B. THE FEDERAL COASTAL ZONE MANAGEMENT ACT

Summary of the Act

Adopted in 1972, the Coastal Zone Management Act (CZMA) establishes a voluntary national program designed to encourage coastal states to develop and implement coastal zone management plans and programs.[283] Today, approximately 34 coastal and Great-Lakes states, including New Jersey and Delaware, have approved coastal zone management programs.[284] Once a state chooses to participate in the program, it is expected to, among other things, protect the natural resources in the coastal zone, manage on-land development to achieve quality coastal waters and comprehensively plan for and manage the living marine resources in the coastal zone.[285] The CZMA and approval and oversight of the state programs developed pursuant to its authority are administered by the National Oceanic and Atmospheric Administration (NOAA) within the Department of the Interior.

The requirements of the CZMA are consistent with the findings and declarations made by Congress when it adopted the Act. Specifically, Congress found that "the habitat area of the coastal zone, and the fish, shellfish, other living marine resources, and wildlife therein, are ecologically fragile and consequently extremely vulnerable to destruction by man's alterations."[286] Congress further found that "land uses in the coastal zone, and the uses of adjacent lands which drain into the coastal zone, may significantly affect the quality of coastal waters and habitats" and, as a result, "efforts to control coastal water pollution from land use activities must be improved."[287] This language demonstrates that a major purpose of the CZMA is to protect coastal water quality by controlling land use activities.

The table below provides a summary of the main components of the CZMA and their respective purposes.

Table 9
Coastal Zone Management Act Sections and Corresponding Purpose

Section	Citation	Purpose
Section 305 Section 306	16 USC 1454 16 USC 1455	State Coastal Zone Management Programs
Section 306(b)	16 USC 1455b	Coastal Nonpoint Pollution Control Plan
Section 307	16 USC 1456	Consistency Review Provision
Section 309	16 USC 1456b	Enhancement and Assessment Strategy
Section 312	16 USC 1458	Performance Evaluation/Performance Measurement System
Section 315	16 USC 1461	National Estuarine Research Reserve System
Section 318	16 USC 1464	The Harmful Algal Bloom and Hypoxia Research and Control Act
Section 306 Section 306(a) Section 309	16 USC 1455 16 USC 1455a 16 USC 1456b	Management Grants, Enhancement Grants and Coastal Resource Improvement Program Grants

Components of the Act

Sections 305 and 306 – State Coastal Zone Management Programs

Section 306 provides monetary incentives to encourage states to develop coastal zone management programs (CZMPs). Through NOAA, it makes program development grants available to assist states in the cost of developing a program and subsequent matching fund grants to assist them in program implementation.[288] This provision also sets forth the following elements that must be included in a state CZMP:

- Identification of the coastal boundary subject to management;
- A definition of permissible land and water uses;
- An inventory and designation of areas of particular concern;
- The means by which the state will exert control over the coastal area, including a list of relevant legal authority;
- Guidelines for priorities of uses;
- The organizational structure for implementing the program, including the responsibilities of all participating agencies;
- The definition of "beach" and a planning process to protect beaches and to ensure public access to beaches and other public coastal areas;
- A planning process for energy facilities likely to affect the coastal zone;
- A planning process to assess and control shoreline erosion.[289]

Section 305 requires all states to submit their CZMPs to NOAA for review and approval.[290]

Section 306(b) – Coastal Nonpoint Source Pollution Control Plan

This provision requires that all states with approved CZMPs develop and implement a plan detailing management measures to control nonpoint source pollution in the coastal zone.[291] The states, through their plans, must:

- Identify land uses that contribute to degradation of coastal waters;
- Identify critical coastal areas that require additional management measures;
- Contain additional management measures to achieve applicable Clean Water Act water quality standards;

- Provide technical assistance to local governments and the public to implement the management measures;

- Allow for public participation in all aspects of the program;

- Establish mechanisms to improve coordination among state and local agencies and officials; and

- Prepare a proposal to modify the inland boundaries of the state coastal zone if the state determines that the boundary does not extend inland to the extent necessary to control the land and water uses that have a significant impact on coastal waters.[292]

In addition, each state plan is required to address the following six categories of management measures: agricultural sources of nonpoint pollution; forestry; urban areas; marinas and recreational boating; hydromodification; and wetlands, riparian areas and vegetated treatment systems.[293]

The CZMA requires that the nonpoint source plans be prepared and submitted to NOAA for approval no later than thirty moths after the EPA, in conjunction with other federal agencies, issued guidance on how to develop and implement the plans.[294] On January 19, 1993, the EPA issued its "Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters."[295] This started the clock running and all plans were to have been prepared and submitted no later than July 1995.

Section 307 – Consistency Review Provision

Pursuant to this section, federal agency activities that affect the coastal zone must be consistent with the enforceable policies of each affected state's CZMP.[296] For any such activities, either the federal agency engaging in the activity or the applicant seeking a license or permit must request a consistency review from the potentially affected state. The state must then render a decision as to whether or not the project or proposed activity is consistent with the state's CZMP or any other enforceable policy of the state. This authority this provision gave states over federal projects that could impact their coastal zones encouraged many states to participate in the voluntary program.

There are three categories of federal actions subject to consistency review. The first is federal agency activities**,** which are activities and development projects performed by a federal agency or by a contractor for the benefit of a federal agency. Examples of federal activities subject to consistency review are fisheries plans by the National Marine Fisheries Service, Naval exercises, the disposal of federal land by the General Services Administration, a U.S. Army Corps of Engineers breakwater or beach nourishment project, an outer continental shelf (OCS) oil and gas lease sale by the Minerals Management Service (MMS), improvements to a military base, Naval disposal of radioactive or hazardous waste performed by a private contractor, and activities in National Parks such as installation of mooring buoys or road construction.

The second category of federal actions subject to consistency review are federal license or permit activities, meaning activities not performed by a federal agency, but requiring federal permits,

licenses or other forms of federal approval. Examples of such actions are activities requiring Corps 404 permits, MMS approvals for OCS oil and gas plans, Corps permits for use of ocean dump-sites, Nuclear Regulatory Commission licenses for nuclear power plants and licenses from the Federal Energy Regulatory Commission for hydroelectric facilities.

The third category is state and local government projects that may impact the coastal zone for which federal financial assistance is provided, such as Federal Highway Administration funds to coastal states and local governments, construction grants for wastewater treatment works and Housing and Urban Development grants.

At the heart of Federal Consistency is the "effects test." The CZMA was amended in 1990 to establish a generally applicable rule of law that any federal agency activity, regardless of its location, is subject to the consistency requirement if it will affect any natural resources, land uses, or water uses in the coastal zone. No federal agency activities are categorically exempt from this requirement. Enforceable policies with which such activities must be deemed consistent are policies that are legally binding under state law, such as constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, and by which a state exerts control over private and public coastal uses and resources. Enforceable policies that states want to invoke under the Federal Consistency provision must be incorporated into the state's federally approved CZMP.

In 2001, the Federal Consistency Regulations mandating how the programs are to be carried out were amended to include a new subpart I, "Consistency of Federal Activities Having Interstate Coastal Effects."[297] This subpart requires that states with approved CZMPs list federal activities that are subject to interstate review, meaning federal activities requiring permits, licenses or other federal agency regulatory approvals that will occur in another state that will affect the reviewing states coastal resources.

To facilitate better coordination between federal and state agencies, NOAA encourages states to make available a list of federal actions that are subject to a consistency review, the types of activities that are subject to review and to describe the state process for carrying out such a review.

Section 309 - Assessment and Enhancement Strategy

The CZMA encourages participating states to continually enhance their CZMPs and has established nine specific areas for coastal zone enhancement: wetlands, public access, coastal hazards, cumulative and secondary impacts, energy and government facility siting, marine debris, ocean resources, special area management plans, and aquaculture.[298] States participating in the program must evaluate their CZMP in these nine issue areas every five years and must rank each issue area according to its level of importance (high, medium or low). In order to be eligible for CZMA funding, each state must also prepare a five-year strategy describing how the state will implement changes in the enhancement areas identified with a high ranking of importance. The resultant state reports often combine both the assessment and strategy requirements.

Section 312 - Performance Evaluation/Performance Measurement System

● ***Performance Evaluations***

Section 312 of the CZMA requires NOAA to conduct periodic evaluations of the performance of states with federally approved CZMPs.[299] Each review must include a written evaluation with an assessment and detailed findings regarding the extent to which the state has implemented and enforced its CZMP, addressed the specific coastal management needs identified in its program and adhered to the terms of any grant or loan funded under the Act.[300] The evaluation must provide full opportunity for public participation, including public meetings in the state being evaluated, and provide opportunities for the submission of written and oral comments by the public.[301]

The section 312 evaluation process involves four distinct components:

- An initial document review and identification of specific issues of particular concern;
- A site visit to the state including interviews and a public meeting;
- Development of draft evaluation findings; and
- Preparation of the final evaluation findings, partly based on comments from the state regarding the content and timetables of necessary actions specified in the draft document.

NOAA can suspend or withdraw payments of any grant or loan provided to a state if it finds that the state is failing to carry out its CZMP.[302] Prior to implementing such an action, NOAA must provide the state with written specifications and a schedule for the actions that the state should take in order for its funding to be reinstated. If a state fails to carry out the actions identified, NOAA can withdraw approval of the state's CZMP.[303]

● ***Performance Measurement System***

In 1997, NOAA was widely criticized for its inability to demonstrate more than anecdotal evidence of the progress of the various state's CZMPs in achieving the CZMA's goals. In response, NOAA developed the CZMA Performance Measurement System to use in conjunction with the Section 309 and 312 evaluations.[304] The Performance Measurement System consists of the following six broad focus areas, known as Issue Areas: (1) government coordination and decision making; (2) public access; (3) coastal habitat; (4) coastal water quality; (5) coastal hazards; and (6) coastal dependent uses and community development. [305]

In developing the Performance Measurement System, NOAA was very specific in identifying the data that must be collected and submitted under each Issue Area. Phased in over a three-year period beginning in 2005, each state with a CZMP must collect the data specified below, known as Performance Measures, to demonstrate the progress of its coastal program and submit it to NOAA on an annual basis. The only exception is under Issue Area 3, Key Coastal Habitats, for which data regarding habitat lost or gained must be reported by all states beginning in 2010.[306]

The Issue Areas and the associated Performance Measures data that must be collected are as follows:

- **Issue Area I - Government Coordination & Decision Making**

  1. Percent of federal consistency projects submitted where the project was modified due to consultation with the applicant to meet State CZMA policies.

  2. Number of educational activities offered by the CZMP and the number of participants by category (Reporting Categories: Public Access; Coastal Habitat; Coastal Water Quality; Coastal Hazards; and Coastal Dependent Uses and Community Development).

  3. Number of training opportunities offered by the CZMP and number of participants, by category (same categories as in no. 2).

- **Issue Area 2 - Public Access**

  4. Number of new public access sites added through acquisition or easement using CZMA funds.

  5. Number of existing public access sites that have been enhanced using CZMP funds.

  6. Number of sites where public access sites are created, protected, or enhanced through CZMP regulatory activities.

- **Issue Area 3 - Coastal Habitat**

  7. Number of acres of key coastal habitats created or restored using CZMP funds

  8. Number of acres of key coastal habitats protected by acquisition or easement using CZMP funds.

  9. Number of acres of key coastal habitats lost or gained due to activities subject to core CZMP regulatory programs, including mitigation, to be phased in by all programs for reporting by FY2010 (Reporting Categories: tidal wetlands; beach and dune; nearshore, meaning intertidal, sub-tidal and submerged, habitat; and other).

- **Issue Area 4 - Coastal Water Quality**

  10. Percent of marinas in the coastal zone participating in a Clean Marina designation program.

  11. Number of volunteer monitoring program activities in coastal watersheds conducted with CZMP funds.

  12. Number of miles or number of sites monitored by volunteer programs.

13. Number of coastal communities supported by CZMP funds in developing or implementing ordinances, policies, or plans to control or prevent polluted runoff to coastal waters.

- **Issue Area 5 – Coastal Hazards**

  14. Number of communities in the coastal zone that have (i) undertaken activities to reduce future damage from hazards and (ii) implemented educational programs or campaigns to raise public awareness of coastal hazards using CZMP funds.

- **Issue Area 6 - Coastal Dependent Uses & Community Development**

  15. Number of coastal communities supported by CZMP funds in (i) developing and implementing local plans that incorporate growth management principles and (ii) port or waterfront redevelopment projects. [307]

Section 315 – National Estuarine Research Reserve System

Section 315 of the CZMA authorizes NOAA to designate estuarine areas as national reserves. To be eligible for such status, an area must be nominated by the governor of the state in which the estuary is located and the following criteria must be met:

- the area is a representative estuarine ecosystem that is suitable for long-term research and contributes to the biogeographical and typological balance of the overall system;

- the law of the coastal state provides long-term protection for reserve resources to ensure a stable environment for research;

- designation of the area as a reserve will serve to enhance public awareness and understanding of estuarine areas, and provide suitable opportunities for public education and interpretation;

- the coastal state in which the area is located has complied with the requirements of any applicable regulations issued by NOAA.[308]

NOAA, in consultation with prominent members of the estuarine research community, developed research guidelines that provide, among other things, a mechanism for establishing priorities among management issues, common research principals, objectives and methodologies, and performance standards.[309] The CZMA makes grants available to coastal states with an estuarine reserve to acquire land and waters necessary for the protection of the area, to operate the facility as a reserve and to fund research.[310]

Section 318 – Harmful Algal Bloom and Hypoxia Research and Control Act

The CZMA has been amended several times since its adoption, including in 1998 and 2004 to establish and then reauthorize and expand a program for the prevention of harmful algal blooms (HABs) and hypoxia in coastal waters. In adopting the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA), Congress officially recognized the significance of these problems, noting that scientists believe they are caused by excessive nutrients in coastal waters and finding that such blooms and low oxygen levels are harmful or fatal to fish, shellfish and benthic organisms. [311] The HABHRCA also recognizes the severe detrimental impact that these events have on the economies of the local coastal communities that experience them.

The 2004 reauthorization of the HABHRCA reaffirmed and expanded the mandate for NOAA to advance the scientific understanding and ability to detect, monitor, assess, and predict HABs and hypoxic events. Through section 318 of the CZMA, Congress authorized funding for competitive research programs on HABs and hypoxia, including a new program to research methods of prevention, control and mitigation of HABS.[312]

Sections 306, 306(a) and 309 - Grants to Implement Coastal Programs

Each year, in exchange for participating in the program, federally approved state CZMPs receive funding for coastal program implementation based on a spending plan set forth in an annual grant application.[313] Under the CZMA, states are eligible to receive two primary grants: (1) grants to manage state coastal programs, known as coastal zone management grants pursuant to section 306; and (2) grants to support improvements in state programs, known as coastal zone enhancement grants pursuant to section 309.[314]

In issuing the management grants, NOAA must take into account the extent and nature of the shoreline, the area covered by the program, and the population of the area among other relevant factors.[315] After consulting with the coastal states, NOAA is required to establish maximum and minimum grants for each fiscal year to promote equity between the states as well as effective coastal management.[316]

The enhancement grants provide funding to coastal states for program changes that support one or more of the following coastal zone enhancement objectives:

- Protection, restoration, or enhancement of the existing coastal wetlands base, or creation of new coastal wetlands;
- Preventing or significantly reducing threats to life and destruction of property by eliminating development and redevelopment in high-hazard areas;
- Attaining increased opportunities for public access;
- Reducing marine debris;

- Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development;

- Preparing and implementing special area management plans for important coastal areas;

- Planning for the use of ocean resources;

- Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities;

- Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone.[317]

Under section 306a, which administers the Coastal Resource Improvement Program, states with approved CZMPs are encouraged through matching grants to make certain types of improvements in their coastal zones.[318] Specifically, this funding incentive encourages states to develop programs to:

- Preserve or restore areas of significant recreational, ecological or esthetic value or with coastal resources of national significance or for the purpose of enhancing shellfish production;

- Redevelop deteriorating and underutilized urban waterfronts and ports;

- Provide public access to public beaches and other public coastal areas and waters; and

- Develop a coordinated process among state agencies to regulate and issue permits for aquaculture facilities.

Programs Designed to Implement the Act

State Coastal Zone Management Programs

Both New Jersey and Delaware have federally-approved CZMPs which include statutes, regulations and programs to implement and manage the CZMA requirements and funding sources described above.

● ***New Jersey CZMP Overview***

New Jersey's Coastal Management Program (CMP) is comprised of several programs overseen by the DEP that share responsibility for the protection and enhancement of New Jersey's coastal resources. These programs include the Land Use Regulation Program (LURP), which reviews coastal permit applications submitted to DEP under the Coastal Area Facility Review Act (CAFRA), the Waterfront Development Law and the Wetlands Act of 1970;[319] the Bureau of Tidelands Management, which operates within the Land Use Regulation Program and provides staff and technical support to the Tidelands Resource Council in its decisions regarding the

conveyance of state-owned tidelands; the Bureau of Coastal and Land Use Enforcement, which investigates potential coastal and wetlands infractions and ensures compliance with wetlands permits issued for projects throughout the coastal area; the Engineering and Construction Program, which manages coastal area dredging and shore protection projects such as beach replenishment and bulkhead installation; and the Coastal Management Office, which is part of the Commissioner's Office of Policy, Planning and Science and administers the planning and enhancement aspects of the CMP.[320]

The Coastal Area – New Jersey has 1,792 mile of coastline and a densely-packed coastal population of approximately 7,575,546.[321] New Jersey's coastal area extends across eight counties and 126 municipalities, and includes the Atlantic Ocean to the three-mile limit of the state's seaward jurisdiction; Upper New York Bay, Newark Bay, Raritan Bay and the Arthur Kill; the Hudson, Raritan, Passaic and Hackensack Rivers as well as the tidal portions of their tributaries; and the Delaware River and Bay.[322] In regulatory terms, the Coastal Area encompasses the CAFRA area, which is the area expressly covered by the CAFRA land use statute, the Meadowlands District, which is managed under its own set of regulations, and a narrow band of uplands in the Waterfront Development area that is beyond the CAFRA area and that is regulated by the state Waterfront Development Law.[323]

New Jersey's coastal area is managed by DEP under the authority of four different statutes: CAFRA, the Waterfront Development Law, the Wetlands Act of 1970 and the Tidelands Act.[324]

The Coastal Area Facility Review Act - In adopting CAFRA in 1973, the state legislature found and declared that New Jersey's coastal area is "an exceptional, unique, irreplaceable and delicately balanced physical, chemical and biologically acting and interacting natural environmental resource."[325] To protect this special resource, the legislature further declared that land uses in the coastal zone should be dedicated to those that "are reasonably consistent with the natural laws governing the physical, chemical and biological environment in the coastal area."[326]

To accomplish these goals, the legislature specifically went on to state that development in the coastal zone should occur:

> "…within the framework of a comprehensive environmental design strategy which preserves the most ecologically sensitive and fragile areas from inappropriate development and provides adequate environmental safeguards for the construction of any developments in the coastal area."

The statute divides the CAFRA area into zones and regulates different types of development in each zone. Generally, the closer a proposed development project is to the water, the more likely it is that it will be subject to restrictions.[327] Almost all residential, commercial and industrial development is regulated under CAFRA, including construction, relocation and enlargement of buildings or structures, and all related work, such as excavation, grading, shore protection structures and site preparation.[328]

CAFRA utilizes a two-step process for determining whether development in the coastal zone is appropriate: First, the proposed development must meet all of the applicable Rules on Coastal

Zone Management ("Coastal Rules"), which are designed to protect the most important and fragile natural resources from land-use activities; and second, CAFRA mandates that, even if the proposed project meets all of the Coastal Rules, DEP still cannot issue a development permit unless and until it finds that the proposed development:

- Conforms with all applicable water emission and effluent standards and all applicable water quality criteria;

- Prevents water effluents in excess of the existing dilution, assimilative and recovery capacities of the water environments at the site and within the surrounding region;

- Would result in minimal feasible impairment of the regenerative capacity of water aquifers or other ground or surface water supplies; and

- Would cause minimal feasible interference with the natural functioning of plant, animal, fish, and human life processes at the site and within the surrounding region.[329]

These standards, known as the CAFRA Section 10 Findings, demonstrate that environmental considerations under CAFRA extend to the regional impacts of a development proposal in addition to the impacts to the development site itself, and make it clear that that the cumulative impacts caused by development projects in the coastal zone must be assessed and considered. Significantly, these requirements explicitly apply to and are intended to protect the "natural functioning and life process of plants, animals and fish" in addition to those of humans.[330]

The CAFRA Area - The geographic boundaries to which CAFRA applies are explicitly identified in the CAFRA statute.[331] Roughly speaking, the CAFRA area begins where the Cheesequake Creek enters the Raritan Bay in Old Bridge, Middlesex County, extends south along the coast around Cape May and then north along the Delaware Bay ending at Kilcohook National Wildlife Refuge in Salem County. The inland limit of the CAFRA area is irregular and follows public roads, railroad tracks and other features. When measured straight inland from the shoreline, the width of the CAFRA area varies from a few thousand feet to 24 miles.

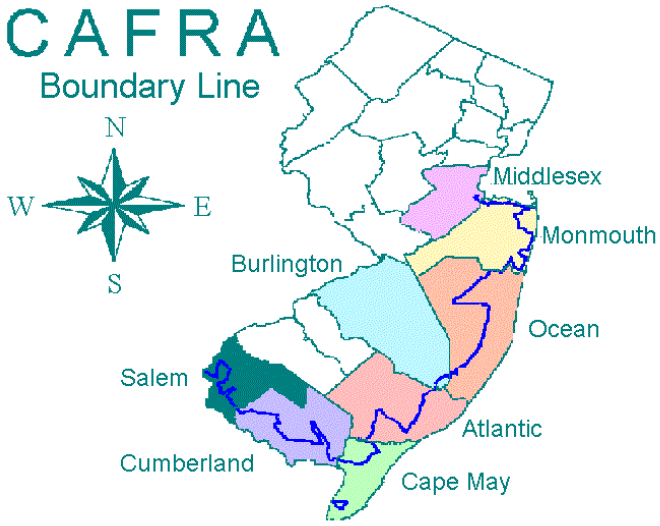

Figure 10 – The CAFRA Area[332]

The Waterfront Development Law – Passed in 1914, this law seeks to limit problems that new development could cause for existing navigation channels, marinas, moorings, and the environment.[333] Development proposed in a tidally-flowed waterway anywhere in New Jersey requires a Waterfront Development Permit.[334] Projects regulated by this law include the construction of docks, piers, pilings, bulkheads, marinas, bridges, pipelines, cables and dredging.[335]

For development proposed outside of the CAFRA area, the Waterfront Development Law regulates not only activities in tidal waters, but also in areas adjacent to tidal waters extending from the mean high water line to the first paved public road, railroad or surveyable property line. At a minimum, the zone extends at least 100 feet, but no more than 500 feet, inland from a tidal water. In this area, the statute governs the construction, reconstruction, alteration, expansion or enlargement of structures as well as excavation and filling activities.[336]

The Wetlands Act of 1970 – Pursuant to this statute, activities in tidal and estuarine wetlands cannot commence without a permit.[337] The wetlands subject to this Act's jurisdiction have been delineated and mapped by the DEP, and the maps are available at each county clerk's office.[338] A coastal wetlands permit must be obtained in order to excavate, dredge, fill or place a structure on any coastal wetland shown on the maps.[339]

The Tidelands Act – Tidelands, also known as riparian lands, are lands that are currently or formerly flowed by the tide of a natural waterway. This includes lands that were previously flowed by the tide but have been filled.[340] Pursuant to common law, the State of New Jersey owns all tidelands, except for those for which it has already sold its interest in the form of a riparian grant. The DEP holds the state's tidelands in trust on behalf of New Jersey's citizens.[341] In order to use tidelands for development or other purposes, one must obtain permission to do so either in the form of a tidelands license, lease or grant.[342]

A tidelands license is a short term, revocable, rental document generally for structures such as docks, bulkhead extensions, mooring piles, and other temporary structures as well as for dredging projects.[343] Licenses are project specific and expire after a finite term ranging from one to ten years and typically can be renewed. A tidelands lease is a long term rental document generally issued for homes constructed over water and is typically granted for a term of twenty years. A riparian grant, or tidelands grant, is a deed from the State of New Jersey selling its tidelands. Tidelands grants are generally only issued for lands that have already been filled and are no longer flowed by the tide.[344]

The Coastal Rules - The Coastal Rules are the substantive regulations that govern the use, protection and development of New Jersey's coastal resources. They provide the standards by which the DEP's Land Use Regulation Program reviews permit applications under the Coastal Area Facility Review Act, the Waterfront Development Law and the Wetlands Act of 1970 as well as requests for Water Quality Certifications under section 401 of the Federal Clean Water Act and Federal Consistency Determinations under the Federal Coastal Zone Management Act. The Coastal Rules also provide a basis for DEP to make recommendations to the Tidelands Resource Council on applications for the tidelands instruments described above.

Key to the Coastal Rules is their identification of "Special Areas," which are areas that are "so naturally valuable, important for human use, hazardous, sensitive to impact, or particular in their planning requirements" that they merit focused attention and special management rules.[345] Examples of Special Areas for which there are specific Special Area Rules are shellfish habitat, prime fishing areas, submerged vegetation habitat, dunes, coastal high hazard areas, beaches, wetlands, wetland buffers, coastal bluffs, critical wildlife habitats, special urban areas and public open space, to name a few. In these areas, development is for the most part either "prohibited," meaning that a proposed use of coastal resources is unacceptable and the DEP will use its legal authority to reject or deny the proposal, or "discouraged," meaning that a proposed use in such areas is likely to be rejected as the DEP has determined that uses of these coastal resources should be deterred.[346] However, there are numerous exceptions to these provisions that are enumerated in the rules.

The Coastal Permit Program Rules - The Coastal Permit Program Rules (The Program Rules) provide the procedures by which the Land Use Regulation Program reviews and issues permits under the aforementioned statutes and programs, including CAFRA. The Program Rules provide, among other things, the time frame for DEP to review permit applications, the fees for permits, how to request a hearing regarding a particular permit application, the procedures for an applicant or interested third party to appeal a permit decision, and penalties for Coastal Rule violations.[347] The Program Rules also spell out the specific activities for which a permit is required.[348]

● ***Delaware CZMP Overview***

The Delaware "Coastal Program" is overseen by the DNREC Division of Soil and Water Conservation, which works with many outside public and private entities to protect the state's coastal resources. The Coastal Program is actually comprised of two programs, the Delaware

Coastal Management Program (DCMP) and the National Estuarine Research Reserve (NERR),that together make up the state's approved programs under the CZMA.[349]

The DCMP was established in 1979 with the goal of protecting, developing and where possible, enhancing the coastal resources of the state. It accomplishes this through the development and implementation of several additional programs identified in the CZMA, such as the review of federal and state projects to ensure they are consistent with the state coastal policies, special area management plans and assistance to state and local governments for local land use planning.[350]

The Delaware National Estuarine Research Reserve (DNERR) was established in 1993 and protects key coastal areas for long-term study, research and education programs.[351]

These two programs have been fully integrated in an effort to provide a comprehensive approach to the management of Delaware's coastal resources, with a particular focus on special targeted projects, such as the following, to address high priority concerns and issues:

- Developing tools to help conservation planners prevent erosion and water pollution with riparian buffers.

- Investigating ways to improve Delaware Bay beach replenishment projects to maximize their potential for the restoration of critical horseshoe crab and shorebird habitat.

- Providing sustainable habitat resources for native plants and animals.

- Protecting and improving the biodiversity of Delaware's environment.

- Developing science-based environmental indicators for the coastal zone to assess the ecological health of Delaware's coast and provide guidance for coastal zone industrial permitting.

- Developing and monitoring new technologies to mitigate water quality problems causing fish kills in Delaware's Inland Bays.

- Providing detailed geographic information system analysis and support to develop a new setback line, which will be needed for an update of Delaware's Regulations Governing the Use of Beaches.[352]

- Determining the consequences and limiting the impacts of land development and sustaining coastal ecosystems

The Coastal Zone – Delaware differentiates between the "coastal zone" and the "coastal strip" in its Coastal Programs. With a shoreline of approximately 260 miles and no part of the state being more than eight miles from tidal waters, the entire state is designated as the coastal zone and managed under programs designed to meet the requirements of the CZMA.[353] Within the coastal zone lies the coastal strip, an approximately 4-mile wide band of land that parallels the entire Delaware coastline. The coastal strip was initially defined in the Delaware State Coastal Zone

Act of 1971, the primary authority for regulating heavy industry, manufacturing and bulk transfer facilities within the state.[354]

The Delaware State Coastal Zone Act – In adopting the Coastal Zone Act, the Delaware legislature recognized that the coastal zone is critical to the quality of life of the citizens of Delaware, as is the need to protect the natural environment of the state's bays and coastal areas for recreation and tourism.[355] It also recognized that a balance needed to be struck between the state's policy of encouraging new industry in Delaware and the concern with protecting the environment, natural beauty and recreation potential of the state.[356] To achieve this balance, it incorporated the following major elements into the Act:

- A prohibition against the development of new heavy industry in the coastal strip, based upon a determination that heavy industry is incompatible with the protection of the natural environment in those areas;[357]

- A prohibition against the development of bulk transfer facilities in the coastal strip based on a determination that such factilities represent a significant danger of pollution to the area and generate pressure for the construction of industrial plants in the coastal strip;[358] and

- The control of industrial development other than that of heavy industry in the coastal strip through a permit system.[359]

In addition to defining the area that comprises the coastal strip, the Coastal Zone Act defines the term "heavy industry" as meaning a use characteristically involving more than 20 acres and employing equipment like, but not necessarily limited to, the following: smokestacks, tanks, distillation or reaction columns, chemical processing equipment, scrubbing towers, pickling equipment and waste treatment lagoons."[360] It further defines heavy industry as being conceivably operable without polluting the environment, but with the potential to pollute when equipment malfunctions or human error occurs.[361]

Examples of heavy industry provided in the Act are oil refineries, steel manufacturing plants, cellulosic pulp paper mills, petrochemical plants/complexes and an incinerator structure or facility encompassing 5,000 square feet or more. Facilities that are expressly excluded from the definition of heavy industry are garment factories, automobile assembly plants, jewelry and leather goods manufacturing facilities, open storage areas, office and communications buildings, helipads and parking structures.[362]

Because the definition of heavy industry is not all inclusive, an applicant can seek a Coastal Zone Status Decision from DNREC to determine if its proposed activity falls under the definition. For any new or expanded manufacturing activity that will have an impact on the environment, the economy, the aesthetics or neighboring land uses, an application for a Coastal Zone Permit must be submitted.[363]

Regulations Governing Delaware's Coastal Zone – For many years, the DNREC tried unsuccessfully to adopt regulations to implement the Coastal Zone Act. From 1971 to 1993,

there were no formal coastal regulations at all in the state. In 1993, Delaware adopted a proposed set of regulations for its Coastal Program, but this action sparked the filing of several lawsuits charging there had not been proper public notice in violation of the Administrative Procedures Act. The court agreed and the regulations were struck down.[364]

On October 31, 1997, former Governor Carper instructed a select group of Delaware business representatives and environmental advocates to develop a memorandum of understanding to be signed by all participants that would describe the concepts to be included in a new set of Coastal Zone Regulations. On March 19, 1998, the parties did sign such a memorandum that was perceived as incorporating major achievements for both factions.[365]

The business community made it clear in the memorandum that the regulations would be predictable and would provide some relief from the need to obtain a new permit each time their facility had a slight production increase or created a new product. The environmental advocates made it clear that they wanted the "footprints" of the existing legal heavy industrial sites incorporated in the 1993 regulations to remain the same and by requiring every permit to be "pro-environment." This would be accomplished by having an applicant prepare an "Offset Proposal" that, as determined by the DNREC, would clearly and demonstrably offset the applicant's new pollution loading, resulting in a net reduction of pollution emitted from regulated businesses in the Coastal Zone.[366]

On May 11, 1999, after two public hearings, a proposed set of regulations developed by the DNREC that were based heavily on the agreed upon principles of the memorandum of understanding became effective. These regulations, officially entitled Regulations Governing Delaware's Coastal Zone, provide guidance to the business community, State officials and the general public as to what is expected and required of them in implementing the Coastal Zone Act. In particular, the regulations describe what must be included in any Application for a Coastal Zone Status Decision, key definitions, "footprints" of nonconforming uses, requirements for public notification, contents of all Applications for a Coastal Zone Permit, including the offset requirement, and a listing of land uses not regulated by the Act.[367]

Delaware's Environmental Indicators - In order to continue balancing the competing goals identified in the Coastal Zone Act, the Act directs the DNREC to develop Environmental Indicators as a means to measure, monitor, and report on the health of the coastal area and to enable the DNREC to make sound management decisions. To accomplish this, the DNREC brought together representatives from various stakeholder groups to form the Environmental Indicators Technical Advisory Committee (EITAC). Thus far, the EITAC has developed four broad environmental goals, and outlined 14 prioritized environmental indicators.[368] The environmental goals are as follows: [369]

> **Air Quality**: Improve air quality, which directly or indirectly affects all forms of life within the Coastal Zone. **Air Quality Indicators**: Ambient Air Quality; Affected Populations; Accidental Releases; and Atmospheric Deposition.
>
> **Water Quality**: Improve water quality and quantity, which directly or indirectly affects all forms of life within the Coastal Zone. **Water Quality Indicators**: Benthic

Community; Contaminants/Toxicity; Ambient Water Quality; Watershed Pollutant Load; Affected Populations; Accidental Releases; and Non-point Source Nutrient Mass Balance.

Habitat/Land Cover: Protect the mosaic of land cover in the Coastal Zone, including upland, wetland, shoreline, and aquatic areas, to ensure a healthy ecosystem. Encourage appropriate land use and land cover. **Habitat/Land Cover Indicators**: Habitat Change; and Wetland Inventory.

Aesthetics: Ensure the protection of natural vistas in the Coastal Zone for public enjoyment.

Living Resources: Preserve and maintain healthy native animal and plant populations, or biodiversity, in the Coastal Zone. Preserve and improve the ability of native populations to live and thrive in the Coastal Zone. Living Resources Indicators: Keystone Species; Biodiversity; and Benthic Community. [370]

Pursuant to the Delaware Regulations Governing Delaware's Coastal Zone, each application for a Coastal Zone Act Permit must include an environmental impact statement that presents an assessment of the project's likely impact on these environmental goals and indicators.[371] In addition, the DNREC must consider each project's potential impact on the environmental goals and indicators when reviewing a permit application.

The Coastal Zone Act also requires that the DNREC prepare an Assessment Report every two years to, among other things, determine the status of efforts to achieve the environmental goals set forth above utilizing the Environmental Indicators developed to date.[372]

The Beach Preservation Act – To further protect the coast from development and from manmade structures that interfere with the natural movement of its beaches and dunes, Delaware adopted the Beach Preservation Act in 1972.[373] The Act defines the beach as the area extending from the mean high water line of the Atlantic Ocean and the Delaware Bay and seaward 2,500 feet and landward 1,000 feet, and from the Delaware/Maryland line at Fenwick Island to the Old Marine Canal north of Pickering Beach.[374]

To ensure the beaches and dunes are protected, the Act seeks to keep construction off of these coastal features. The DNREC has established a Building Line that parallels the coastline and is designated on a series of DNREC maps.[375] No construction may take place seaward of the Building Line without a Coastal Construction Permit from the DNREC. In addition, construction landward of the Building Line but in the beach area, including construction of any structure or the alteration, digging, mining, moving, removal or disposition of any substantial amount of beach or other materials, cannot commence without first obtaining a Letter of Approval. The procedural and substantive requirements for obtaining a permit or approval are set forth in the Regulation Governing Beach Construction and the Use of Beaches.[376]

Special Area Management Plans – The DNREC is in the process of developing two Special Area Management Plans (SAMPs). The first is for Pea Patch Island, a Delaware State Park located in

the upper reach of the Delaware Estuary that supports a large heron rookery, or heronry.[377] The largest heronry north of Florida on the east coast, Pea Patch Island supported an estimated 12,000 pairs of birds at its peak from 1989 through 1993. Concern for its sustainability has grown in recent years due to a significant decline in the bird population, which is currently estimated to be 7,000 pairs.[378] Due to its size and location, the heronry is considered a wildlife resource of national significance.

Herons that live on the island forage for food in the neighboring wetlands and open fields of Delaware and New Jersey, areas which are continually impacted by rapid land use changes. As a result, identifying what may be affecting the birds at Pea Patch Island involves looking at more than the immediate nesting habitat. To better manage this unique resource, a SAMP is being developed by DNREC with the help of representatives of local, state and federal agencies, nonprofit organizations, and business and industry to identify the sources of changes to the natural condition of the habitat that the birds utilize.[379]

The second SAMP currently under development by the DNREC is the South Wilmington SAMP, a cooperative effort with the City of Wilmington and the Southbridge Civic Association to develop a "master plan" for the revitalization of South Wilmington.[380] The SAMP area includes land south of the Christina River within Wilmington as well as a section bordering New Castle County. In 2008, NOAA awarded the DNREC Coastal Program a three year grant to develop the SAMP, which will consist of the following six components:

- A neighborhood plan;
- A review of legal authorities;
- An environmental and ecological characterization and enhancement plan;
- A stormwater and flood relief plan;
- An economic development plan; and
- A public outreach and engagement plan.

Coastal and Estuarine Land Conservation Program (CELCP) Plan – The CELCP program was created by Congress in 2002 as a means to protect coastal and estuarine lands considered important for their ecological, conservation, recreational, historical or aesthetic values.[381] Overseen by NOAA, the program provides state and local governments with matching funds to purchase significant coastal and estuarine lands or conservation easements on such lands.[382] The CELCP guidelines outline the criteria and process states must follow to nominate their land conservation projects for funding consideration in a national competitive process.[383]

The Delaware Coastal Program, which includes both the CMP and the DNERR, began development of Delaware's CELCP in 2004 and, since then, Delaware has been awarded over $7 million in acquisition funds through the CELCP.[384] The following is a summary of the properties purchased with CELCP funds to date:

- 2006 – The 163.87 acre Ellingsworth Tract of the Blackbird Creek Reserve Wildlife Area, containing mature forest and non-tidal wetlands, and adding to the DNERR. Purchased with $1.4 million in CELCP funds.[385]

- 2007 – A 360.18 acre parcel along Eagles Nest Road near the headwaters of Blackbird Creek, known as the Eagles Nest Tract. Negotiations are ongoing for the purchase of an additional 200 acres. Both properties contain important freshwater wetlands and a wild mature forest cover. The Eagles Nest Tract, along with the Ellingsworth Tract, will become a new 523-acre state wildlife area managed by the Delaware Division of Fish and Wildlife.[386]

- 2008 – Delaware submitted three proposals to NOAA that are currently being reviewed and ranked in the national competition for funding.[387]

Coastal Nonpoint Pollution Control Plans

Pursuant to section 306(b) of the CZMA, both New Jersey and Delaware have developed coastal nonpoint source pollution programs.

● ***New Jersey Coastal Nonpoint Pollution Control Plan***
In accordance with the timeline established by the CZMA, DEP submitted its Coastal Nonpoint Pollution Control Plan (CNPCP) to NOAA and EPA in July 1995. Among other things, the CNPCP outlined how New Jersey, through regulatory and voluntary means, would implement the six required management measures.[388] In 1997, NOAA and EPA conditionally approved the CNPCP, determining that some of the management measures had not been met. DEP made several changes to the CNPCP but, as of this date, not all of the management measures have been met and the program is still only conditionally approved.[389] Specifically, New Jersey has failed to meet the management measure regarding the development of a process to inspect on-site sewage disposal systems at a frequency adequate to determine whether the systems are failing.[390]

Although there are numerous New Jersey statutes and regulations that collectively ensure New Jersey implements the management measures identified by the CZMA, the following are what DEP considers to be the highlights of its CNPCP:

The Clean Marina Program - To protect critical coastal habitat areas that are home to a variety of organisms including algae, plankton, shellfish, and finfish, the DEP has developed a statewide clean marina program. This program encourages marina owners, yacht clubs, boatyards and boaters to voluntarily adopt practices that help prevent adverse impacts to water quality, sensitive habitats, and living resources in proximity to marinas.[391] The Program encourages best environmental management practices through education and outreach to boaters and marina owners. It also provides assistance and guidance to enable marinas and other recreational boating facilities to reduce the sources and impacts of nonpoint source pollution and focuses on areas such as proper and safe sewage management, fueling operations, fish and solid waste management, solid and liquid waste recycling, and boat maintenance and repair.[392] To date, 25 marinas across the state have been certified as a New Jersey Clean Marina and approximately 45

others have pledged to pursue opportunities and implement practices to control pollution and to seek certification.[393]

Stormwater Management - The Stormwater Permitting Program helps prevent degradation of waters caused by runoff from new development, roads, municipal lots and commercial facilities. Affecting up to 20,000 facilities in New Jersey alone, the program utilizes several types of permits including General Permits, Individual Permits, and Municipal Stormwater General Permits.[394] Two sets of stormwater rules became effective on February 2, 2004 that establish a comprehensive framework for addressing water quality impacts associated with existing and future stormwater discharges.[395] The first set of rules is the Phase II New Jersey Pollutant Discharge Elimination System Stormwater Regulation Program Rules and is intended to address and reduce pollutants associated with existing stormwater runoff.[396] The permit program establishes the Statewide Basic Requirements that must be implemented to reduce nonpoint source pollutant loads from these sources.

The second set of rules is the Stormwater Management Rules which set forth the required components of regional and municipal stormwater management plans and establish the stormwater management design and performance standards for new development.[397] The design and performance standards include providing for adequate groundwater recharge, implementing runoff quantity and quality controls, and providing 300 foot Special Water Resource Protection Areas or buffers adjacent to all Category 1 (exceptional) Waters.[398]

Onsite Disposal Systems (Septic Systems) - The location, design, construction, installation, repair and operation of individual septic systems in New Jersey are subject to the Standards for Individual Subsurface Sewage Disposal Systems pursuant to the authority of the Realty Improvement Sewerage and Facilities Act.[399] DEP determined that, by integrating the elements of soils, geology, and engineering, a relatively simple system of onsite wastewater disposal and renovation can effectively remove disease-causing pathogens and chemical nutrients from domestic wastewater. The DEP has published both "A Homeowner's Manual for Septic Systems" and a "Technical Guidance for Inspection of Onsite Wastewater Treatment and Disposal Systems," which describes procedures for professionals when conducting septic system inspections.[400]

Wetlands Programs – Through its wetland programs, New Jersey recognizes the important role of wetlands, riparian areas, and vegetated treatment systems in reducing nonpoint source pollution.[401] Both the Freshwater Wetlands Act and the Wetlands Act of 1970 are water pollution control programs that address non point source pollution and stormwater management. The Freshwater Wetlands Protection Act requires DEP to regulate virtually all activities proposed in a wetland, including cutting of vegetation, dredging, excavation or removal of soil, drainage or disturbance of the water level, filling or discharge of any materials, driving of pilings, and placing of obstructions.[402] Through these and other programs, DEP also encourages techniques such as watershed and regional land use planning, stream corridor protection, and land preservation.[403]

● ***Delaware Coastal Nonpoint Pollution Control Plan***

In accordance with the statutory deadline, Delaware submitted its Coastal Nonpoint Pollution Control Plan (CNPCP) to NOAA and EPA in July 1995. In October, 1997 NOAA and EPA granted a conditional approval of Delaware's plan and, in February 2002, after DNREC made the necessary additions and improvements, full approval was granted.[404] At that time, Delaware was asked by NOAA and DEP to create a five-year enhancement plan for its exiting CNPCP. In accordance with this request, DNREC identified specific activities planned for the five-year period between 1999 and 2003 that would serve to enhance its existing activities under each of the six management strategies identified in the CZMA. Highlights from this enhancement plan, and thus Delaware's CNPCP, include the following:

Agriculture Enhancements – Enhancements in this category include updates to the Erosion and Soil Control Handbook, such as new legally binding standards for activities affecting erosion and sediment loading in state waters; the requirement that all animal feeding operations with greater than eight animals and any owner of property with greater than 10 acres upon which nutrients are applied prepare a Nutrient Management Plan under the 1999 Delaware Nutrient Management Law; the placement of monitoring wells by the Delaware Department of Agriculture within 3 miles of all pesticide operations in the state; and the management of groundwater withdrawal rates for irrigation to produce little or no runoff by carefully matching the timing and amount of irrigation water dispensed with crop water needs.[405]

Forestry Enhancements – Enhancements in this category include more advanced pre-harvest planning to, among other things, identify locations of water bodies and sensitive areas such as wetlands, threatened aquatic species habitat areas or high erosion areas within a harvest area; the continuation of Delaware's Streamside Management Area (SMA) Program to protect against sedimentation and nutrient loading caused by forestry activities; implementation of a Riparian Buffer Initiative to reduce streamside erosion; engaging in better road construction and reconstruction management practices to reduce the introduction of runoff into waterways; and the wide-spread use of the then newly adopted Forestry Best Management Practices Manual for Delaware to control nonpoint pollution in wetland areas.[406]

Urban Enhancements – Under this category, DNREC amended the Regulations Governing the Design, Installation and Operation of On-Site Wastewater and Disposal Systems to provide more inspectors to conduct more regular site visits; adopted stricter regulations for domestic systems and more detailed inspections for large/community systems; and integrated its TMDL program into the existing Pollution Control Strategy Program to move toward a more watershed based approach to water quality monitoring and protection.[407]

Marinas – Enhancements in this category include the development of a Marina Guidebook that provides information on the permitting process as well as technical guidance on the design and operation of marinas. Topics include environmental siting considerations such as water quality, wetlands, shellfish resources, submerged aquatic vegetation, benthic resources and critical habitats and planning and design requirements, such as dredging, shoreline protection, navigation access, water supplies, wastewater facilities, stormwater management, maintenance areas and fuel storage.[408]

Hydromodification – DNREC developed a Policy Framework for Decision Making Related to the Evaluation, Monitoring and Design of Dredging Projects to allow for the easy identification of environmental concerns associated with dredging projects. The DNREC's Wetlands and Subaqueous Lands Section engaged in significant efforts to educate planning and zoning officials and construction contractors about the effects of stream channelization on instream and riparian habitats. On the rare occasion when such channelization is allowed, DNREC requires the applicant to restore the natural functions of the stream.[409]

Wetlands, Riparian Areas and Vegetated Treatment Areas – In addition to continuing to require permits for most activities within tidal salt marshes and tidal freshwater wetlands, DNREC began the Riparian Buffer Initiative to protect critical areas from water quality degradation.[410]

Federal Consistency Review

Both the New Jersey DEP and the Delaware DNREC provide extensive information regarding their federal consistency review programs on their websites, including fact sheets, explanations of the process and identification of the activities for which a consistency review is required. The following is a brief summary of some of the more recent components of their respective programs.

● ***New Jersey Federal Consistency Program***

In 2007, New Jersey updated its list of activities subject to consistency review to include interstate activities, meaning activities occurring in other states that will affect New Jersey's coastal resources. Specifically, New Jersey identified the Delaware Estuary as the coastal resource of concern and identified activities as well as locations in the states of Pennsylvania and Delaware where, if those activities occurred, portions of the Delaware Estuary in New Jersey's Coastal Zone would be affected.[411] The table below identifies the activities and the locations of concern that would trigger a consistency review by the DEP.[412]

Table 10
New Jersey Interstate Consistency Listing for the Delaware Estuary

Federal Actions Affecting NJ Coastal Zone	Legal Authority	Locations of Concern in PA	Locations of Concern in DE
Construction of structures such as dams, dikes, bulkheads, revetments, groins, jetties, piers, docks, artificial reefs, pipelines, cables and wind turbines; creation of artificial islands; and	Sections 9 and 10 of the Rivers and Harbors Act	Dredging 50,000 or more cubic yards of material below the high tide line in the Delaware River up to the "Trenton Makes" Bridge. Subaqueous	Dredging 50,000 or more cubic yards of material below the high tide line in the Delaware Bay (not including mining of sand for beach nourishment projects) Subaqueous

Table 10 New Jersey Interstate Consistency Listing for the Delaware Estuary			
Federal Actions Affecting NJ Coastal Zone	**Legal Authority**	**Locations of Concern in PA**	**Locations of Concern in DE**
activities such as dredging, filling, mining, excavation and mooring of vessels in navigable waters.		disposal of 50,000 or more cubic yards of dredged material below the high tide line in the Delaware River up to the "Trenton Makes" Bridge.	disposal of 50,000 or more cubic yards of dredged material below the high tide line in the Delaware Bay.
Discharge of dredged and fill materials and other activities in the waters of the United States, including wetlands.	Section 404 of the Clean Water Act	In water dredged material disposal, or relocation or distribution of sediments below the high tide line in the Delaware River up to the "Trenton Makes" Bridge. Confined upland disposal facilities with the capacity to handle at least 50,000 cubic yards of dredged material that discharge directly into the Delaware River up to the "Trenton Makes" Bridge	In water dredged material disposal, or relocation or distribution of sediments below the high tide line in the Delaware Bay Confined upland disposal facilities with the capacity to handle at least 50,000 cubic yards of dredged material that discharge directly into the Delaware River

New Jersey identifies its "enforceable policies," meaning the state policies that are legally binding and with which a federal activity must be consistent in order to obtain a positive consistency determination, as being contained in the Coastal Zone Management Rules, which implement the Waterfront Development Law, CAFRA and the Wetlands Act of 1970; the Coastal Permit Program Rules; the Freshwater Wetlands Protection Act Rules; and the Hackensack Meadowlands Reclamation and Development Act and its implementing rules. The Coastal Zone Management Rules incorporate by reference several other sets of rules into their substantive standards that would also constitute enforceable policies.

● ***Delaware Federal Consistency Program***
Delaware has yet to identify the interstate activities and associated locations over which the state wishes to exert consistency review authority. However, in its newly revised final 2009 CMP Policy Document setting forth all of the enforceable polices in Delaware's CMP, the DNREC has reserved an entire section for interstate consistency.[413]

Delaware's list of enforceable policies is extensive, and includes the State Coastal Zone Act, the Beach Protection Act, the Wetlands Act, the Erosion and Sediment Control Act, the Minerals in Submerged Lands Act, the Wetlands Regulations, the Beach Protection and Use Regulations, the Subaqueous Lands Regulations, Surface Water Quality Standards, Water Pollution Control Regulations, Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems, Public Drinking Water Systems Regulations, the Sediment and Stormwater Regulations, the Marina Regulations and the Oil, Gas and Mineral Exploration Regulations.[414]

Section 309 Enhancement and Assessment Strategy

● ***State of New Jersey***
New Jersey completed its most recent Assessment and Strategy in June 2006 which included an Enhancement Strategy for the years 2006 through 2010.[415] In the document, DEP identified the level of risk associated with each of the following areas as being "high":

- Coastal hazards, including storm surges, flooding, shoreline erosion, sea level rise and extratropical storms, many of which will be exacerbated by the inundation of coastal wetlands that will occur as a result of sea level rise. The document notes that, although the most likely adaptation of coastal wetlands in response to sea level rise would be inland migration, "inappropriate development" in areas suited to inland migration of coastal wetlands will preclude this adaptation and the wetlands will either diminish or be lost to inundation;[416]

- Cumulative and secondary impacts caused by rapid growth or changes in land use, particularly to the Delaware Estuary, New Jersey's remaining upland forests, critical wildlife habitat and the state's coastal waters;[417]

- Risks to New Jersey's ocean resources caused by habitat degradation, increased contaminant loading, secondary and cumulative impacts, and the increased loss of habitat and fishing grounds caused by alternative uses of the outer continental shelf area. Specific ocean resources identified as being at high risk are fish stocks, shellfish and recreational and commercial fisheries;[418] and

- Public access to New Jersey's coastal resources caused by increased development along the coast and the growing trend of converting properties in popular tourist areas to privately owned residential properties.[419]

One of the most prevalent areas of concern identified in the document by DEP was the Delaware Bay and the threats to the Bay and Delaware River from cumulative and secondary impacts

caused by development.[420] DEP stated that inadequate information concerning the characteristics of the Bay bottom, its substrate and benthos hindered its ability to quantify the secondary and cumulative impacts of development, but noted that Delaware was in the process of collecting such data through a benthic and sub-bottom mapping project.[421] DEP also stated that the Delaware Estuary's location in three different states, each with its own agency with different mandates and objectives, complicated the coordinated management of the estuary.[422] However, it also noted that the Delaware Estuary Program was creating common goals that could be endorsed by all of the agencies involved.[423]

DEP also concluded in its Enhancement and Assessment document that it must develop an enforceable policy to protect the state's most important natural communities, such as the Delaware Estuary, upland forests, critical wildlife habitat and the ocean, from the cumulative and secondary impacts associated with development.[424] The enforceable policy could be in the form of a Coastal Rule that sets forth standards for activities that affect habitats that are significant for their contribution to biodiversity, such as the Delaware Bay beaches that support horseshoe crabs and migratory birds.[425]

● ***State of Delaware***

Delaware submitted two separate documents to NOAA for its most recent review: A 2005 Assessment document and a 2006 Enhancement Strategy document. In its Assessment document, the DNREC identified three of the nine assessment areas as being of high priority and requiring immediate attention: Special Area Management Planning, Cumulative and Secondary Impacts and Ocean Resources.[426]

With respect to Special Area Management Planning, the DNREC identified several program needs that it would consider addressing with the development of a SAMP, including:

- The economic and environmentally sustainable revitalization of the South Wilmington area;

- To coordinate the complex issues associated with the development of a regional sediment management (RSM) strategy in the Delaware Inland Bays, Atlantic Coast and Lower Delaware Bay;

- To develop a comprehensive ecosystem approach to the protection, enhancement and restoration of Delaware Bay's benthic and/or shoreline habitats; and
- For small harbors that are heavily used or have redevelopment potential but must consider ecologically sensitive habitats and species in areas such as Lewes Harbor, Bowers Beach, and the Mispillion River/Cedar Creek.[427]

In 2008, NOAA awarded the Delaware Coastal Program a three year grant to develop the SAMP to revitalize South Wilmington, and development of that SAMP is currently underway. [428]

With respect to secondary and cumulative impacts, DNREC noted that many Delaware citizens view "urban sprawl" as one of the most pressing issues impacting the state's coastal resources. It also noted that development pressure is strong throughout much of Delaware, with extreme

pressures in Southern New Castle County and Eastern Sussex County.[429] Specific sensitive coastal areas and their respective secondary and cumulative impact threats were identified as follows:[430]

TABLE 11 Sensitive Delaware Coastal Areas and Cumulative and Secondary Impacts Threats	
Coastal Area	**Impacts Threats**
Coastal Shoreline	▪Residential and commercial development ▪Increased tourism ▪Installation of private docks and piers in lieu of community/public docks and piers ▪Fragmentation of habitat ▪Loss of wetlands ▪Increased NPS pollutant loading ▪Increased recreational boating
Inland Bays	▪Residential and commercial development ▪Increased tourism ▪Fragmentation of habitat ▪Increased NPS pollutant loading ▪Loss of wetlands ▪Increased recreational boating
Delaware Estuary	▪Residential and commercial development ▪Increased tourism ▪Fragmentation of habitat ▪Increased NPS pollutant loading ▪Loss of wetlands ▪Main channel deepening ▪Increased recreational boating ▪LNG facility siting ▪Oil Spills
Coastal Watersheds	▪Residential and commercial development ▪Fragmentation of habitat ▪Increased NPS pollutant loading ▪Loss of wetlands

Program needs the DNREC would consider to deal with these problems were identified as follows:

- Assist in the dissemination of information, technical assistance and development of conservation ordinances to improve land use decision making by local governments; and

- Consider the cumulative effects of various human activities that in combination negatively affect the ecosystem health of Delaware Bay's benthic habitats.[431]

Regarding Ocean Resources, DNREC expressed its concern over, among other things, a lack of understanding of what lays under the Delaware Bay, an area representing almost one quarter of the surface area of the state.[432] The DNREC acknowledged that important coastal management decisions, such as the designation of Essential Fish Habitat or the issuance of dredging permits, are routinely made with little knowledge of how they will affect the Bay, its resources or the economics of related commercial and recreational activities.[433]

To increase the understanding of the Delaware Bay, the Delaware Coastal Programs are currently engaged in the Delaware Bay Benthic and Sub-Bottom Mapping Project. A cooperative effort between the Delaware CMP, DNERR, and the Department of Geology at the University of Delaware, the project will identify and map the benthic habitat and the sub-bottom sediments of the Delaware Bay.[434] This research will address several areas of concern including the impacts of dredging on Bay bottom, the identification of critical habitat for a variety of organisms, including many larval and juvenile fishes, and the identification of the marine life upon which these organisms depend for food. More specifically, the participants seek to determine how disturbance to the bottom caused by increased trawling for conch might be affecting the benthos and possibly influencing stocks utilized in other commercial and/or recreational fishing. In addition, there is the need to quantify the extent and health of shellfish beds, and examine the effectiveness and longevity of artificial reefs. However, the fundamental goal of the project is to identify and protect the estuarine biodiversity of the Bay.[435]

Section 312 Performance Evaluation

● ***State of New Jersey***

The most recent review of New Jersey's program was conducted by NOAA's Office of Ocean and Coastal Resource Management (OCRM) in March 2007, examined the program's operations from June 2004 through May 2007 and culminated in a written final evaluation report dated January 2008.[436] The evaluation process consisted of the four required components: (1) a document review and identification of issues of concern; (2) a site visit to New Jersey, including interviews of DEP personnel and a public meeting; (3) development of draft evaluation findings; and (4) preparation of final evaluation findings.[437]

The OCRM's Section 312 evaluation determined that DEP is "successfully implementing the New Jersey Coastal Management Program as approved by NOAA."[438] The document identified several accomplishments of the program that the OCRM found particularly noteworthy, as well as several "Program Suggestions" that describe actions that NOAA believes the DEP should take to improve its CMP. The Program Suggestions are not mandatory, although Program Suggestions that are reiterated in consecutive evaluations due to continuing problems may be elevated to "Necessary Actions" that address programmatic requirements and must be implemented.[439] The OCRM also identified two Necessary Actions, meaning actions that the DEP must take by specific dates.

Accomplishments noted by the OCRM include:

- Actively addressing the needs of the regulated community through the development of a five-module online training program for municipal officials, planners, real estate agents,

contractors, homeowners and enforcement officials entitled "Understanding Land Use Regulations and Enforcement" and the establishment of a permit Call Center.[440]

- The collaboration with partners, including the New Jersey Office of Emergency Management and the Jacques Cousteau National Estuarine Research Reserve to develop and deliver workshops on hazard mitigation planning for municipal county officials.[441]

- Making significant progress towards increasing public access through the development and proposal of new public access rules.[442]

- The successful implementation of the Clean Marina Program.[443]

- Assuming a leadership role in the state's initiative to address offshore wind facility development and its impacts to coastal and ocean resources.[444]

Program Suggestions made by the OCRM include:

- The OCRM "strongly encouraged" the CMP to hold regular meetings between the DEP's Coastal Management Office (CMO), the Division of Land Use Regulation (DLUR) and the Bureau of Coastal Land Use Compliance and Enforcement (BCLUE) to ensure a more coordinated and comprehensive approach to coastal management.[445]

- The OCRM noted that the majority of the CMP's section 306 implementation funds are still being used to supplement state funds for the support of regulation and enforcement staff (the DLUR and BCLUE, respectively) and that the CMO, which relies exclusively on federal funding, is then forced to use the remaining 306 implementation funds and a significant amount of their section 309 enhancement funds, for staff. Since NOAA intends for section 309 funds to support program enhancement, the activities of the CMO staff supported by these funds are limited. This in turn limits the capacity of the CMO to be proactive in addressing current coastal issues, to respond to emerging needs or participate in annual projects funded with 306 monies, such as habitat restoration and community/waterfront planning. Thus, the OCRM "strongly encouraged" the CMP to reconsider the way it allocates federal and state funds that support various aspects of the CMP.[446]

- The OCRM "strongly encouraged" the DEP to complete development of the New Jersey Coastal and Estuarine Land Conservation Program (CELCP) Plan and make a concerted effort to engage land acquisition partners statewide to increase support and to make the Plan as coordinated and comprehensive as possible. [447]

- The OCRM encouraged the CMP to develop a strategy for enhancing outreach and assistance to coastal communities.[448]

Necessary Actions identified by the OCRM, meaning actions that must be taken by a date certain, include:

- Of the 1,740 coastal permits issued by the DEP in the evaluation period (April 2004 to March 2007), approximately 3% of those permits were the result of "de facto" permit issuance due to a failure of the CMP to render a permit decision within the 90 day time frame mandated by New Jersey's 90-Day Law. OCRM therefore required the CMO and DLUR to work together to develop a strategy for minimizing the number of de facto permits issued due to the CMP's failure to render a timely decision.[449]

● ***State of Delaware***

The most recent review of Delaware's CMP was conducted by the OCRM in October 2005, analyzed Delaware's program operations for the period of September 2002 through December 2005 and culminated in the 2006 issuance of the OCRM's Section 312 Final Evaluation Findings.[450] The evaluation process consisted of the four required components: (1) a document review and identification of issues of concern; (2) a site visit to Delaware, including interviews of DNREC personnel and a public meeting; (3) the development of draft evaluation findings; and (4) preparation of final evaluation findings.[451]

The overall conclusion of the evaluation was that the DNREC is successfully implementing and enforcing its federally approved Coastal Management Program.[452] Like New Jersey's evaluation, the document identified several accomplishments of the program that the OCRM found particularly noteworthy, as well as several "Program Suggestions" that describe actions that NOAA believes the DNREC should take to improve its CMP. The OCRM stated that it expected the DNREC to address the recommendations by the time of the next section 312 program review.[453]

Some of the accomplishments identified by OCRM are as follows:

- The CMP's initiative to map benthic and sub-bottom resources of the Delaware Bay after concluding that the lack of such data created an important coastal management need.[454]

- The CMP's coordinated efforts with the Delaware National Estuarine Research Reserve, the Division of Parks and Recreation's Land Preservation Office and the Delaware Open Space Council to acquire four properties totaling 220 acres, all of which border the Blackbird Creek. These parcels have provided greater public access to this Reserve component, as well as new opportunities for research and educational programming.[455]

- The CMP's efforts to provide promotion opportunities and prepare staff to take on management responsibilities. According to OCRM, this both freed up senior management to focus their time on critical issues for the Program rather than day to day management responsibilities, while ensuring that new leadership is cultivated within the Program.[456]

- The CMP's acquisition of lands along Blackbird Creek, and also for partnering with the with the Nature Conservancy to promote private landowner conservation and its fostering of appropriate protection and management of open space through its Community Open Space Technical Assistance Grants.[457]

- The CMP's good progress in the implementation of its Coastal Nonpoint Pollution Control Program, including through the establishment of a Clean Marina Program.[458]

- The CMP's revision of the state's coastal setback regulations, incorporating the most recent shoreline information for the state into its Building Line and updating construction standards.[459]

- The CMP's efforts to improve interagency coordination to make the federal consistency process more efficient and effective, including assigning specific staff members as specialists to serve as liaisons with agencies seeking a consistency determination and its timely submission of program changes related to additions to its enforceable policies.[460]

The OCRM made the following Program Suggestions to Delaware:

- Development of a strategy to disseminate information obtained from the benthic mapping project to coastal managers and decision makers.[461]

- Pursue opportunities for state funding for program positions to free up federal funding currently used for these positions to be used instead to address priority coastal management issues.[462]

- Establish an application and performance/progress review process for internal DNREC projects supported with grant funds similar to the performance/progress review process in place for external (non DNREC) recipients of funds.[463]

National Estuarine Research Reserve System

NOAA has designated National Estuarine Research Reserves in both the state's of New Jersey and Delaware. New Jersey's reserve, the Jacques Cousteau National Estuarine Research Reserve (JCNERR), is located in the Mullica River – Great Bay ecosystem in the southeastern part of the state. The Delaware National Estuarine Research Reserve (DNERR) consists of two unique components: one on Blackbird Creek in Townsend, Delaware and the other on the St. Jones River in Dover Delaware.

● ***The Jacques Cousteau National Estuarine Research Reserve***

The JCNERR encompasses over 110,000 acres in southeastern New Jersey, including a wide variety of terrestrial, wetland and aquatic habitats within the Mullica River-Great Bay ecosystem. The Reserve is a patchwork of federal and state lands managed in partnership by a variety of agencies. With little more than 1% of the Reserve subjected to human development, this area is regarded as one of the least disturbed estuaries in the densely populated urban corridor of the Northeastern United States.[464] Occurring within the New Jersey Pinelands forest ecosystem, on the coastal plain and the barrier islands of the coastal margin, the Mullica River-Great Bay estuary is of special ecological value. The high environmental quality of the habitats within the JCNERR is consistent with the objective of the Reserve system to preserve areas which retain a healthy ecosystem and provide the opportunity to serve the needs of long-term research and monitoring programs.[465]

The map below demonstrates the location of the reserve, and demonstrates that it is to the northeast of the Project Area.

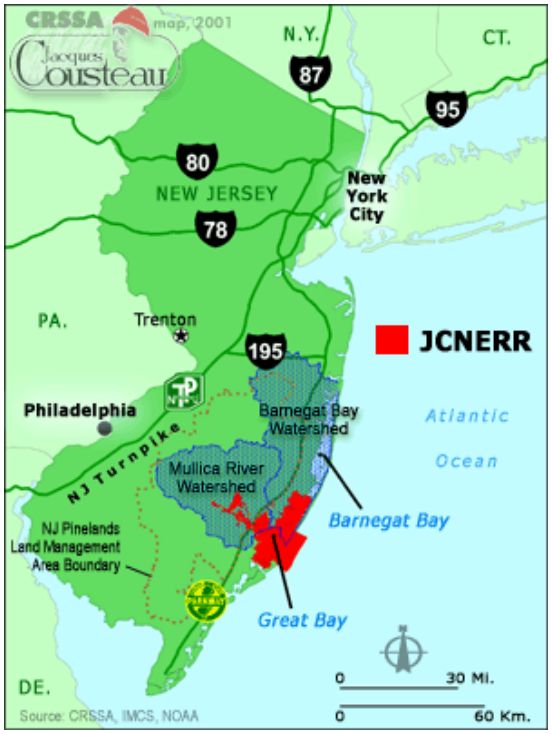

Figure 11 – Jacques Cousteau National Research Reserve[466]

● ***The Delaware National Estuarine Research Reserve***

The St. Jones Reserve component is about 3,750 acres in designated size, situated along 5.5 miles of medium-salinity tidal river at the lower end of the St. Jones River watershed, with the river discharging into Delaware Bay.[467] The river continues upstream another 5 miles, flowing out of Silver Lake near downtown Dover. The total length of the tidal St. Jones River is approximately 10.5 miles. The St. Jones Reserve component contains 35 parcels of land held by 23 private landowners, the DNERR, and two other state agencies, the Division of Fish and Wildlife and the Division of Historical and Cultural Affairs.[468]

The Blackbird Creek Reserve component of the DNERR is 1,180 acres in size, situated along 5.7 miles of low-salinity brackish and freshwater tidal creek starting about 5.8 miles upstream from where Blackbird Creek empties into the lower Delaware River.[469] The total length of tidal Blackbird Creek is about 11.5 miles. The Blackbird Creek Reserve component contains 50 parcels of land held by a combination of private landholders, the DNERR and the Division of Fish and Wildlife.[470]

The figure below demonstrates that both components of the DNERR are in the Project Area.

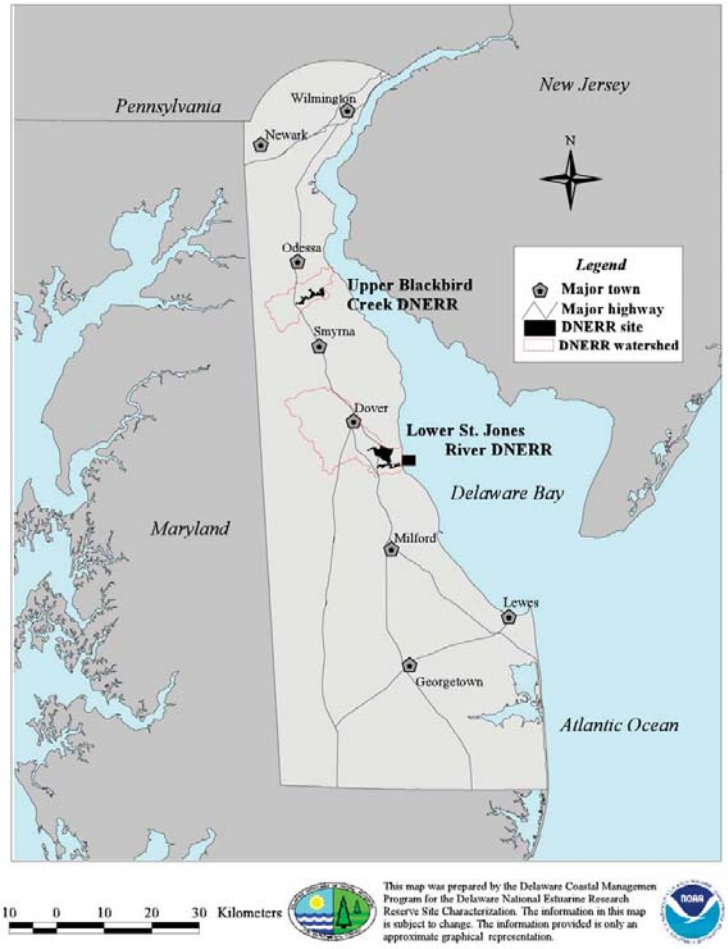

Figure 12 – The Delaware National Estuarine Research Reserve[471]

Because the DNERR is in the Project Area, the highlights of this program are worth exploring in more detail.

DNERR Management - Established in 1993, the DNERR was initially managed by three Divisions within the DNREC: the Division of Soil and Water Conservation, the Division of Parks and Recreation, and the Division of Fish and Wildlife (DFW). However, it soon became apparent that co-management by three separate entities was not the most efficient use of State resources. In 1995, the Division of Soil and Water Conservation became administratively responsible for the Reserve. This was the logical choice because the Division houses the Delaware Coastal Programs within which the DNERR Program is located.[472]

As is required of all Reserves in the Program, the DNERR submitted a Management Plan in 1993 that was reviewed and approved by NOAA. Many of the programs and goals of that original Management Plan are underway, and the DNERR is currently operating under a second iteration of the Plan developed to take the program through the years 2004-2009. [473]

Research and Monitoring Program - A wide variety of coastal issues are being addressed by research and monitoring activities performed at the Reserve or through Reserve partnerships. Some of the accomplishments of the program including the following:

- A network of datasondes and weather stations has been established in the Reserve components and their surrounding area. The St. Jones and Blackbird sites' weather stations offer near real-time web display of the data.

- Data from these deployments has been used by other state and federal agencies to refine and validate water quality models for TMDL implementation, wave generation models for beach erosion and habitat conditions, and estimated nutrient and pesticide loadings from atmospheric deposition.

- The DNERR staff's experience and knowledge of atmospheric deposition issues facilitated the selection of the DNERR in a regional project with the U.S. Department of Agriculture, the University of Maryland, and the University of Delaware for research involving the atmospheric deposition of pesticides.

- The DNERR's successful history of monitoring stormwater runoff and nonpoint source loads has driven requests by the DNREC's Sediment and Stormwater Program, Nonpoint Source Pollution Program and Delaware Department of Transportation for the DNERR's services in monitoring and evaluating new and innovative measures to protect the State's water supplies.

- In collaboration with the British Trust for Ornithology, the DNERR has become the eastern-U.S. base of operations for an international team of ornithologists studying migrating shorebirds. These studies, conducted during the month of May, estimate migratory shorebird populations, determine weight gain during their stopover in the Delaware Bay, correlate weather data to bird concentrations, and determine characteristics of preferred beaches. The DNERR handles all logistics and volunteer coordination, and supplies housing and data-analysis support for the team.

- In conjunction with the shorebird studies is research regarding horseshoe crabs, whose eggs are the primary food source of the birds. To fully understand spawning and movement of the horseshoe crab, the DNERR has brought together a team of scientists to study the biological and geophysical properties that affect the crab. The scientific team includes researchers from the DNREC, U.S. Geological Survey, and the University of Delaware College of Agriculture and Natural Sciences, College of Marine Studies, and Department of Geology. Results from this work will be used in development of regulations for beach replenishment, dredging operations, horseshoe crab harvesting, and habitat management.[474]

Harmful Algal Blooms and Hypoxia Research and Control

● ***State of New Jersey***

Because of a series of recurring brown tides documented in Little Egg Harbor and southern Barnegat Bay between 1985 and 1999, the DEP Division of Science, Research and Technology (DSRT), currently known as the Office of Science, established the Brown Tide Assessment Project in 1999.[475] Monitoring activities were conducted from 2000 through 2004 with the primary objectives being to characterize the spatial and temporal occurrence of brown tides in Barnegat Bay-Little Egg Harbor; identify those environmental factors that may promote the development and maintenance of brown tides; and analyze the risk of brown tides to submerged aquatic vegetation (SAV) communities.[476] The research and conclusions drawn were limited to the Barnegat Bay-Little Egg Harbor study area.

In 2000, the DSRT issued another research paper entitled "Harmful Algal Blooms in Coastal Waters of New Jersey," which was prompted not only by an extensive and severe brown tide bloom in Barnegat Bay in 1999, but by recurring algal blooms in New Jersey coastal waters documented over the previous twenty years.[477] With respect to Delaware Bay, the paper acknowledged reports of phytoplankton blooms, mainly red tides, in New Jersey in the Delaware Bay since 1928, but noted that none of the red tide blooms originating in New Jersey waters were acutely toxic to aquatic life.[478] However, the report also noted that occasional fish kills did occur and were presumably due to low oxygen levels caused when the various blooms collapsed resulting in hypoxic conditions.[479]

Currently, the Bureau of Marine Water Monitoring monitors phytoplankton assemblages and looks for the presence of blooms each summer in New Jersey's coastal waters and major estuaries as part of the state's compliance with the National Shellfish Sanitation Program. The phytoplankton monitoring program provides surveillance of shellfish growing areas for possible toxin-producing algal species, which are identified and enumerated along with other phytoplankton present. The map below shows that two of the phytoplankton sampling stations are located in the Project Area.

Figure 13 – New Jersey Phytoplankton Sampling Stations[480]

Data from these sampling events for select years are available on DEP's website and show that, between the years 2002 and 2009, the Project Area has been characterized by a diverse assemblage of flagellate and diatom species, and the occasional mild to moderate algal bloom.[481] A large bloom of *Cylindrotheca closterium* was detected during sampling in August 2008. On two occasions during this seven-year period, potentially toxic species were detected: *Prorocentrum spp.* was detected in 2002 (month not specified) at below toxic or bloom concentrations, and *Pseudonitzschia spp.,* was detected in July 2004, also below bloom or toxic concentrations. On no other occasions were toxic species detected.[482]

The DEP also conducts aerial surveillance of near-shore coastal waters six days a week during the summer and routinely inspects the 17 wastewater treatment facilities that discharge to the ocean. The DEP's aerial surveillance plane includes remote sensing capability for estimating chlorophyll levels in coastal waters. This information allows the DEP to track the intensity of algae along the coast and to target boat sampling at locations where algal blooms might be occurring. The remote sensing results are posted daily on its website and demonstrate that there was no increase in reported algal blooms in 2008. In 2009, flights were extended to Barnegat Bay and up into Delaware Bay. Data from these flights show that, in June and July, there was no *Chlorophyll a* detected in the project area and that the trail of *Chlorophyll a* along New Jersey's coast extended from Perth Amboy to the Forked River, encompassing about a third of the length of the coastline.[483] However, the line of *Chlorophyll a* gradually extended south as the summer progressed and, by August, *Chlorphyll a* was detected at the mouth of the Delaware Bay adjacent

to Cape May.[484] By late September, it extended into and across the entire Bay and into the Delaware River, reaching a point adjacent to the town of Bridgeton, New Jersey.[485]

● ***State of Delaware***

The DNREC maintains a website dedicated to *Pfiesteria piscicida,* a toxic marine microorganism that can cause red sores or lesions on all fish species and can lead to sudden, large fish kills.[486] An unusually problematic algal species, more specifically, an estuarine dinoflagellate, *Pfiesteria* has brought new attention to harmful algal blooms in the Mid-Atlantic region. It differs from most known toxin-producing algae in that, unlike those causing red and brown tides, it does not produce a pigment and thus gives no visual evidence of its activity.[487] The website gives a thorough description of how to recognize the signs that *Pfiesteria* is present in a water body and the contact at DNREC to call immediately upon observing any such signs.

The DNREC samples water and shellfish for harmful algal bloom species and toxins and issues swimming advisories at freshwater beaches when harmful algal blooms occur. The state discovered its first known occurrence of a *Karenia brevis* bloom during routine beach observations in late August of 2007. The toxins produced by this species of harmful algae can aerosolize and cause respiratory symptoms. As a result of the 2007 *Karenia brevis* bloom, Delaware enhanced its surveillance analyses, response, and public notification capability for marine toxins and harmful algal blooms by establishing the Comprehensive Algal Bloom Monitoring Program in 2008. Implemented by the DNREC in cooperation with the University of Delaware Sea Grant Marine Advisory Service, this program has engaged in follow-up monitoring of harmful algal blooms at the Indian River Inlet, a beach site that is used by surfers. The DNREC has also provided funding for university research to identify harmful algal bloom species.[488]

Grants and Funding for the CZMPs

The following table sets forth the amounts that New Jersey and Delaware have received under the CZMA's Management and Enhancement Grant programs during the years 2004 through 2008. In that the grants are purportedly based upon, among other things, coastal miles and coastal population, the table also includes this information for the states of California and New York for comparative purposes.[489]

As this table demonstrates, despite the fact that both New York and California have coastal mileages and coastal populations that are significantly larger than those of New Jersey, due to caps placed on the amounts of funding that can be distributed, all three states received the same amount of grant money in each given year.

TABLE 12 SELECT CZMA MANAGEMENT GRANTS AND ENHANCEMENT GRANTS 2004 – 2008							
State	**Coastal Mileage**	**Coastal Population**	**2004**	**2005**	**2006**	**2007**	**2008**
			Management Grant	**Management Grant**	**Management Grant**	**Management Grant**	**Management Grant**
			Enhancement Grant	**Enhancement Grant**	**Enhancement Grant**	**Enhancement Grant**	**Enhancement Grant**
New Jersey	1,792	7,575,546	2,020,000	1,960,000	2,080,000	1,967,000	1,967,000
			540,000	540,000	536,000	536,000	536,000
Delaware	381	783,600	1,509,000	1,276,000	1,309,000	1,226,000	1,211,000
			101,000	101,000	101,000	101,000	101,000
New York	2,625	16,088,089	2,020,000	1,960,000	2,080,000	1,967,000	1,967,000
			540,000	540,000	536,000	536,000	536,000
California	3,427	24,260,099	2,020,000	1,960,000	2,080,000	1,967,000	1,967,000
			540,000	540,000	536,000	536,000	536,000

C. OTHER STATE WATER QUALITY STATUTES/ PROGRAMS

Other Delaware Water Quality Protections and Programs

Sediment and Stormwater Management Program

Delaware's Sediment and Stormwater Management program operates within the Division of Soil and Water Conservation, Drainage and Stormwater Section. The program utilizes a comprehensive approach to sediment control mechanisms applied both during and after construction as well as stormwater management that includes monitoring of stormwater quantity and quality.

The program operates under the authority of the Erosion and Sediment Control Act, which was adopted in recognition of the serious problems that erosion and sedimentation cause throughout the state.[490] More specifically, in adopting the statute, the Delaware Legislature declared that the construction of impervious surfaces such as roads and parking lots has accelerated the process of soil erosion and sediment deposition resulting in pollution of the waters of the state.[491] This, in

turn, has damaged domestic, agricultural, industrial, recreational, fish and wildlife and other resource uses.[492]

To alleviate and prevent these problems, the Act seeks to strengthen and broaden the existing erosion and sediment control activities and programs for both rural and urban lands and to provide for the control and management of stormwater runoff in a manner consistent with sound water and land use practices.[493] The mechanism by which this policy is carried out is the Sediment and Stormwater Regulations, which set forth the types of approvals that must be obtained, the activities and circumstances that trigger approval requirements, required sediment and stormwater control measures and the procedures for inspections.[494]

Ground Water Management Program

Managed by the DNREC's Division of Water Resources, Groundwater Discharges Section, this program oversees the design and installation of on-site wastewater treatment and disposal systems (septic tanks) as well as the land treatment of wastes.

● ***On-Site Wastewater Treatment and Disposal Systems***
With regard to on-site treatment and disposal systems, regulations have existed in Delaware since 1968. However, inadequately renovated wastewater, inappropriate installations and poor operation and maintenance practices resulted in disposal system malfunctions that contaminated the state's groundwater.[495] Corrective measures, including the replacement of water supplies and wastewater systems, were required at great expense to the public. Further, due to the lack of any natural barriers between the streams and the unconfined aquifers in the Delaware Coastal Plain, the surface and ground waters of this area are in effect one hydrologic system. This means that contamination of groundwater in Delaware has the potential to cause contamination to important surface waters and their related resources, and vice versa.[496]

DNREC concluded that significant revisions to its regulations were warranted and that the adoption of effective on-site wastewater treatment and disposal regulations was the proper course of action. After a lengthy process that included considerable staff research, public meetings and presentations, public workshops, a public hearing and a hearing officer's report along with the development and review of four draft versions, the Regulations Governing the Design, Installation and Operation of On-Site Wastewater Treatment and Disposal Systems were adopted.[497] The purpose of these regulations is to avoid the problems previously experienced by governing all aspects of on-site treatment and disposal, including site evaluation, siting density, design, installation and operation.[498]

● ***Land Treatment of Wastes***
Delaware's efforts to improve water quality through the collection and centralized treatment of wastewaters have resulted in the rehabilitation of existing treatment works and the construction of new facilities. These facilities generally utilize biological processes to treat the wastewaters from residences, commercial and industrial establishments, which treatment results in the creation of sludges. The inadequate treatment of sludge and poor operation and maintenance practices have resulted in the contamination of the state's groundwaters.

In addition, approximately 600-800 thousand tons of animal manure are produced annually in Delaware – enough manure to supply all the nitrogen for all of the corn grown in the state. Over application, poorly-timed application and the improper storage of manure have contributed to the contamination of both groundwater and surface waters in the state.

To deal with all of these problems, Delaware has adopted the Regulations Governing the Land Treatment of Wastes that promote good practices for waste disposal and utilization techniques that minimize potential adverse impacts and maximize the potential benefits of manure application.[499]

Exploration for and Extraction of Oil, Gas and Minerals

The Minerals in Submerged Lands Act gives the DNREC exclusive jurisdiction to lease for mineral exploration and exploitation all ungranted submerged tidelands owned by the State of Delaware.[500] However, the statute also requires that prior to the issuance of any such lease, a public hearing must be held during which any interested person can offer evidence pertaining to the lease request and/or be heard on the matter.[501] After the public hearing, the DNREC must render a determination as to whether the lease would be in the public interest, which requires consideration of, among other things, whether the lease would:

- Be detrimental to the health, safety or welfare of persons residing in, owning real property or working in the neighborhood of such areas;
- Interfere with the residential or recreation areas to an extent that would render such areas unfit for recreational or residential uses or unfit for park purposes;
- Destroy, impair or interfere with the esthetic and scenic values of the Delaware coast, or other affected area;
- Create any air, water and other pollution;
- Substantially endanger marine life or wildlife;
- Substantially interfere with commerce or navigation; and
- Protect state lands from drainage of oil, gas or other minerals or objectionable substances.[502]

Once a lease is actually granted, the Oil, Gas and Mineral Exploration Regulations govern how the exploration or extraction will be carried out, and set forth, among other things, the operational rules and field rules for oil and gas drilling.[503]

Other New Jersey Water Quality Protections and Programs

The Flood Hazard Control Program

Developed under the authority of the Flood Hazard Area Control Act, the program is implemented by the DEP's Land Use Regulation Program through the Flood Hazard Area Control Act Rules.[504] Designed to protect citizens and property from the dangers and destruction caused by flooding, the Flood Hazard Area Control Act Rules also recognize and seek to prevent the impacts that such flooding has on water quality and wildlife habitat. This sentiment is strongly stated in the Purpose and Scope section of the rules as follows:

> Healthy vegetation adjacent to surface waters is essential for maintaining bank stability and water quality. The indiscriminate disturbance of such vegetation destabilizes the banks of channels and other surface waters, which leads to increased erosion and sedimentation that exacerbates the intensity and frequency of flooding. The loss of vegetation adjacent to surface waters also reduces filtration of stormwater runoff and thus degrades the quality of these waters. Such impacts adversely affect the health and habitat of fish and wildlife that depend upon clean surface waters and therefore disrupt the ecological balance that is necessary for life. Humans are ultimately affected by this imbalance, since clean water is essential for all life.[505]

In order to minimize increased flooding caused by development, the rules were amended in 2007 to impose a 0% net-fill requirement, which was previously implemented only in the Highlands Preservation Area and Central Passaic Basin. This requirement now applies to all non-tidal flood hazard areas of the state.[506] The new rules also expand the preservation of near-stream vegetation, previously protected within 25 or 50 feet of streams, by implementing new riparian zones that are 50, 150 or 300 feet in width along each side of surface waters throughout the state. The riparian zone width depends on the environmental resources being protected, with the most protective 300-ft riparian zone applicable to waters designated as Category 1 (exceptional) Waters and their upstream tributaries. Certain waters supporting trout, habitats of threatened or endangered species that are critically dependant on the watercourse to survive, or watercourses which flow through areas that contain acid-producing soil deposits, require a 150-ft riparian zone.[507]

The DEP also amended its Coastal Rules and Coastal Permit Program Rules to incorporate the new flood hazard area and riparian zone standards into the review of all CAFRA and Waterfront Development permits. In doing so, the agency eliminated a gap in the previous rules under which development in tidal areas was reviewed under different standards than those applied to non-tidal areas.[508]

Site Remediation Program

The clean-up of more than 20,000 contaminated sites in New Jersey is regulated by several authorities, including the Brownfields and Contaminated Sites Act, the Spill Compensation and Control Act and the newly-adopted Site Remediation and Reform Act.[509] Implemented by a

variety of rules and guidance documents, compliance with these statutes requires that any affected surface water be remediated in accordance with the State's surface water remediation standards. In New Jersey, the minimum surface water remediation standards are the state Surface Water Quality Standards.[510] Accordingly, as is explained in detail in a previous section of this paper, the remediation standard that must ultimately be achieved will be dependent upon, among other things, the type of waterway involved (freshwater or saline/estuarine), its designated uses and the water quality criteria and TMDLs that have been developed for that waterway.

Anther significant component of the Site Remediation Program is the ability of the DEP to seek Natural Resource Damages claims against a polluter. Such claims are based upon the DEP's common-law role as the trustee of public lands, waters and living resources such as wildlife and critical habitat, which it holds in trust for the benefit of New Jersey's citizens. Prior to the adoption of the Site Remediation and Reform Act, the state was required to bring Natural Resource Damages claims within five and a half years from the date of the completion of a remedial investigation for the subject site. With the May 7, 2009 adoption of the new Act, the state now has five and a half years from the date of the completion of the remedial action for all media – surface water, groundwater, and soil – to bring such a claim.[511] In that the clean up of such sites often take many years, if not decades, the Act significantly expands the time frame for bringing Natural Resources Damages claims for many contaminated sites.

Water Supply Management Program

Overseen by the DEP's Division of Water Supply, this program operates under the authority of several state statutes, including the New Jersey Safe Drinking Water Act, the Water Supply Management Act, and the Subsurface and Percolating Waters Act.[512] These statutes are in turn implemented through a variety of DEP regulations, including the New Jersey Safe Drinking Water Act Rules, the Water Supply Management Act Rules and the Water Supply Allocation Rules.[513] Together, these statutory and regulatory protections are supposed to protect the existing ground and surface water supply sources in the state and set forth procedures for issuing permits to divert water, obtain a water supply allocation permit, for assessing and collecting diversion fees, and for identifying "Areas of Critical Water Supply Concern."[514]

The Water Allocation Rules define an Area of Critical Water Supply Concern, also known as a Critical Area, as "a region of the State where excessive water usage or diversion presents undue stress, or wherein conditions pose a significant threat to the long-term integrity of a water supply source, including a diminution of surface water due to excess groundwater diversion."[515] Once a Critical Area is identified, the regulations impose restrictions on use of such water supplies, and require the DEP in consultation with affected permittees and municipalities, to study the area in question, estimate future water supply needs, implement water conservation measures, and identify and utilize alternative sources of water.[516]

In 1982, in accordance with the requirements of the Water Supply Management Act, the New Jersey Statewide Water Supply Master Plan was adopted to examine all aspects of water supply management, including engineering, legal, and institutional aspects, in a context of extensive public participation.[517] The Master Plan provides recommended projects and programs for the

satisfaction of the State's water supply needs, a framework for the future planning, evaluation and implementation of specific projects required to meet those needs, and a mechanism for update and revision of the Master Plan itself.[518]

All of these water supply protections focus on the ability of the water supply sources to meet the usage needs of New Jersey's citizens. However, the important ecological needs met by these waters, such as the maintenance and propagation of numerous wildlife species, is hardly taken into account. For example, the Water Supply Management Act declares that "the water resources of the State are public assets of the State held in trust for its citizens and are essential to the health, safety, economic welfare, recreational and aesthetic enjoyment, and general welfare, of the people of New Jersey" but makes no mention of wildlife or the important ecological significance of these resources.[519] And, although other statutes are supposed to take into account the ecological significance of surface water flows and ground water recharge, such protections have proven to be insufficient.

For example, as discussed earlier in this paper, the CAFRA Section 10 Findings do not allow DEP to issue development permits in the CAFRA Area unless an applicant has demonstrated that the proposed development (i) would result in minimal feasible impairment of the regenerative capacity the water environments at the site and within the surrounding region; (ii) would result in minimum feasible impairment of the regenerative capacity of water aquifers or other ground or surface water supplies; and (iii) would cause minimal feasible interference with the natural functioning of plant, animal, fish, and human life processes at the site and within the surrounding region.[520] In practice, as long as a developer is able to obtain a water supply allocation permit, which does not take into account the ecological impacts of water usage or diversion, then the CAFRA development permit is typically issued.

Despite the intended protections of the various water supply statutes and regulations, New Jersey's water supplies are currently over allocated. The increasing loss of freshwater inputs to the Barnegat Bay Estuary and the simultaneous increase in salinity demonstrate that ecological concerns are not being properly addressed in the New Jersey Water Supply Master Plan and the Water Allocation Program. This is further demonstrated by saltwater intrusion into public water supplies, such as in Cape May County, where during the 30 year period from 1960 through 1990 saltwater intrusion forced the County to abandon more than 10 public supply wells, 3 industrial supply wells and more than 100 domestic supply wells. As of 2002, water supply levels in the Cohansey Aquifer were below sea level from the Cape May County town of Burleigh south, and coastal stream flows in the same area were reduced to 80% of the normal rate.[521]

In addition, a recent report prepared by the Delaware River Basin Commission identified ground water stress, defined as where water withdrawals exceed natural recharge, as a significant problem in both the New Jersey and Delaware portions of the Delaware River Basin.[522] Specifically, the report noted two areas of stress in the Upper Estuary region that are recognized as critical or protected areas: The Ground Water Protected Area in southeastern Pennsylvania, and Critical Area No. 2 in south-central New Jersey overlaying the Potomac-Raritan-Magothy (PRM) Aquifer.[523] Currently, conjunctive water use (the simultaneous use of ground water and surface water) and regional alternatives to local supplies are easing these two stress areas, but additional problem areas are emerging.[524] Specifically, the DRBC reports that groundwater

withdrawals from Delaware are diminishing stream base flows and causing cones of depression in the PRM Aquifer System. Base flows are also a concern in the Salem-Gloucester area and the Maurice River basin in Southern New Jersey.[525]

●Eco-Flow Goals and the Hydoecological Integrity Assessment Process

Recently, New Jersey, working with the U.S. Geological Survey (USGS) in Fort Collins, Colorado and the USGS New Jersey Water Science Center in West Trenton, has begun to look for a better way to assess its existing water supply and water supply needs. Together, these agencies have been conducting studies to determine a process that will more accurately identify the capacity of watersheds throughout the state and at the same time quantify the amount of water needed to protect the ecological integrity of the streams within each watershed.[526] Based on computer models developed to produce long-term hydrographs for both gaged and ungaged stream sites in New Jersey, it is anticipated that this methodology will result in the development of a management tool that will allow the DEP to incorporate ecological goals into its water capacity and water use management decisions.[527]

Through this new methodology, known as the Hydrological Integrity Assessment Process or more commonly, the Ecological Flow Goals Method, the DEP seeks to evaluate potential impacts of a proposed water withdrawal by determining the change in streamflow characteristics. In order to adequately determine appropriate ecological flow goals for establishing thresholds that will promote conditions where ecological integrity can be maintained, streamflow data is necessary from a period of time where the drainage basin in question was the least altered by human activities such as regulation, diversion, landscape alteration, and stream and groundwater withdrawals.[528] By using streamflow records from this baseline period, the thresholds developed can be used to establish hydroecological flow goals that researchers and managing agencies can use to maintain or achieve streamflow conditions that protect ecological integrity.[529]

A pilot study comparing the Ecological Flow Goals Method to existing methods of assessing the impacts of a proposed water use was conducted in 2006 by the USGS New Jersey Water Science Center using data from four streams in the New Jersey Highlands Region.[530] The results of this study demonstrated that, depending upon the stream being assessed, there can significant differences in the anticipated impacts determined by these methodologies. Specifically, with respect to one of the streams included in the study, the maximum withdrawal that would be allowed under the existing methodology was significantly higher, i.e., nearly 5 MGD higher, than would be allowed under the Ecological Flow Goals Method.[531] However, with respect to another of the four streams, the difference between them was less than 1 MGD.[532] With respect to the two other streams, the Ecological Flow Goals Method would allow a higher withdrawal than the existing method by an amount of approximately 1.5MGD and .5 MGD, respectively.[533]

According to the Highlands Regional Master Plan released in 2008, the Highlands Council intends to continue to actively study the Ecological Flow Goals Method and other ecologically-based assessment methods to determine the capacity and flow goals necessary to protect ground and surface water resources in the Highlands Region.[534] It is anticipate that such methods could be successfully utilized in other areas, including the already stressed surface and ground water resources of the Delaware River Basin.