Additional Authorities

In addition to the Shoreline Management Act, Washington's coastal zone management program consists of the State Environmental Policy Act (SEPA), the Environmental Coordination Procedures Act, the 1991 Clean Air Washington Act, the state's Water Quality Act, Chapter 80.50 RCW, which established the Energy Facility Site Evaluation Council (EFSEC), and the 1989 Ocean Resources Management Act.

PROGRAM ACCOMPLISHMENTS

Padilla Bay National Estuarine Research Reserve

Padilla Bay is one of the largest relatively undisturbed tideflat areas in Puget Sound. In 1980, through the cooperation of Skagit County citizens, the private sector, and governmental agencies, the Bay was established as one of eight national estuarine sanctuaries in the U.S.

Managed by the Department of Ecology, the Padilla Bay National Estuarine Research Reserve offers tideland access, approximately eight miles of nature trails, wildlife habitat, and the Breazeale-Padilla Bay Interpretive Center. The Interpretive Center contains exhibits, a hands-on room, theater, and library. Staff at the Center offer an on-going series of educational programs for people of all ages. Facilities are available for visiting researchers as well as staff researchers. The Center has become a model for similar, state and local government facilities in Washington's coastal zone.

Public Access Program

Washington's CZM program, often in cooperation with other resource management and recreation agencies, works to help local governments provide public access to shorelines. Representative projects include the Skagit County pedestrian/ bicycle path; LaConner's public access float; Langley's beach access stairway; Westport's whale interpretive center and museum; South Bend's public access float; the Long Beach dunes boardwalk; Raymond's Waterfront Park dock and trails; and Port Orchard's pedestrian ferry pier.

Willapa Bay/Pacific County Program

The Department of Ecology and Pacific County are cooperatively undertaking initiatives to

address major environmental and land use problems and to improve state - local relationships. This initiative began in 1986 when due to a financial crisis, Pacific County faced curtailment of many basic services, including aspects of its Planning Department which administers the county's Shoreline Master Program. Ecology responded to the County's request for assistance by funding administration of the Planning Department and special planning projects with federal Coastal Zone Management grant funds. Since then, other local governments and state agencies have joined the initiative.

The decline of the forest products and salmon sport fishing industries which led to the County's financial crisis, also required that local citizens, business persons, and political leaders focus on the remaining elements of the local economy — aquaculture and tourism. Recognizing the need to maintain a quality environment in support of their resource based economy, local leaders have increasingly supported the joint County - Ecology programs. Willapa Bay is the most unpolluted Pacific Coast estuary, and is the source of over 50 percent of Washington's oyster production. The 28 miles of Long Beach Peninsula beaches represent over half the state's coastal dunes, attracting three million visitors annually.

A highlight of the program is the Willapa Bay Water Resources Coordinating Council. A citizen- and industry-based Willapa Bay Water Quality Organization Committee recommended in 1990 a permanent Water Resources Coordinating Council (WRCC). Shorelands provided initial financial and technical assistance in 1988-89. Since then Pacific County has acquired state Centennial Clean Water Act funds to expand their efforts.

Nisqually River Management Program

The Nisqually River and delta has been the setting of Washington's earliest recorded history as well as some of the most contentious environmental debates. The Washington Legislature in 1985 authorized Ecology to develop a management plan for the Nisqually River and basin. Combining state funds with federal coastal zone management funds, the Shorelands Program initiated a cooperative Nisqually River Management Program with federal agencies, other state resource management agencies, local governments, and the citizens of the basin.

Programs in water quality monitoring, environmental education, public access acquisition, and sensitive area protection have been carried out. A major interpretive center has been authorized. Today the Nisqually River Council, the Nisqually Citizens Advisory Committee, and the Nisqually River Basin Land Trust (a private, nonprofit foundation allied with the Council) are providing a model for the cooperative management of other river basins and major landscape features in Washington state.

Urban Waterfront Renewal

Federal coastal zone funds have been combined with state and local funds to plan and implement urban waterfront renewal programs throughout Washington's coastal zone. In the small city of Poulsbo, an obsolete small-scale industrial water front was replaced by a waterfront park and a collection of water-oriented businesses – both factors in a general economic revitalization of Poulsbo. Coastal zone grant funds were also used to assist the development of the Poulsbo Marine Science Center, now operated by the Poulsbo School District.

Ruston Way, an industrial district on Commencement Bay in Tacoma was affected by industrial blight. Coastal zone grants for planning, land acquisition, and construction enabled Tacoma to transform this shoreline into one of economic vitality punctuated by new shoreline public access opportunities. Furthermore, the Ruston Way project proved to be the impetus for further waterfront renewal along nearby City Waterway.

PADILLA BAY NATIONAL ESTUARINE RESEARCH RESERVE

Established in 1980 as the eighth National Reserve within the National Estuarine Research Reserve System; it is one of the largest of the twenty-two Reserves located throughout the U.S. and its territories.

Established for the purpose of protection of a specific estuarine biogeographic type (Columbian/Puget Sound), and the implementation of long-term research, monitoring, education and interpretive programs to enhance scientific and public awareness of the value of estuaries and promote improved coastal management.

Washington State's only Estuarine Reserve, and one of only four on the entire western U.S. coastline. It was selected for nomination by the state after extensive evaluation of more than a dozen possible sites.

The reserve is managed by the Shorelands and Water Resources Program within the Washington State Department of Ecology, in cooperation with the Sanctuaries and Reserves Division of the National Oceanic and Atmospheric Administration and several advisory committees.

Ownership of property in Padilla Bay is a mixture of public and private holdings. Currently the State (Reserve) owns over 10,600 acres of Padilla Bay tidelands, and over 200 acres of uplands (including the Breazeale farm).

Major resources in the bay include the largest contiguous seagrass (Zostera) meadow in the Pacific Northwest (over 7,000 acres), supporting a tremendous nursery for juvenile salmon and crab, and providing habitat for hundreds of valuable species, including the bald eagle, peregrine falcon. It also supports hundreds of thousands of waterfowl and shorebirds which visit or reside there annually.

The Padilla Bay watershed encompasses a drainage area of over 23,000 acres. Although primarily agricultural and dairy, it also includes forested lands and the country's two major industrial regions (March Point and the Port of Skagit Industrial Park). The two March Point petroleum refineries (Shell & Texaco) maintain unloading facilities on the fringe of the bay and lighter tankers adjacent to the Reserve's western boundary.

Facilities have been constructed at the Reserve beginning in 1982 with the opening of the Breazeale Interpretive Center. The upland facility site (64 acres) was the Breazeale family farm, donated by Miss Edna Breazeale on behalf of her family (two brothers) to provide a place for natural science education programs for children. The Reserve's facility list now includes nearly 15,000 square feet of buildings (Center, house, barn/lab, equipment buildings), plus the dike trail, beach access trail, upland trail, two observation decks, boat launch ramp, remote research access sites. Facilities provide space for ongoing programs in research monitoring, public education, and interpretation.

Research and monitoring programs are carried out in the bay and adjacent watershed to provide information important to the conservation and management of the Reserve and the state's and nation's estuaries. Reserve staff, university personnel, private labs, students, and interns are involved in a variety of research and monitoring projects established and prioritized in the Reserve's research and monitoring plan and funded by many agencies and private organizations and/or corporations. Studies related to the ecology of the seagrass system are given a high priority.

Recently, work has started on a cooperative agricultural/non-point research project which will involve the Reserve's farmland acreage and local farmers.

Education and interpretive programs at the Reserve serve thousands of students and the general public each year in a variety of offerings. Curricula for grades K-8 have been

implemented since 1983, reaching over 60,000 children and teachers with the direct, on-site message of estuarine ecology, water quality, and coastal/resource stewardship. In 1994, over 6,000 students and teachers took part in the Reserve's very popular K-8 Estuarine Education Program. High school curriculum and school outreach programs are currently implemented with grants from NOAA, Texaco, and the Padilla Bay Foundation. Public workshops, college credit courses, and teacher training workshops are scheduled on a monthly and seasonal basis. Special programs for group visitation are provided on a reservation basis. Exhibits, aquaria and trails are open for public touring on a Wednesday through Sunday operating schedule.

The Padilla Bay Foundation, a non-profit corporation, was formed by citizens, business people and public employees in 1988 for the purpose of helping support public education, research, and capital improvement programs at the Reserve. Resources have been provided to support interns, scholarships, and public exhibits. Grants from the Shell Oil Company have enabled the Foundation to sponsor several research assistantships at the graduate level. The Foundation also has an endowment fund to provide for a public lecture series on estuarine topics. Membership in the Foundation is open to the public.

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