

*Section 309 Assessment and Strategy
Pennsylvania's Coastal Resources
Management Program*

Performed Under the
Coastal Zone Enhancement Grants Program
Section 309
Coastal Zone Management Act

Prepared by
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Water Planning Office
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Overview

Introduction

This assessment of Pennsylvania's Coastal Resources Management Program (CRM) is based on the Final Section 309 Guidance (March 28, 2005). Section 309 of the Coastal Protection Act of 1996 (PL 104-540) [revised by PL 960464; PL 101-508] encourages states to revise their previous 309 Assessments and develop new Strategies to achieve program changes in one or more of the coastal zone enhancement areas:

- Coastal wetlands
- Coastal hazards
- Public access
- Marine debris
- Cumulative and secondary impacts
- Special area management planning
- Ocean and Great Lakes resources
- Energy and government facility siting and activities
- Aquaculture

Under the 309 grant program, states that improve their programs to meet the goals in one or more of the enhancement areas are eligible for additional federal funding.

As required by the program, CRM conducted a reassessment of the nine enhancement areas in both the Lake Erie and Delaware Estuary Coastal Zones. This provided CRM with an opportunity to reevaluate its management direction and past efforts in the priority enhancement areas.

Following the guidance set forth by the National Oceanic and Atmospheric Administration on March 28, 2005, CRM will submit a combined assessment and strategy. The assessment provides an overview of the 309 efforts since 2001, followed by an evaluation and update of the enhancement areas in accordance with the questions provided in the guidance. A copy of the 2001 Assessment and Strategy is attached for reference.

Overview of Past 309 Efforts

In March 2001, CRM submitted its 309 Assessment and Strategy in accordance with the guidance for the Coastal Zone Enhancements Grants Program. One priority area, Ocean Resources, was identified for programmatic changes, to include the formation of procedures for defining and improving CRM's management regime for ocean resources, especially programmatic and administrative changes related to water quantity (diversions) and resource impacts from invasive species. Changes that resulted included historic agreements among the Great Lakes states and provinces that ban new diversions outside of the Great Lakes-St Lawrence River Basin, and the formation of the Pennsylvania Governor's Invasive Species Council.

In February 1997, CRM submitted its 309 Assessment and Strategy in accordance with the guidance for the Coastal Zone Enhancements Grants Program. One priority area, Special Area Management Plans (SAMP), was identified for programmatic changes. These changes outlined a procedure for

creating Special Area Management Plans as part of Pennsylvania's approved Coastal Zone Management Program, and created a SAMP for the Lake Erie Bluffs and Shoreline.

Enhancement Area Analysis Summary

In accordance with the March 28, 2005 Section 309 Guidance, the CRM has analyzed the nine priority enhancement areas for changes since the last assessment and elaborated the changes that have taken place.

The following enhancement areas have been considered for their priority as coastal issues for Pennsylvania and their potential for CRM program changes. High priority is assigned to areas in which program changes are anticipated through direct CRM efforts, 309 and otherwise. Medium priority is assigned to areas in which CRM and its networked partners expect to invest significant effort and resources during the next five years, but do not anticipate significant program changes. Low priority is assigned to topical areas that, while important to the program, are sufficiently addressed or are expected to have minimal impact.

- **Coastal Wetlands:**

This area was considered a medium priority of the program during the last assessment period. This assessment has indicated a need for improved data integration between internal program and external entities' wetlands information. It has identified a need to examine all of the various wetland tracking, monitoring, assessment, and indicator programs and to determine how to most efficiently manage wetlands data needed for NCMPMS implementation.

CRM will consider wetlands a high priority for program enhancement, focusing initially on improving the program's capacity to manage wetlands data. It is anticipated that this data will lead to potential new or revised guidelines, procedures or policy documents. CRM will continue to work through current Commonwealth programs to improve wetlands.

- **Coastal Hazards:**

This enhancement area was considered a medium priority in the last assessment, in consideration of the ongoing activities taking place with the Bluff Recession and Setback Act (BRSA). The Department's Bluff Regulations are being updated to reflect the results of a recent study. CRM is also finalizing a set of criteria and standards for the placement of shoreline stabilization structures along Lake Erie.

Staff positions in both Coastal Zones continue to provide coastal permitting, technical and outreach services for the Department. Pennsylvania continues to develop its emergency management and response capabilities for natural and man-made disasters--from storm damage, to shipwrecks, to hazardous material spills--through the Pennsylvania Emergency Management Agency and DEP's Environmental Emergency Response Program.

CRM does not plan to seek overall program changes with regard to coastal hazards under this assessment, and coastal hazards will again be a medium priority issue. CRM will continue to both administer and evaluate the Bluff Recession and Setback Act, and will work to improve management and local understanding of control points and recession monitoring.

- **Public Access:**

This area was considered a medium priority as an enhancement area in the last assessment. CRM will continue to encourage public access improvements through its local matching grants program. Pennsylvania has reviewed the public's qualified access rights along the shoreline and continues to support navigational rights in the area between the ordinary high and low watermarks. Case law defining those rights in Pennsylvania is still limited. The Commonwealth, through its Growing Greener and Agricultural Preservation legislation, has markedly increased its commitment to recreation and open space protection. County and municipal open space bond issues are receiving consistent public support. Conservancies and land trusts are increasingly active in both coastal zones. Public access will continue to be considered a medium priority in this assessment.

- **Marine Debris:**

Marine debris is controlled and reduced through existing state, federal, and local legislation and efforts. While these efforts have significantly reduced the introduction of debris to the coastal environments, other efforts are still needed. For example, CRM has funded several successful cleanup efforts in both coastal zones since 2001, and will continue support through 306 funds as needed.

This topic was considered a low priority during the last assessment and will be once again. Marine debris will not be considered for program changes in the current strategy.

- **Cumulative and Secondary Impacts:**

This category was considered a medium priority in CRM's last assessment and will be ranked medium in this one. As was the case in previous assessments, wise land use planning (including methods for managing stormwater) is considered to be the key to minimizing cumulative and secondary impacts. CRM will continue to fund local projects dealing with zoning, planning and stormwater using 306 funding, and will look to leverage other funding sources being utilized for these efforts in the Coastal Zones. The program will follow Departmental leads toward planning on a watershed basis.

- **Special Area Management Planning:**

This category was considered a medium priority in CRM's last assessment. Based on the current assessment, CRM ranks this category as a high priority. Continued development and growth in Pennsylvania's Coastal Zones and Coastal Watersheds is placing pressure on water supply and water quality, creating the potential for conflicts among water users in the Coastal Zones. The CRM program has determined that capacity must be built in order to allow for effective planning to address this issue.

CRM recognizes that Water Resources Planning Act, 27 PA C.S. §3118, (Act 220), provides a basis to improve and streamline current coastal water resource planning. As part of this process, CRM will integrate portions of authorities from Act 220 into the program's policies and administrative decisions, and will develop procedures for new Special Area Management Plans related to Critical Water Planning Areas.

- **Ocean Resources:**

This category was considered a high priority in CRM's last assessment and will remain high for this assessment. Pennsylvania has successfully developed a new program policy for this

enhancement area, initially focusing on invasive species and the formation of a State Invasive Species Council. The Governor's Invasive Species Council was established by Executive Order 2004-1. In consideration of priority coastal resource management issues related to impacts of water quality and quantity and the ecosystem and fisheries management effects of invasive species and ballast water, this area will again be a high priority. CRM will continue to work with the other Great Lakes states and provinces on the Annex Implementing Agreements for monitoring major water withdrawals and diversions, and fully participates in interstate and international cooperative efforts on water quality and quantity on both coasts. In addition, opportunities exist to join regionally and nationally in effective programs to monitor and control invasive species, whether native or non-native. CRM will continue to elaborate management programs for water diversions, use, conservation and efficiency; critical water planning areas; and invasive species.

- **Energy and Government Facility Siting:**

Energy issues are a priority for the Commonwealth, and Department executive staff have helped position Pennsylvania as a leader in developing the environmental and economic potentials of sustainable energy. More specifically, this assessment area is being addressed by existing CRM policies and state coordination and review mechanisms. At this time CRM does not anticipate making any 309 changes in this category, but will assign a high priority to this assessment area. High priority was chosen due to the Commonwealth's focus on sustainable energy issues and the potential for the deployment of new technologies with associated potential impacts previously not considered or addressed by the program.

- **Aquaculture:**

This category was considered a medium priority in CRM's last assessment. This enhancement area is being coordinated through the PA Department of Agriculture (DOA), designated as the lead agency in Pennsylvania by 1998 legislation. As a networked program, CRM will work with the DOA and the Pennsylvania Fish and Boat Commission (PFBC) if issues arise regarding aquaculture.

The hatchery support of the Lake Erie recreational fishery is an important component of managing the resource. Due to the increased awareness of potential pollution issues associated with hatcheries, as well as the desire to upgrade Fish and Boat Commission hatcheries, aquaculture will continue to be considered a medium priority for the program.

Public Review and Responses

The public comment period on Pennsylvania's draft Coastal Resources 309 Assessment and Strategy opened on February 18, 2006 and closed on March 20, 2006. The notice of the public comment period and availability of the draft document was published in the *Pennsylvania Bulletin* on February 18, 2006 and was announced in the Department's daily electronic UPDATE newsletter. The draft document was made available on the Coastal Resources Management web page and was also available by calling the program office. In addition, the draft 309 Assessment and Strategy was provided to members of the Coastal Zone Advisory Committee at the January 18, 2006 meeting.

The Coastal Resources Management program received official comments from one reviewer, the Pennsylvania Fish and Boat Commission.

Comment Summary from Dave Day, Conservation Coordinator, Pennsylvania Fish and Boat Commission:

The reviewer suggested a more detailed breakdown of the various funding sources utilized to complete the significant accomplishments presented in the document, and suggested a table format for presenting that information. The reviewer also clarified that the Barry Park access area is owned by the City of Chester and maintained by the Pennsylvania Fish and Boat Commission. Additional comments from the reviewer were relative to formatting and editing.

CRM Program Response:

Your comments relative to the need to more clearly present the various partners and stakeholders involved in supporting or funding the various accomplishments within the coastal zone is well appreciated. It has become increasingly important, on a state and national level, to be able to more accurately document on-the-ground accomplishments and the contributions of those who were responsible. As decision makers rely more heavily on performance based indicators to increase accountability and competitiveness, it is becoming more critical for the Coastal Resource Management program to accurately document all of the matching contributions from our various state, local, and NGO partners.

The National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management (OCRM), has implemented a Coastal Zone Management Act Performance Measurement System to serve as a tool for assessing program results. The Pennsylvania Coastal Resource Management program is required to participate in this management effort and is implementing tracking mechanisms to accurately supply the necessary information to OCRM. Spreadsheets have been developed that are similar to the table you suggest, but are significantly larger and more detailed. The program did not find it necessary to include all of this information in this assessment, but will consider a way to more clearly present a synopsis of the information in our next assessment, consistent with the guidance we receive from OCRM.

As a significant partner who works with Coastal Resource Management on a regular basis, it is critical that we accurately document the contributions from all of our public and private partners involved in these joint efforts. We appreciate your agency's help and assistance in accomplishing this task. If you would like more information on how we are tracking our accomplishments and documenting the contributions of our partners please feel free to contact us.

Your other comments relative to formatting and editing of the document are appreciated and have been addressed in the final document or will be considered when preparing future assessments.

Special Area Management Planning

Legislative Objective

309 (a) (6) Preparing and implementing special area management plans for important coastal areas.

Section 309 Programmatic Objectives

- Develop and implement special area management planning in coastal areas applying the following criteria: Areas with significant coastal resources (e.g., threatened and endangered species and their critical habitats, wetlands, waterbodies, fish and wildlife habitat) that are being severely affected by cumulative or secondary impacts;
- Areas where a multiplicity of local, state, and federal authorities hinder effective coordination and cooperation in addressing coastal development on an ecosystem basis;
- Areas with a history of long-standing disputes between various levels of government over coastal resources that has resulted in protracted negotiations over the acceptability of proposed uses;
- There is a strong commitment at all levels of government to enter into a collaborative planning process to produce enforceable plans;
- A strong state or regional entity exists which is willing and able to sponsor the planning program.

Introduction

In 1997, as part of the Assessment and Strategy, Pennsylvania identified SAMPs as a priority enhancement area. As part of that Assessment, a procedure for creating SAMPs was developed and added to Pennsylvania's FEIS. The role of a SAMP is to integrate natural resource protection and sustainable land use practices. It builds consensus through issue identification, dispute resolution and provides a basic framework for agencies and officials to resolve future conflicts in resource protection. The SAMP encourages collaboration of officials at all levels of government, as well as concerned agencies and organizations. The SAMP contains a justification for designation, a description of the issues and activities affecting an identified resource, and the reasons why an area should be managed. It also includes an identification of existing enforceable policies that can be applied to managing the area, and additional authorities, administrative procedures and projects that may be used to implement the proposed management plan.

The Criteria for SAMPS in Pennsylvania states, "Coastal Zone Management Program Regulations (15 CFR Part 923.23) further express that a coastal management program may designate specific areas known to require additional or special management, but for which additional management techniques have not been developed or necessary authorities have not been established at the time of program approval. As a means of enhancing coastal resource management in Pennsylvania, the following sections establish a process for identifying and designating areas for special management planning. Criteria for designation include the following:

1. The area is a unique, scarce, fragile, or a vulnerable natural habitat; a unique or fragile physical figuration; or an area of historical significance, cultural value, or scenic importance.
2. The area demonstrates high natural productivity or essential habitat for living resources, including fish, wildlife, and endangered species and the various trophic levels in the food web critical to their well-being;
3. The area is one of substantial recreational value and/or opportunity;
4. The area is one where developments and facilities are dependent upon the utilization of, or access to, coastal waters;
5. The area has unique hydrologic, geologic, or topographic significance for industrial or commercial development or for dredge spoil disposal;
6. The area is one of urban concentration where shoreline utilization and water uses are highly competitive;
7. The area is one where, if development were permitted, it might be subject to significant hazard due to storms, slides, floods, erosions, settlement, salt water intrusion, and seas level rise, and/or
8. The area is necessary for the continued protection, maintenance, or replenishment of coastal lands or resources, including coastal flood plains, aquifers, and their recharge areas, estuaries, sand dunes, beaches, shallow water habitats, and offshore sand deposits.”

Pennsylvania experienced drought conditions during 8 of the last 10 years. These recurring droughts, with one particular severe drought year, precipitated the update to the State Water Plan. The State Water Plan assists individuals, water suppliers and other water users to prepare for and manage drought conditions so that their affect on our lifestyles and the economy can be minimized and use conflicts prevented. For example, the concentration of housing, commercial uses, and industries within Erie County’s Great Lakes Basin places significant pressure on water resources and on the Lake Erie ecosystem. Also, reduced infiltration capacity due to intense urbanization threatens the extensive aquifer of the Delaware River Valley.

Resource Characterization:

Critical Water Planning Areas in Pennsylvania’s Coastal Areas:

Act 220 of 2002 requires the Department to identify areas of inadequate water quantity, where the demand for water exceeds or threatens to exceed water that is readily available for use. These areas are to be designated as Critical Water Planning Areas or CWPAs. CWPAs will be identified in accordance with criteria outlined in “Guidelines for the Identification of CWPAs”. These guidelines are currently in draft form and will be finalized in the summer of 2006. As an aid in the application of these criteria, the Department will use a water budget tool, a program that was developed jointly between DEP and USGS that compares the amount of water available in a watershed (through the use of a regression equation based on precipitation, transpiration, etc...) to the cumulative withdrawals of water in that same watershed, as reported to the Department by Public Water Suppliers and self-supplied water users of an average of 10,000 gallons per day or more. Subsequent to the designation of a CWPA, a Critical Area Advisory Committee (CAAC) will be formed to guide the development of a Critical Area Resource Plan (CARP). The CAAC will be composed of members of the Regional Water Resource Committee in the basin, as well as local officials of appropriate governmental agencies, including each municipality, planning agency, and conservation district of each county in the watershed(s), representatives of agricultural operations, public water suppliers, industry, and other water users and dischargers in the watershed, representatives of conservation and environmental organizations, other persons who have knowledge of, background in or an understanding of water

resources planning and management. The CAAC will be responsible for evaluating policies, programs, and management alternatives for inclusion in the CARP, and they will advise the Regional Water Resource Committee throughout the CARP process. The CAAC may require multi-agency professional services from county or regional agencies or expert consulting firms to aid in the analysis and/or development of the CARP.

To enhance efforts to protect coastal resources, this process can be streamlined by incorporating it into the SAMP process in the coastal areas of Pennsylvania. By combining the CWPA process with the SAMP process, we can effectively use resources available to the Department to address existing problems, without duplicating information or analyses for each of these programs separately. The identification of a CWPA mandates the development of a CARP. CARPs and SAMPs identify areas of special concern and provide a detailed investigation with problem resolutions. Both are designed to resolve area specific use conflicts. Clean, reliable ground and surface water resources are critical for sustaining the environmental health of our coastal resources, protecting the public's health and safety, and maintaining the economic vitality of the coastal zones. CWPAs reflect potential serious impacts to residents of coastal areas and coastal habitat where water availability is inadequate and where conflicts may arise among water users. Growth pressures have historically and still are impacting water quality and quantity in Pennsylvania, particularly in the Delaware coastal area. A few examples include inadequate drinking water for residents in the coastal areas, salt intrusion due to decreasing water levels which would be exacerbated by demands exceeding available water resources, decreased ability to conduct navigation activities, impacts to economic development due to lack of adequate water resources to support water-dependent industries, decreased ability to support critical coastal habitat, and impacts to agricultural operations dependent on water resources for supporting crops or livestock.

Act 220 also establishes a voluntary water conservation program. This formal program promotes voluntary water conservation and water use efficiency practices for all water users. A Water Resources Technical Assistance Center will be created to provide education regarding wise water usage as well as provide technical assistance programs.

Conclusion

This assessment identifies a major gap related to key components of water planning efforts and water use conflicts. There is a pressing need to improve and streamline the planning processes in Pennsylvania's coastal watersheds. Due to drought conditions in 8 of the last 10 years, and increasing pressure on coastal resources, the ecosystems and economics of Pennsylvania's Coastal Zones are being placed at increased risk. It is critical that the Water Resources Planning process, and the CRM SAMP process be integrated in order to address the needs of the coastal communities and prevent use conflicts. Due to these pressing needs, the priority for this enhancement area will be increased from medium to high.

As part of this 309 process, the CRM will utilize the Guidelines for Identification of Critical Water Planning Areas for coastal watersheds as part of the SAMP process. This program change will streamline CARPs and SAMPs into one planning process and enable the program to more effectively protect, preserve, and restore Pennsylvania's coastal watersheds.

In addition, maps and GIS management systems and information created through the Water Resources Planning process will be evaluated for use by CRM.

2001 Assessment

High _____
Medium X
Low _____

2005 Assessment

High X
Medium _____
Low _____

Cumulative and Secondary Impacts

Legislative Objective

'309(a)(5) Development and adoption of procedures to assess, consider, and control cumulative and secondary impacts of coastal growth and development including the collective effect on various individual uses or activities on coastal resources, such as coastal wetlands and fishery resources.

Section 309 Programmatic Objectives

Develop, revise or enhance procedures or policies to provide cumulative and secondary impact controls.

Resource Characterization

The cumulative and secondary impacts on Lake Erie and Delaware coastal zones provide complex management challenges. During the most recent assessment of Pennsylvania's coastal zones, cumulative and secondary impacts were addressed within the larger focus of sustainable development. The need to protect natural resources is an ongoing objective addressed through federal, state and local regulations as well as through private efforts. The programs provide protection of wetlands, open space preservation, and recreational opportunities. Protection of our natural resources should be closely linked with economic vitality within the coastal zones, with a goal of sustainable communities. Pennsylvania's coastal zones have a rich history in commerce. The key element in balancing both objectives and controlling cumulative and secondary impacts is land use management.

Existing land use activities and decisions for new development are major factors within the coastal zones watersheds. Improperly planned growth has negative impacts on water quantity and quality. Stormwater runoff carries pollutants into the waterways affecting aquatic use and the potable water supply. Increases in impervious surfaces from poorly planned development within both the Delaware and Lake Erie basins contribute to increased erosion. The scouring causes increased sedimentation that negatively impacts the streams, rivers, Lake Erie, and the Delaware estuary.

County populations in the Delaware Estuary coastal zone have remained relatively static during the past assessment period, according to figures from the Delaware Valley Regional Planning Commission (DVRPC). However, land use changes associated with development continue at a significant rate within the larger watershed.

Table 1.1: Population of Delaware Estuary Coastal Zone Counties

Delaware Estuary Coastal Zone (DECZ)	1990 Population	1998 Population	2000 Census Population	Estimated 2004 Population	Percent Change 2000-04
Bucks County	541,174	587,942	597,635	617,558	3.0 %
Delaware County	547,651	542,593	550,864	555,040	.05 %
Philadelphia	1,585,577	1,406,267	1,517,550	1,470,151	- 2.9 %

More than 53 percent of the U.S. population lives within a coastal area, and this number is even greater in Erie County. According to the 2000 Census, 76 percent of Erie County residents live within a coastal zone municipality. This concentrated population places intense pressure on the Lake Erie ecosystem. Nonpoint source pollution, shoreline erosion, and biodiversity losses are only a few of the problems the area is facing. As human impacts have grown, water quality, wildlife habitat and coastal wetland acreage continue to be threatened. It is also important to note the migration of the population away from the urban center and into the more rural areas of the county.

Table 1.2 Population of Erie County

Lake Erie Coastal Zone (LECZ)	1990 Population	1998 Population	2000 Census Population	2004 Estimated Population	Percent Change 2000 – 04
Erie County	275,572	276,401	280,843	282,355	.06 %

As demonstrated above (Table 1.1 and 1.2) there have not been any coastal zone areas with rapid population growth since the last assessment in 2001. However, outside of the relatively narrow coastal zone areas, there is continued population growth and expansion of land development in the coastal watersheds. This land development has led to secondary and cumulative impacts on water quality. Water quality affects the coastal drinking water, fish and wildlife habitats, wetlands, and other water dependent resources.

According to the DVRPC, land development and use in the Delaware, Bucks, and Philadelphia Counties (2000) is divided into approximately:

- 60% agricultural use or undeveloped
- 19% residential use
- 19% other developed uses
- 2% covered by water

By comparison, in 1990,

- 67% was agricultural use or undeveloped
- 17% residential use
- 14% other developed uses
- 2% covered by water

Furthermore, development over the most recent decade has occurred at a faster rate than that seen during the previous two decades, when developed acreage increased by an average of just over 83,000 acres per decade. From 1970 to 1990, development occurred at a rate of approximately one acre per hour. Since 1990, the rate of development has accelerated to one acre every 45 minutes.

Between 1994 and 2000, Erie County averaged 350 subdivisions, resulting in 791 new lots per year, creating an approximate 4800 lots within the six-year period. The number of land development plans submitted during the same period has risen from 0 to 48. Many of the new economic and industrial developments are transportation related and support Erie’s major industries.

Table 1.3 Cumulative and Secondary Impacts

<u>Area</u>	CSI / Threats to Sensitive Coastal Resources
Presque Isle Bay, LECZ	Continued input of PAHs from stormwater runoff, impacting designated uses.
DECZ	Urban runoff, most streams of DECZ impaired, significant cause of non-attainment of designated uses.
LECZ, Millcreek Twp. and City of Erie	Urban runoff, significant cause of non-attainment of designated uses.
DECZ	Combined Sewer Overflows, leads to untreated inputs of nutrients and potential contamination.
DECZ, LECZ	Soil erosion and sedimentation, related to agricultural and urban stormwater run-off.
LECZ, DECZ	Aquatic invasive species threaten biodiversity, productivity, and economy.
DECZ	Habitat loss.
LECZ	Secondary impacts of logging, erosion and sedimentation impacts.

Management Characterization

Comprehensive Stormwater Policy:

Stormwater runoff has been identified as one of the top three causes of water quality impairment in the Department’s Clean Water Act Section 303(d) list. Impairments associated with cumulative impacts of stormwater runoff are especially prevalent in the highly developed DECZ. As a result of an intensive public participation process in a series of statewide water forums during 2001, PADEP developed a new comprehensive policy for stormwater management (September, 2002). The comprehensive stormwater policy is based on existing stormwater management programs and authorities. The policy

focuses on integrating post construction stormwater planning requirements, emphasizing the use of ground water infiltration and volume and rate control best management practices (BMPs) into the existing and proposed NPDES permitting programs and the Stormwater Management Act Planning Program (Act 167). These policies address critical water quality issues; sustain stream base flow and ground water in general through stormwater management systems which infiltrate precipitation and provide for groundwater recharge; minimize site-specific and watershed-wide flooding problems; and prevent serious stream bank erosion and overall stream impacts with related aquatic biota damage.

Post-construction Stormwater Planning Requirements:

In accordance with the most recent requirements of the Federal Clean Water Act, and in order to meet the regulatory requirements of 25 Pa. Code Section 93.4a, Post Construction Stormwater Management Plans are now required from PADEP. These plans are based on the utilization of Best Management Practices (BMPs). Such BMPs should be designed to maximize infiltration technologies, eliminate (where possible) or minimize point source discharges to surface waters, preserve the integrity of stream channels, and protect the physical, biological and chemical qualities of the receiving surface water.

Pennsylvania Stormwater Best Management Practices Manual:

The BMP Manual is part of a broader effort by PADEP to develop a new Stormwater Management Policy and Program that will improve the way stormwater is managed across the state. This manual is intended to provide important technical guidance on methods and materials that can prevent, reduce, and mitigate the impacts of stormwater. Particular focus is placed on technical management solutions that can be applied in conjunction with new land development and with in-fill development and re-development in urbanized areas. A draft of this BMP Manual was released January 2005, and currently is undergoing public review and comment. The CRM grant program funded portions of the development of this document.

NPDES Phase II MS4 Program:

Expanded requirements of Clean Water Act require many more municipalities within Pennsylvania to apply for a National Pollution Discharge Elimination System (NPDES) Phase II Municipal Separate Storm Sewer (MS4) permit. As required by EPA, these permits must demonstrate that each jurisdiction has implemented a stormwater management program that provides for “minimum control measures” as follows: Public education; public participation and involvement; proper management and elimination of illicit discharges; proper management of construction phase stormwater runoff; proper management of post-construction phase runoff; and implementation of adequate pollution prevention and housekeeping measures.

Act 167 Planning:

Act 167 has been in effect for more than 20 years. Recently the program has been reinforced and expanded in scope, to be consistent with the new Pennsylvania Comprehensive Stormwater Policy. This scope will include control standards for water quality through the use of Best management Practices (BMPs), including infiltration, groundwater recharge, and stream channel protection. In addition, the Stormwater Program is requesting the identification of impaired streams within the watershed, as well as providing strategies for mitigating the impairments. Finally, the program has begun to emphasize the use of stormwater management strategies designed to maintain the natural hydrologic regime within each watershed.

TreeVitalize:

Launched on Arbor Day 2004, TreeVitalize is a four-year partnership to restore tree cover in the Southeastern Pennsylvania 5 county region. Led by the Pennsylvania Department of Conservation and Natural Resources (DCNR), the partnership brings together leaders from public and private sectors, including all levels of government, regional non-profits, institutions, and corporate entities. Partners have pledged to work together to increase tree planting and encourage better tree care. The program targets older communities with a low percentage of canopy cover, and its focus includes neighborhood and main street shade trees, riparian and water protection areas, regional collaboration, and training in tree selection, planting and long-term care.

The Schuylkill River Watershed Initiative:

The Schuylkill River is a tributary to the Delaware Estuary. Between 1999 and 2003, the Philadelphia Water Department (PWD) and the Pennsylvania Department of Environmental Protection (PADEP) utilized a substantial grant to conduct a Source Water Assessment (SWA) for 52 surface water intakes in the Schuylkill watershed. An EPA Watershed Initiative Grant that leveraged a \$1.3 million EPA investment with state and local funds to accomplish \$2.25 million in local implementation projects. The project assists in creating a fishable, swimmable, and drinkable Schuylkill River.

Coastal Flooding:

The U.S. Geological Survey (USGS) and National Weather Service (NWS) added monitoring and communications equipment to the Delaware River Basin's flood alert system.

Watershed Partnerships:

The creation of the watersheds partnerships and initiatives in Pennsylvania's coastal watersheds has greatly enhanced CRM's ability to protect, enhance, and restore beneficial uses of our waterways and riparian areas. The partnerships serve as forums for collaborative development of watershed strategies. The working relationships achieve higher levels of environmental improvement through the sharing of information and resources. Besides the Schuylkill Action Network, other significant partnerships have developed or expanded within the past five years. Among these are the Pennsylvania Lake Erie Watershed Association, the transition of the Delaware Estuary Program to the Partnership for the Delaware Estuary, the Lake Erie Region Conservancy, Pennsylvania Sea Grant, and Earth Force, Erie-Allegheny and S.E. Pennsylvania.

Growing Greener:

Growing Greener was implemented to support farmland-preservation projects statewide; protect open space; eliminate the maintenance backlog in state parks; clean up abandoned mines and restore watersheds; provide funds for recreational trails and local parks; help communities address land use issues; and provide new and upgraded water and sewer systems.

Table 1:4 Approximate Allocation of Funds from Growing Greener Since 2001

County	Amount
Bucks	\$ 1,670,553
Chester	\$ 3,054,454
Schuylkill	\$ 1,041,720
Philadelphia	\$ 5,139,505
Delaware	\$ 998,830
Berks	\$ 709,832
Erie	\$ 1,890,158
Montgomery	\$1,865,134

Growing Greener II:

In May 2005, Pennsylvania voters approved the issuance of a \$625 million bond called Growing Greener II, that will continue to expand the important programs that link economic and community development with environmental initiatives. This program focuses on returning contaminated industrial sites and other polluted sites to productive use; protecting farmland and open space from development; cleaning up polluted streams and reclaiming abandoned mines; and improving state and community parks and fish and wildlife infrastructure. Growing Greener II will accomplish these goals while making critical investments in community revitalization and the promotion of the use of clean energy.

Growing Smarter:

In Pennsylvania, land use control is primarily a function of 2,567 individual municipalities. According to *Save our Lands, Save our Towns*, Pennsylvania ranks low nationally in population and job growth, but ranks near the top for land being developed. In reaction to urban sprawl, "Growing Smarter" legislation was passed (Acts 67 and 68 of 2000). This legislation encourages municipalities to create joint plans that can target some areas for growth and designate other areas for conservation. Since then, more than \$7 million in planning grants have been awarded, and 138 regional initiatives involving 628 municipalities are underway.

Nutrient Trading:

CRM introduced a new nutrient and sediment trading policy that offers farmers, communities and industries another tool to help them meet or exceed state and federal water quality goals. This market-based program provides incentives for entities to create credits by going beyond statutory or regulatory obligations and goals. The credits can be traded to others to help them more cost effectively meet their obligations or goals. While many facilities can cost effectively achieve nutrient reductions by proper planning and operational changes, others may have to incur capital costs. Nutrient trading allows these

facilities to look at nutrient reduction as an environmentally creative and cost-effective way to tackle water quality issues affecting coastal resources.

ACRE:

The objective of Pennsylvania’s program to protect Agriculture Communities and the Rural Environment (ACRE) is to balance the legitimate business interests of agriculture with the environmental and community concerns of local citizens and elected leaders. It will help resolve some of the interface issues that occur when the non-farm community abuts production agriculture. ACRE provides for: administrative review of disputed agriculture ordinances; enhanced environmental compliance; implementing odor management Best Management Practices on new or expanding CAFOs and CAOs; addressing federal air quality mandates; closing the manure export loophole; ensuring minimum setbacks and buffers; improving agriculturally-impaired streams; and monitoring the use and impact of antibiotics.

Conclusion:

Pennsylvania has significantly enhanced its management capabilities since the last assessment. Past methods of stormwater management have led to many water quality cumulative and secondary impacts. For this reason, improving stormwater management practices has become a priority for Pennsylvania. Furthermore, programs like Growing Greener and Growing Greener II demonstrate the Commonwealth’s commitment to providing sustainable land use and development issues.

2001 Assessment

High _____
Medium **X**
Low _____

2005 Assessment

High _____
Medium **X**
Low _____

Ocean and Great Lakes Resources

Legislative Objective

309 (a) (7) Planning for the use of ocean/Great Lakes resource.

Section 309 Objectives

- I. Develop and enhance regulatory, planning and intra-governmental coordination mechanisms to provide meaningful state participation in ocean/Great Lakes resources management and decision-making processes.
- II. Where necessary and appropriate, develop a comprehensive ocean/Great Lakes resource management plan that provides for the balanced uses and development of ocean/Great Lakes resources, coordination of existing authorities, and minimization of use conflicts.

Ocean Resources Characterization

Pennsylvania has two diverse coastal zones with common categories of existing or potential threats to their resources. The following table summarizes some of the more significant threats to the Commonwealth's Ocean and Great Lakes resources:

Resource or Use	Threat or Conflict	Degree of Threat
Water	Impacts to Quantity	High
Water	Impacts to Quality	High
Ports	Impacts to environment and economy	High
Fisheries	Invasive Species	High
Migratory Fisheries	Dams	High
Dredging and Sand Management	Resource damage and depletion, water quality	High

Changes since the last assessment:

1. Migratory Fish Restoration and Protection

In an effort to improve migratory fish restoration and protection, eight dams have been removed or are in the process of being removed within Pennsylvania's coastal watersheds during the reporting period October 1, 2001 to September 30, 2006.

Fish Passage Restoration within Delaware Estuary

Passage ID	Water	Dam Name	County	Status
D23001	Ridley Creek	Irving Mill Dam	Delaware	Completed in 2004.
D23002	Ridley Creek	City of Chester Dam	Delaware	Ongoing
D51002	Pennypack Creek	Rhawn Street Dam	Philadelphia	Ongoing
D51004	Pennypack Creek	Frankford Avenue Dam	Philadelphia	Ongoing
D51005	Pennypack Creek	Veree Road Dam	Philadelphia	Ongoing
D51006	Pennypack Creek	Roosevelt Boulevard Dam	Philadelphia	Ongoing
E25001	Four Mile Creek	Lawrence Park Golf Club Dam	Erie	Ongoing
E25002	Four Mile Creek	Spring Creek Inc Dam	Erie	Ongoing

2. Changes to Threatened and Endangered Species

The shortnose sturgeon, a federally listed species under the Endangered Species Act, is generally doing well and has expanded its range. Because of this, the National Marine Fisheries Service has determined that the Biological Opinion is no longer valid. They have requested (or will request) that the Army Corps of Engineers conduct a new Biological Assessment.

The following species have been petitioned for inclusion under the Endangered Species Act:

- American eel (USFWS lead) – there was a positive 90 day finding, and now a status review is to be conducted. The status review should be completed in 2006.
- Eastern oyster (NMFS lead) – the status review was requested in January 2005. The original petition was withdrawn, but due to the effort already completed, the National Marine Fisheries Service decided to complete the status review. It is ongoing and expected in 2006.
- Red Knot (USFWS lead) – the status review was requested in 2005 and is ongoing.

Candidate species include:

- Atlantic sturgeon (NMFS lead) – NMFS has recently undertaken a status review of the sturgeon, including the health of river-specific populations. The status review may be completed by spring 2006. Delaware State University has conducted a survey to find potential spawning sites, and found a juvenile near Marcus Hook, indicating successful breeding.

3. Economic study of the steelhead recreational fishery in Erie County

Pennsylvania's steelhead fishery on the Lake Erie tributaries provides a unique angling experience for anglers. An abundance of fish, public access and high angler catch rates make steelhead an attractive fishery. Overall angler effort estimates (trips) have nearly tripled in the last decade, increasing from 72,413 trips in 1993 to 200,816 trips in 2003. Based on a catch rate of 0.630 steelhead per hour and a harvest rate of 0.150 steelhead per angler hour, anglers caught an estimated 533,873 steelhead and harvested an estimated 126,880 steelhead on Pennsylvania's Lake Erie tributaries during the 2003-2004 steelhead season. Because the fishery attracts a large number of visitors to the region, it

provides a notable contribution to the Erie County economy. Overall, this activity generates \$5.71 million in new value-added activity in Erie County, supporting 219 jobs in the economy through direct and indirect effects. Growth of this fishery is limited by availability and guarantee of stream access.

4. Aquatic Invasive Species

The threat of aquatic invasive species is a key natural resource management issue in Pennsylvania. Species such as zebra mussels and round gobies impact the Lake Erie environment, and threaten to spread inland. Flathead catfish, snakeheads, and water chestnut found in the Delaware River and Schuylkill River watersheds could change habitats and food sources available for native fishes. In order to prevent the introduction and spread of these species, CRM is now working with key partners such as Sea Grant and the Governor's Invasive Species Council to raise awareness and effect positive policy changes.

Management Characterization

As part of the routine program change in June 2003, the Ocean Resource Policy was added to the CRM FEIS. This established enforcement authority, residing in networked agencies engaged in preventing the introduction, spread, and transfer of ANS and facilitate eradication. The policy change incorporates regulatory authority through the Noxious Weeds Law, Aquacultural Development Law, Fish and Boat Code, Clean Streams Law, and Dam Safety and Encroachments Act. A primary regulatory tool for CRM is permit review of wetland mitigation plans. In addition, the policy change establishes technical assistance and encouragement tools to limit introduction and spread of ANS in coastal zones by providing funding and assistance for research and outreach, coordinated multi-species management, and rapid response to unintentional introductions.

In 2003, CRM's NOAA Fellow developed the Lake Erie Aquatic Exotics Squad Volunteer Monitoring Program. This program worked with staff in DEP's Citizens Volunteer Monitoring Program and Lakes Management Program to create a training manual, an ANS field guide, and prepare a one-day workshop for 22 participants in May 2003. The workshop included a combination of field and classroom training. Once trained, the volunteers reported their results monthly. The data was graphed and mapped, and a summary report was mailed to all volunteers following the summer program

The Fellow also helped organize the *Aquatic Invaders of Delaware Estuary Symposium* (2003), designed to raise awareness among scientists, the general public, and policy makers in the southeastern region of the Commonwealth.

The 2003 Recreational Boater and ANS Survey was a collaborative effort among the Minnesota Center for Survey Research, Pennsylvania Fish and Boat Commission, Pennsylvania Sea Grant, and CRM, to conduct statewide recreational boater survey. The results showed that while a majority of boaters surveyed did not know what to do to prevent the spread of AIS, they were willing to act if they received education and training.

The Pennsylvania Fish and Boat Commission in September 2004 adopted regulations that prohibit the possession or transportation of several aquatic species, supplementing previous rules that restrict the release of non-native species. Among the species targeted by the new regulations are several found in Lake Erie that could threaten inland waterways: the zebra mussel, quagga mussel, round goby,

tubenose goby, and rudd. The general regulation and the new species-specific regulations cover not only deliberate actions, but also acts of negligence.

In April 2005, Environmental Protection Secretary Kathleen A. McGinty announced that a federal court sided with Pennsylvania and the six other Great Lakes states in striking down a U.S. Environmental Protection Agency (EPA) regulation that failed to control the discharge of ballast water from oceangoing vessels. Pennsylvania, New York, Illinois, Michigan, Minnesota, Ohio and Wisconsin filed an amicus brief in July 2004 to support a lawsuit that challenged EPA's exemption of ballast water from federal Clean Water Act rules. In its decision, the U.S. District Court for the Northern District of California ordered EPA to repeal its ballast-water exemption. The case is still proceeding through the appeals process.

The Pennsylvania Invasive Species Council (Council) was established through Executive Order 2004-1 in January 2004. The Council is comprised of representatives from the departments of Agriculture, Conservation and Natural Resources (DCNR), Environmental Protection, Health, and Transportation; and the Fish and Boat Commission and the Game Commissions. The Council includes ten other members of the public appointed by the Governor, representing agriculture and natural resource organizations and educational institutions conducting invasive species research and outreach. The Council's purpose is to advise the Governor on and direct the development and implementation of a state invasive species management plan, utilizing appropriate participation by key stakeholders and the interested public. The Governor will have final approval for adoption of the plan as an official program of the Commonwealth.

In October 2005 the Council met to develop priorities and formalize its structure. The plan is in the process of being drafted, including prioritizing a list of nonnative species.

In consultation with the Council, in October 2005, Pennsylvania Sea Grant organized *Setting the Road Map: A Workshop to Begin Developing Pennsylvania's Invasive Species Management Plan*. This workshop brought together 65 natural resource managers and policy makers to brainstorm opportunities, needs, and gaps for consideration in an invasive species management plan.

Pennsylvania is also involved in a variety of regional initiatives to prevent the introduction and spread of aquatic invasive species. Because of its location in both the Great Lakes and the Mid-Atlantic regions, Pennsylvania, through CRM staff, participates in the Great Lakes Panel on Aquatic Nuisance Species and the Mid-Atlantic Regional Panel on Aquatic Nuisance Species. These panels provide guidance to the federal ANS Task Force, a joint task force of the U.S. Fish and Wildlife Service and NOAA. Another regional initiative is DRIPP, the Delaware River Invasive Plant Partnership. DRIPP works to unite private citizens, organizations, and academic institutions with local, state, and federal agencies working to control invasive plants in the watershed. DRIPP coordinates management, prevention and education across the watershed and develops tools for training volunteers to assist with inventory, control, and early detection and rapid response to combat new invasions.

PFBC Final Rule Making 155 (Landings):

The Fish and Boat Commission has adopted new rules that place restrictions on the landing of finfish, shellfish, crustaceans and other marine seafood in the Commonwealth. Specifically, the Commission has made it unlawful to land finfish, shellfish, crustaceans and other marine species when harvest quota allocations to the Commonwealth have been met or otherwise capped by action of the Executive Director pursuant to the fishery management plans and harvest allocations of the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission. In the event quotas have

been met or otherwise capped in the Commonwealth, the landing of finfish, shellfish, crustaceans and other marine seafood is permitted only if the species have been properly reported as part of an unmet quota of another jurisdiction. These provisions will not apply to the landing of fish at Lake Erie, which is governed separately.

PFBC Final Rule Making 139 (Dwarf Wedgemussel):

In 1990, the United States Department of Interior, Fish and Wildlife Service, designated *Alasmidonta heterodon* (dwarf wedgemussel) as Federally endangered in the entire range. This species of freshwater mussel is known to occur in Connecticut, Massachusetts, Maryland, North Carolina, New Hampshire, New Jersey, New York, Pennsylvania, Virginia, Vermont and New Brunswick, Canada. Until recently, the dwarf wedgemussel was considered extirpated from its former range in the Delaware River drainage.

During mussel surveys of the Upper Delaware Scenic and Recreation River by the United States Geological Survey, from July to August 2000, the dwarf wedgemussel was discovered at six locations in the upper Delaware River, Wayne County, Pennsylvania. Thirteen live specimens and four shells were located from north of Equinunk, Pennsylvania to south of Callicoon, New York. Subsequent surveys in 2001 and 2002 by Lellis have documented additional occurrences in the Upper Delaware River basin.

Section 102 of the code (relating to definitions) defines endangered species as “all species and subspecies of fish which (1) have been declared by the Secretary of the United States Department of Interior to be threatened with extinction and appear on the Endangered Species List or the Native Endangered Species List published in the Federal Register; or (2) have been declared by the executive director to be threatened with extinction and appear on the Pennsylvania Endangered Species List published in the Pennsylvania Bulletin.” Because this Federally endangered species recently has been rediscovered in this Commonwealth, the Commission has added it to the Pennsylvania list of endangered species.

Water Withdrawals:

Pennsylvania has joined with Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Wisconsin, Ontario and Quebec in agreements to ban new diversions of water outside the Great Lakes-St Lawrence River Basin with limited exceptions. Working through the Council of Great Lakes Governors, Pennsylvania’s Great Lakes watersheds for Lake Erie and Lake Ontario will benefit from these agreements. The States and Provinces agreed to use a consistent standard to review proposed uses of Great Lakes water. Also, regional goals for water conservation and use efficiency will be developed.

Conclusion

CRM made considerable progress on Ocean and Great Lakes Resources as a result of the last Assessment and Strategy and needs to continue to build on that success, combined with additional SAMP development for coastal watershed water quantity and quality planning issues in critical water planning areas. Interactions with other river basin organizations dealing with coastal waters also led to the CRM re-emphasis on this category.

During the last five-year program enhancement cycle, Pennsylvania met 309 programmatic objectives for Ocean and Great Lakes Resources by adding a program policy. CRM significantly contributed to

the creation of a Commonwealth Invasive Species Council; and worked extensively on the Annex Implementing Agreements to ban diversions and jointly manage Great Lakes water and water dependent natural resources.

Two of the most pressing issues facing CRM are (1) water management and the relationship between water quantity and quality, and (2) native and non-native invasive species impacts, which have had dramatic consequences for both the Lake Erie and Delaware Estuary coastal watersheds. Pennsylvania needs to continue to develop Ocean and Great Lakes Resources programming, consolidate and clarify the legal and regulatory basis, and define the CRM's organizational interactions for effective protection of ocean resources in both coastal zones.

Coordinated Invasive Species management will not occur without the development of an Invasive Species Management Plan. CRM proposes to make this a high priority to increase the capacity of the program to manage invasive species and secure funding to implement plan objectives.

CRM has identified gaps in maintaining or addressing this objective.

- Lack of an invasive species management plan.
- Full participation in Great Lakes and Delaware River Basin water quantity and quality planning and monitoring.
- Interstate cooperation in ports management and economic development on both coasts.
- State participation in interstate efforts related to invasive species and ballast water management.
- State participation in interstate efforts related to dredging and sand management.

Priority in view of the coastal program:

2001 Assessment

High X
Medium _____
Low _____

2005 Assessment

High X
Medium _____
Low _____

Public Access

Legislative Objectives

'309(a)(3) Attaining increased opportunities for public access, taking into account current and future public access needs to coastal areas of recreational, historical, aesthetic, ecological, or cultural value.

Section 309 Programmatic Objectives

- I. Improve public access through regulatory, statutory, and legal systems.
- II. Acquire, improve, and maintain public access sites to meet current and future demand through the use of innovative funding and acquisition techniques.
- III. Develop or enhance a Coastal Public Access Management Plan, which takes into account the provision of public access to all users of coastal areas of recreational, historical, aesthetic, ecological, and cultural value.
- IV. Minimize potential adverse impacts of public access on coastal resources and private property rights through appropriate protection measures.

Resource Characterization

Pennsylvania's Lake Erie and Delaware Estuary Coastal both share submerged lands management issues and the challenges and opportunities of re-developing post-industrial urban waterfronts, including the legacy contaminants from that era. However, the two coastal watersheds are also significantly different, and public access trends and needs would be difficult to address without discussing each coastal zone individually. The most notable difference is the remaining rural character and open space associated with the Lake Erie Coastal Zone to the east and west of the City of Erie.

In addition to the redevelopment opportunities within the City of Erie's Presque Isle Bay waterfront, the various partners concerned with public access to Lake Erie still have some opportunity to acquire and protect existing open space. Several significant acquisitions have occurred during this assessment period and highlight the diverse partnerships that cooperate in the Lake Erie Coastal Zone.

In the Delaware Estuary, there are fewer opportunities to acquire and protect existing open space and more effort will be focused on redevelopment and reclaiming of industrial parcels that are currently vacant or underutilized. The Chester waterfront in Delaware County offers a good example of former industrial parcels being successfully converted to public open space and access. Other projects along the Delaware River in North Philadelphia and along the southern Schuylkill River are being planned or designed. The previous need for transportation corridors, ports, and industrial facilities to occupy the shores of large navigable waters disconnected the people of Pennsylvania from the Delaware Estuary. Municipalities along the Delaware now recognize the need to reconnect to the river. Allowing more and improved public access to the shoreline will increase citizen quality of life, increase public awareness of the resource, inspire economic activity on the waterfront, attract tourism, and provide for more sustainable communities. Waterfront redevelopment efforts and planning have become a local and county government priority throughout Pennsylvania's Delaware Estuary watershed, and there is considerable citizen awareness and involvement in the process. It is anticipated that these efforts will

continue to expand during the next five years, with a tremendous opportunity to create better, more sustainable communities, improve resources, and resolve the needs of conflicting uses.

During this assessment period, CRM has invested \$1,527,526 in new public access planning and implementation projects through its local grant program, for a combined NOAA, state, and local investment of \$3,699,769.

Resource Characterization of Lake Erie Coastal Zone

Pennsylvania CRM has worked creatively and successfully with a variety of public and private partners to provide significant public access improvements in the LECZ. Public partners include the Pennsylvania Department of Conservation and Natural Resources (DCNR), the Pennsylvania Fish and Boat Commission (PFBC), the Pennsylvania Game Commission, the Erie-Western Pennsylvania Port Authority, the Erie County Planning Department, individual municipal governments, and Pennsylvania Sea Grant. Private groups offering support and partnering on various projects include the Western Pennsylvania Conservancy, S.O.N.S. of Lake Erie, and the Lake Erie Region Conservancy.

Following are some of the major public access improvements made in the Lake Erie Coastal Zone during this assessment period:

Erie Bluffs State Park:

The new Erie Bluffs State Park offers a major addition to the availability of public access in the Lake Erie Coastal Zone. This 540-acre parcel represented the largest remaining undeveloped tract along Pennsylvania's Lake Erie shoreline and includes one mile of lake front shoreline. Erie Bluffs also contains old-growth forest; rare, threatened, and endangered flora; an uncommon oak savannah sand barren ecosystem; exceptional value wetlands; and significant archaeological sites. The land, formerly owned by Reliant Energy, was acquired with help from the Western Pennsylvania Conservancy and the Great Lakes Coastal Restoration Grants Program and was named a Pennsylvania State Park in June of 2004. DCNR is currently going through the development of a master plan with significant public input. Balancing the preservation of natural and archeological resources with needs for safe public access and amenities for several competing uses will be a challenging task. CRM has been involved by sharing historical natural resource and bluff erosion data and participation in the Summer 2004 Bioblitz to inventory existing resources. The park is located directly adjacent to the existing Elk Creek Access area and is located on the new Seaway Trail National Scenic Byway. The park offers numerous opportunities for linkages to other regionally significant natural and recreational resources. The master plan process is nearing completion and it is anticipated that physical development of the park will be completed during the next reporting period.

Girard Township Elk Creek Access Area:

This 81-acre lakefront site is located on the west bank of Elk Creek, directly between the new Erie Bluffs State Park and the PFBC Elk Creek Access Area. The parcel, leased by the township since the mid-1980s, was improved through several CRM projects, and was purchased by the township for public access in 2003, again with assistance from the Great Lakes Coastal Restoration Grants Program.

Tom Ridge Center at Presque Isle:

The Tom Ridge Center at Presque Isle (Center) is located on 12 acres of land on the bluff above the neck connecting Presque Isle to the mainland. The majority of construction was completed by the summer of 2005, and the Center began to serve as the headquarters for Presque Isle State Park and the

offices of several groups and agencies including CRM regional staff in Pennsylvania's Office of the Great Lakes, Pennsylvania Audubon, Lake-Erie Allegheny Earth Force, PA Sea Grant, Presque Isle Partnership, and the Purple Martin Conservation Association. The 41,000 square foot center will open to the public on Memorial Day weekend 2006, after completion of educational exhibits and an Imax-style theater.

The Center will serve as the gateway to Pennsylvania's Great Lakes region and will include a tower offering scenic views of Presque Isle and Lake Erie, educational displays and classrooms, state-of-the-art green building technologies, and access to several continuous trails. It will also house the Regional Science Consortium, a group of colleges and universities - both regional and national - collaborating on Great Lakes research.

Twenty Mile Creek Access Area:

This new 32.4-acre access area joined two separate parcels, 27.6 acres west of the mouth of Twenty mile Creek and 4.7 acres east of the mouth. Early in CRM's existence, these parcels were identified as a priority for land acquisition. Both parcels are now owned by North East Township and offer significant access for the recreational steelhead fishery. The Township acquired these parcels in 2002 with assistance from the Pennsylvania Fish and Boat Commission, the CRM program, and the Great Lakes Coastal Restoration Grants Program. By the fall of 2003, PFBC had completed construction of a parking lot and recreational fishermen were heavily utilizing the area.

The Seaway Trail in Pennsylvania:

The Seaway Trail in Pennsylvania was designated as a Pennsylvania Scenic Byway in 2003 by the Pennsylvania Department of Transportation. In May of 2005, a Final Corridor Management Plan was released and on September 22, 2005 the Seaway Trail became the first officially designated National Scenic Byway in Pennsylvania. Pennsylvania's 64-mile Seaway Trail will highlight the natural resources and heritage of the area, as well as serve as an avenue for increased economic opportunities through historical and recreational tourism. Combined with New York and Ohio, the Seaway National Scenic Byway will stretch 800 miles along Lake Erie, the Niagara River, Lake Ontario, and the St. Lawrence River. CRM staff served on the steering committee that oversaw the development of the Seaway Trail Pennsylvania Corridor Management Plan. The plan identifies several medium and long-term projects regarding public access and includes the CRM as a potential funding partner to accomplish the goals. These projects include identifying and enhancing significant viewsheds, obtaining public easements for open space preservation, obtaining conservation easements for critical natural areas, identifying opportunities for physical and visual access to the lake, and establishing a network of blueways for waterborne transportation and recreation.

Bayfront Bikeway Multi-use Trail:

Work continues on developing a non-motorized trail and path from downtown Erie's Presque Isle Bay waterfront to the Tom Ridge Center and Presque Isle State Park. Partners include the City of Erie, the Erie-Western PA Port Authority, and Lake Erie Arboretum at Frontier Park (LEAF). Two new sections were constructed within Frontier Park during this assessment period. Work currently planned and approved includes a link to the Seaway Trail on Sixth Street and a spur from the existing Bayfront Bikeway to the edge of the water at the Sassafras Street Pier.

Shades Beach Harbor of Refuge:

Planning, design, and permitting have been completed on a project to construct a safe harbor and small marina at Shades Beach Park in Harborcreek Township.

Access sites in the Lake Erie Coastal Zone

Access Type	Current Numbers	Change Since Last Assessment
State/County/Local parks (# and acres)	50 Sites (“parks”) 8,066.8 acres	+ 687.8 acres Erie Bluffs S.P. – 540 acres Girard Twp Elk Creek Access – 81 acres Tom Ridge Center – 12.1 acres South Pier Addition – 0.6 acres Port Authority Campground (Lampe) – 8.1 acres 12-Mile Creek Access Area – 13.6 acres 20-Mile Creek Access Area – 32.4 acres
Beach/Shoreline Access (#)	31 Sites	+ 5 Sites
Recreational Boat (power or non-power) Access Sites (#)	Recognized Canoe Launches = 8 Power Boat: Public = 19 Private = 17	+ 1 Canoe Launch + 0 Power Boat Ramps (several ramp improvement projects)
Designated Scenic Vistas or Overlook Points (#)	Numerous	Overlook at Tom Ridge Center
State or Locally Designated Perpendicular Rights-of-Way (i.e. street ends, easements) (#)	Perpendicular ROWs not for general public – only community groups.	No Change
Fishing Points (i.e. piers, jetties) (#)	35 recognized fishing points.	+ 7 Sites
Coastal Trails/Boardwalks (# and miles)	Data being developed	Data being developed.
ADA Compliant Access (%)	Data being developed	Data being developed.
Public Beaches with Water Quality Monitoring and Public Notice (% of total beach miles) and Number Closed due to Water Quality Concerns (# of beach mile days)	10 Public Beaches w/monitoring (1 ADA Compliant) 2.84 total miles Closures: 2001 – 0 2002 – 0 2003 – 0 2004 – 0.79 beach mile days 2005 – 12.51 beach mile days	Change in sampling protocol has led to more beach closures.

Resource Characterization of the Delaware Estuary Coastal Zone

Pennsylvania’s Delaware Estuary shoreline is experiencing a dynamic period of redevelopment planning and construction. Delaware County, the City of Philadelphia (Philadelphia County), and Bucks County have each placed a high priority on shoreline redevelopment and have ambitious planning goals and agendas. Decisions made and actions taken during the next five-year strategy period will have a considerable impact on the state and condition of the shoreline for decades to come. Multi-municipality coordination and planning efforts being conducted within Bucks and Delaware Counties offer encouragement that a regional, holistic approach is being pursued. This would allow

for better coordination of mixed uses and the ability to combine resources across municipal boundaries, resulting in a more sustainable and accessible waterfront. The ability to coordinate between counties and municipalities was enhanced by Acts 67 and 68 of 2000, which facilitate cooperative agreements and consistent ordinances and actions.

In February 2005, Bucks County completed and released *The Buck County Waterfront Revitalization Plan*. Bucks County, Bensalem Township, Bristol Borough, Bristol Township, Falls Township, Morrisville Borough, and Tullytown Borough sponsored this study, assisted by CRM grant support. Some of the recommendations from the plan include constructing a continuous riverwalk along the Delaware River; providing additional community parks, open space, and active recreation opportunities at the river's edge; developing public marinas and boat ramps to increase access, and promoting the redevelopment of underutilized Brownfield sites. All of these recommendations appear consistent with CRM programmatic objectives for improvements to public access.

The City of Philadelphia has begun a program to identify itself as a "New River City" in an effort to promote the resources of its riverfronts. It is part of an overall goal to take advantage of riverfront resources by creating new places for living, recreation, working, and environmental enhancement. The Fairmount Park system, which consists of 9,200 acres with 77 primary parks, released a new strategic plan in 2004 that recognizes the need and opportunity to contribute to the New River City effort. The Schuylkill River Development Corporation (SRDC) continues to lead efforts for improving access quantity and quality along the tidal Schuylkill River. Master planning and some early implementation projects have been completed. Seven Phase One priority projects have been identified for completion by 2008, at a combined cost of \$62 million dollars. The implementation strategy developed by the SRDC also identifies Phase Two projects with goals for completion between 2009-2012. Along the Delaware River in north Philadelphia a vision for waterfront redevelopment was articulated by the Pennsylvania Environmental Council in *Renovating Post-Industrial Landscapes, the North Delaware Riverfront, Philadelphia* and the Philadelphia Planning Commission's *The New River City*.

In Delaware County riverfront redevelopment has been successfully supported and guided by the Coastal Zone Task Force, which meets bimonthly. The estuary shoreline in Delaware County has experienced numerous positive changes by implementing recommendations made in the 1992 *Delaware County Waterfront Resources Management Plan, supported by CRM*. The latest multi-municipality planning effort guiding waterfront redevelopment along the Delaware River is the *Delaware County Industrial Heritage Parkway - Route 291/13 Beautification and Greenway Plan*, completed in March 2002, again with CRM support. This document offers additional public access recommendations that continue to build on previous efforts.

Following are some of the major public access improvements made in the Delaware Estuary Coastal Zone during this assessment period:

Barry Park Expansion and Improvement:

This park is located in Chester, Delaware County. Major renovations to the park's amenities and PFBC boat ramp were completed. The renovations included an expansion that involved construction of a new parking lot on top of a former federal superfund site.

Ridley Township Municipal Marina:

Ridley Township acquired an existing private marina to offer public access along Darby Creek, just upstream from the confluence with the Delaware River. This stretch of the Delaware River was

lacking in adequate public access for recreational boaters. Improvements to the municipal marina are currently being planned.

Tinicum Township Municipal Marina and Historic Lazaretto:

Purchased by Tinicum Township in 2005 at a cost of \$3.1 million dollars this single 10.2-acre parcel includes an existing marina, the historic Lazaretto building, and is the site of the former Philadelphia Sea Plane Base. Opened in 1800 as an immigration station and quarantine hospital, it is probably the oldest building of its kind in the United States. The marina will serve as public access for recreational boating and shoreline activities. The Lazaretto building was recently evaluated for inclusion as a National Historic Landmark, a designation that could lead to additional funding. The ultimate use of the building itself has not yet been finalized. Four landward acres of the parcel may be used for construction of a municipal firehouse, architecturally designed to be compatible with the Lazaretto.

Schuylkill River Park:

The Schuylkill River Park is the urban portion of the 22-mile Schuylkill River Trail. During this assessment period a long-planned and much anticipated section along the east bank from the Fairmont Waterworks to Locust Street was completed. It is anticipated that the park will be extended to South Street during 2006. Long-term plans include crossing the river at Grays Ferry bridge and extending the trail to the confluence with the Delaware River.

Schuylkill Landings Access:

Two new docks - one at Bartram's Garden and one at Walnut Street in downtown Philadelphia - have been built for public boating on the Schuylkill River in cooperation with the Fairmount Park Commission and the John Bartram Association. A third dock, located at the Fairmount Water Works, is being designed by the Fairmount Park Commission and is expected to be finished next year. These docks do not include ramp facilities.

Kensington and Tacony Trail and Lardner's Point Park:

The Kensington and Tacony Trail will extend approximately ten miles along the Delaware River in North Philadelphia. Approximately six miles of the trail will be on an abandoned freight rail line. Ultimately this trail will connect with the developing Delaware River Heritage Trail and the East Coast Greenway. Lardner's Point Park is a 4.5-acre waterfront parcel formerly used for industrial purposes that will serve as a gateway to the K&T Trail. Design plans have been completed and invasive species removal has begun. Funding for construction of park amenities is being sought. Ultimately the parcel will be transferred to the Fairmount Park Commission for long-term operation and maintenance.

Access sites in Delaware Estuary Coastal Zone

Access Type	Current Numbers	Change Since Last Assessment
State/County/Local parks (# and acres)	63 Sites 5660.8 acres	+ 4 sites + 64.8 acres Schuylkill River Park – 16.4 acres Marcus Hook Pier – 2.1 acres Ridley Township Marina – 14.5 acres Tinicum Twp Marina – 31.8 acres
Beach/Shoreline Access (#)	26 Sites (Access to tidal Delaware and Schuylkill Rivers)	+ 4 Sites
Recreational Boat (power or non-power) Access Sites (#)	Recognized Canoe Launches = 7 Power Boat: Public = 12 Private = 31	Canoe = +3 Power Boat = +2 Ridley Twp. Marina Tinicum Twp. Marina
State or Locally Designated Perpendicular Rights-of-Way (i.e. street ends, easements) (#)	None	No change.
Fishing Points (i.e. piers, jetties) (#)	14 recognized fishing points.	No change.
Coastal Trails/Boardwalks (# and miles)	Data being developed	Data being developed
ADA Compliant Access (%)	Data being developed	Data being developed
Public Beaches with Water Quality Monitoring and Public Notice (% of total beach miles) and Number Closed due to Water Quality Concerns (# of beach mile days)	0 Public Swimming Beaches	No change.

Management Characterization

Statutory, regulatory, or legal system changes that affect public access:

Pennsylvania’s CRM program monitored closely the public trust/public access court cases in our fellow Great Lakes States during this assessment period. Pennsylvania’s current management of public trust/public access along Lake Erie appears consistent with the Michigan Supreme Court’s July 2005 decision recognizing public trust rights up to the ordinary high water mark. Pennsylvania defines the “high water elevation” as an elevation of 572.8 feet International Great Lakes Datum 1955 (IGLD 1955). This is specifically defined in PA Code Title 25 Chapter 105.3(b). This section also defines the “low water elevation” as 568.6 feet (IGLD 1955). Note that the current Chapter 105 regulations pre-date the 1985 IGLD. Any water obstruction or encroachment below the 572.8’ elevation would require a permit pursuant to the PA Dam Safety and Encroachment Act (Chapter 105 regulations). Any obstruction or encroachment below the 568.6’ elevation would require both a Chapter 105 permit and a Submerged Lands License Agreement for occupying lands owned by the Commonwealth and held in trust for the public. The Commonwealth maintains that the sometimes dry land between the

high and low water elevations are available for public access pursuant to the public trust doctrine and Article I, Section 27 of the Pennsylvania Constitution.

Pennsylvania DEP is the lead plaintiff in a pending current court case involving recreational fishing and boating access in a portion of the Little Juniata River in Huntingdon County. This site is outside the coastal zones, but has potential statewide ramifications for public access to navigable "public trust" waters and could impact public access to natural resources within the coastal zones. Access to the main stem of the Delaware River and Lake Erie do not appear to be directly threatened by this case. However, access to tributary streams and rivers within the coastal zone and currently considered legally navigable could be threatened. Current Pennsylvania law maintains that the beds of all navigable waters are owned and held in trust for the benefit of the public by the Commonwealth and that the Commonwealth has the responsibility and obligation to protect the public rights to these waters. This is based in colonial era law, and navigability is based on definitions appropriate for the time. The case involves a section of the Little Juniata River being cabled off and access denied to recreational fishermen and boaters denied in favor of a private profit-making operation. The central issue at this time involves the definition of navigability as it pertains to public trust. DCNR, the PFBC and others joined DEP in this case. It is anticipated that this case will go to trial in June 2006.

The PA Dam Safety and Encroachment Act and Chapter 105 give DEP the authority to grant Submerged Lands License Agreements to occupy submerged lands of the Commonwealth for specific, water dependent purposes. These purposes are listed at §105.32(a) and are limited to a total of 25 acres per project. Proposed projects, where the purpose or scope falls outside of these parameters, may be required to seek an easement, right-of-way, license or lease through the legislature. Site-specific legislation is fairly common in both coastal zones. During this assessment period, CRM, working with DEP attorneys and the sponsors of site-specific legislation, developed new language to be included with the legislation that protects the public trust and addresses potential future land use changes. Senate Bill 688 of 2005 (Act No. 33 of 2005) was signed into law on July 5, 2005. This legislation conveyed two parcels of land (11.75 + 1.349 = 13.099 acres) for \$1.00 to Erie Western PA Port Authority (EWPPA). These two linear parcels, referred to as Sassafras Street Pier, were transferred for "convention center purposes." CRM played a key role in developing public access requirements and ensuring that these requirements were included in the final legislation. The requirements specifically require the lessee to provide and maintain public access amenities for fishing and other recreational activities, include public promenades, year round free public access, free public parking, a free public park, and signage advertising these public amenities. CRM also successfully requested that the legislation include that these amenities be constructed substantially concurrent with the convention center and be made available no later than the opening of the convention center. The bill also required that "The Deed of Conveyance shall contain a clause that if EWPPA allows the property to be used for any purpose other than for public greenway use including bike/pedestrian paths, gardens, overlooks, promenades, small parking areas and other public uses compatible with bike/pedestrian paths, gardens, overlooks, promenades and small parking areas agreed to and approved during a public design process, title shall immediately revert to the Commonwealth of Pennsylvania."

Using Act 33 as a model, similar language was included in site-specific submerged lands legislation for a residential structure in the Delaware Estuary Coastal Zone, Senate Bill 697 of 2005 (Act No. 34 of 2005). This Act leases Pier 25 North and the open water boat slip located south of Pier 25 North for 99 years to Pier 25 North Associates Limited Partnership. Allowed uses are development consistent with public and maritime uses, for residential, office, commercial, condominium, hotel marina or other uses. CRM's suggested public access amenities, construction timeframe, and reverter clause placed into Senate Bill 688 (above), were also made requirements of this Act. It is anticipated that future site-

specific submerged lands leasing and ownership issues in Pennsylvania's redeveloping urban waterfronts will be handled in a similar manner. This process did not require a program or regulatory change. Mitigation or compensation for the occupation of publicly held lands is worthy of further consideration and discussion if Chapter 105 regulations are amended in the future.

Acquisition programs or techniques:

The Department of Community and Economic Development and the Department of Conservation and Natural Resources continue to emphasize tourism and recreation as spurs to economic development and improvement of quality of life, significant issues in both of Pennsylvania's coastal zones. Both agencies offer grant programs to support public access and recreation initiatives. CRM continues to maintain its functional networked relationships with these agencies as it has in the past. Executive Order 1980-20, which directs State agencies to enforce and act consistently with the goals, objectives, and policies of the Coastal Zone Management Program, has remained the same. All related memorandums of understanding have continued in force. By working with other agencies, local governments, and interest groups CRM has been able to facilitate, support, and supplement access acquisition.

A new land trust organization was created in the Lake Erie Watershed during this assessment period. The Lake Erie Region Conservancy fills a void and enables a local focus on creating partnerships and securing funds for acquisition and management of critical coastal habitats.

Acquisition of recreational fishing access remains a high priority in both coastal zones. A 2003 report by the Erie Regional Chamber and Growth Partnership on the economic impact of sport fishing in Erie County, Pennsylvania estimated total angler expenditures in the range of 28-36 million dollars and supported between 521 and 683 jobs. In October 2004 the Pennsylvania Fish and Boat Commission and Penn State University released a report entitled *Creel Analysis and Economic Impact of Pennsylvania's Lake Erie Tributary Fisheries in Erie County, Pennsylvania, with Special Emphasis on Landlocked Steelhead Trout (*Oncorhynchus mykiss*)*. This report highlighted the significant economic impact associated with recreational steelhead fishing in Lake Erie and its major tributaries. The report indicates that in 2003 steelhead anglers spent \$9.5 million on trip related expenditures, including \$5.71 million in new value-added activity in Erie County and that this activity creates 219 jobs in the economy through direct and indirect impacts. The report also recognizes that "guaranteed public access is paramount to the success of Pennsylvania's steelhead fishery."

The Pennsylvania Fish and Boat Commission has worked to increase angler use of the steelhead fishery on Lake Erie and survey numbers indicate their success. Angler "trips" increased from 72,413 in 1993 to 200,816 trips in 2003. The popularity of steelhead fishing has been the primary driver for demands for increased fishing access along the Lake Erie coast and near the mouth of its major tributaries. Anglers continue to actively seek new public access opportunities and improvements, including both public amenities and stream habitat improvements. In order to fund additional access opportunities in the Lake Erie Coastal Zone, the Pennsylvania Legislature enacted Act 159 of 2004, which includes a new Lake Erie Permit. The permit is required for anyone who fishes in or on the Pennsylvania waters of Lake Erie, Presque Isle Bay and their tributaries. The Act stipulates that funds from the new \$8 permit (license) will be specifically dedicated to improving public fishing access to Lake Erie and its watersheds. Surveys showed that local recreational fishermen largely supported the new fee.

Monies remaining in a fund from a Lake Erie recreational fishing permit that was required from 1995 – 1998 were also made available for public access projects during this reporting period. Over the four-

year life of this license, sales averaged 78,392 per year. Funds generated from the sale of these special fishing licenses were restricted to transitional compensation for the elimination of the use of gillnetting by the licensed commercial fishing industry. In order to dispose of funds generated but not used under this program, the Pennsylvania Legislature passed Act 101 of 2002. This allowed remaining funds to be used to acquire property and to provide public fishing access on or at Lake Erie, its tributaries, and Presque Isle Bay

Comprehensive access management planning (including development of GIS data layers or databases):

In order to generate the data requested as part of this 309 Assessment and in anticipation of providing public access performance indicators, the CRM program developed GIS shapefiles for relevant access features in both coastal zones. These shapefiles serve as the source of the information provided in the above tables “*Access sites in the Lake Erie Coastal Zone*” and “*Access sites in the Delaware Estuary Coastal Zone*”. Development of these initial GIS layers reiterated the difficulty in using existing data and the significance of comprehensive definitions in order to make data consistent across agencies with varying priorities and across political subdivisions. Sources of existing data used to generate the CRM shapefiles included previously generated paper inventories, the Erie County Department of Economic Development and Planning, the Delaware Valley Regional Planning Commission, the Pennsylvania Department of Conservation and Natural Resources, the Pennsylvania Fish and Boat Commission, the Pennsylvania Game Commission, county and local governments, and the Pennsylvania Environmental Council. In order to better prepare for performance indicators, these initial shapefiles should be converted to a more comprehensive geodatabase format.

Operation and maintenance programs:

Resource Management plans have been prepared for all of Pennsylvania’s State Parks. Growing Greener II, described below, includes grant money specifically intended for maintenance and improvements at those parks. The first round of grants announced under Growing Greener II included \$1.8 million to rehabilitate Marina Pond Bridge and replace Misery Bay Bridge at Presque Isle State Park.

Funding sources or techniques:

In May 2005 Pennsylvania voters approved a \$625 million bond issue called Growing Greener II to clean up rivers and streams; protect natural areas, open spaces and working farms; and shore up key programs to improve quality of life and revitalize communities across the Commonwealth. This substantial funding source can be applied to several CRM programmatic objectives. The first round of grants was announced in November 2005 and awarded \$65 million across the commonwealth. The first round of the DCNR “Open Space” grants will be announced later this winter. Growing Greener II offers numerous opportunities for matching local, county, and federal resources.

CRM continues to improve the appearance and functionality of its web site. At this time the program does not have its own access guide available on the web but offers links from our photo gallery section to other groups and agencies that provide comprehensive and detailed access information. Current access links include the Pennsylvania Fish and Boat Commission’s recreational fishing areas and boat ramps guide, the Partnership for the Delaware Estuary’s public access guide, and DCNR’s web sites: www.visitpa.com, www.visiteriepa.com, and www.gophila.com.

Beach water quality monitoring and/or pollution source identification and remediation programs:

There are ten guarded swimming beaches with water quality monitoring in the LECZ, but none in the DECZ. Presque Isle State Park includes 9 of the 10 public beaches monitored for water quality in the LECZ. Presque Isle State Park serves as the focal point for water based recreational activities in the LECZ and receives approximately 4 million visitors per year. Tourism plays a significant role in the local economy and beach closures are a significant concern to the local community. Freeport Beach at Halli Reid Park in North East Township accounts for the remaining permitted beach with beach monitoring.

The Erie County Department of Health (ECDH) has the lead responsibility for sampling and monitoring public swimming beaches in the LECZ, coordinating with the staff at Presque Isle State Park. The Pennsylvania Department of Health is responsible for reporting beach monitoring data to EPA, to be incorporated into their eBeaches and BEACON information systems.

Changes to beach monitoring and reporting requirements during this assessment period were largely driven by the Beaches Environmental Assessment and Coastal Health (BEACH) Act of 2000. When EPA published its Final Rule for *Water Quality Standards for Coastal and Great Lakes Recreation Waters*, Pennsylvania was among 21 states and territories that had not yet adopted water quality standards as protective as EPA's *Ambient Water Quality Criteria for Bacteria – 1986*. Pennsylvania continues to work on developing state water quality standards that are "as protective as the 1986 bacteria standards". In 2003 the LECZ had no beach closings using coliform methods, but would have had 16 beach closures using the current E. coli standards

The management of beach monitoring will likely continue to change over the upcoming strategy period. Potential management concerns with the *Ambient Water Quality Criteria for Bacteria – 1986* methodologies include a 24-hour turnaround time for sample results, the potential that E. coli indicators do not always correlate with bacteria levels that are pathogenic to humans, and lack of discrimination between human and other sources of bacteria.

EPA recognizes potential shortcomings and continues to do epidemiological studies, with the goal of refining sampling and monitoring methodologies for public swimming beaches. The ECHD has continued to collect total fecal coliforms as well as E. coli, in an effort to determine any correlations. The ECHD and the Lake Erie Regional Science Consortium have recently proposed coordinated studies to determine potential pathological inputs from streams west of the Presque Isle swimming beaches. Previous studies have determined that fecal coliforms increase significantly after storm events, but were unable to differentiate between human and non-human inputs or point and non-point sources. In addition to identifying potential point and non-point sources of human pathogens that can be eliminated or minimized, the results will be compared to data from Presque Isle State Park beaches to determine if a correlation exists. This better understanding could lead to improved management and forecasting of potential pathogen problems. Comparing beach closing trends data during this assessment period is difficult due to the change in methodology for determining beach closures. CRM has also noted that public health issues associated with water quality related human pathogens extend beyond recognized public bathing beaches and include swimmers in unregulated areas, windsurfers, paddlers, recreational fishermen, etc.

As mentioned, there are currently no regulated swimming beaches in the Delaware Estuary Coastal Zone. During this reporting period, the Philadelphia Water Department implemented an innovative

system to support recreational water use and athletic events in the Schuylkill River between Flat Rock Dam and Fairmont Dam (Manayunk to Boat House Row). The “Philly RiverCast” forecast model is based upon historic relationships between water quality, stream flow, and rainfall data. The model uses a simple Green-Yellow-Red designation system that is available on the internet, while EPA’s *Ambient Water Quality Criteria for Bacteria – 1986* was used as a reference during development, the RiverCast system is not designed as a swimming indicator.

Conclusion

The 2001 Assessment indicated this programmatic objective as a medium priority. Although public access remains a significant issue this Assessment will also consider public access a medium priority. CRM does not anticipate making any programmatic changes. CRM will continue to encourage public access improvements through its local matching grants and will work diligently to maintain public trust rights of access. Waterfront redevelopment projects that encroach upon public waters will need to meet the public trust requirements of Chapter 105 and demonstrate consistency with CRM program policies.

2001 Assessment

High	_____
Medium	<u> X </u>
Low	_____

2005 Assessment

High	_____
Medium	<u> X </u>
Low	_____

Coastal Hazards

Legislative Objective

309 (a) (2) Preventing or significantly reducing threats to life and destruction of property by eliminating development and redevelopment in high hazard areas, managing development in other hazard areas, and anticipating and managing the effects of potential sea level rise and Great Lakes level rise.

Section 309 Programmatic Objectives

- I. Direct future public and private development and redevelopment away from hazardous areas, including the high hazard areas delineated as FEMA V-zones and areas vulnerable to inundation from sea and Great Lake Level rise.
- II. Preserve and restore the protective functions of natural shoreline features such as beaches, dunes and wetlands.
- III. Prevent or minimize threats to existing populations and property from both episodic and chronic coastal zones.

Coastal Hazard Characterization

Hazard	High Risk	Medium Risk	Low Risk
Hurricane/Typhoon			Low
Storm Surge			Low
Flooding		Medium	
Episodic Erosion			Low
Chronic Erosion	High		
Sea Level Rise		Medium	
Great Lake level Fluctuation		Medium	
Subsidence	High		
Earthquakes			Low

The major coastal hazards in the LECZ are bluff recession and shoreline erosion. As a consequence of fluctuating lake levels and the unconsolidated material makeup of the bluffs, these hazards are constant and severe. The natural coastal hazard in the DECZ is primarily flooding. Because of significant maritime shipping, both coastal zones are subject to damage from man-made hazards from accidents and spills.

Hazards increase when lake levels rise and more lake wave energy reaches the bluffs, causing accelerated bluff recession. When levels fall, bluff erosion is less severe, with fewer severe problems related to shoreline erosion and bluff recession along the entire shoreline, navigation problems can be expected to increase as water levels recede.

As was the case in previous assessments, unrestricted development along the face of the Lake Erie bluffs could have negative destabilizing effects, initiating or accelerating recession. Removal or mismanagement of vegetation on the bluff face can also accelerate bluff recession.

One of the most effective ways CRM found to remove inappropriate development from the bluff hazard area in the past was FEMA's National Flood Insurance Program. When active, this discontinued service helped remove or demolish insured structures on bluff properties with "zones of imminent collapse." Since many structures were present before passage of the Bluff Recession Set Back Act (1980), there remains a need for a similar state program to remove structures before they are damaged by bluff recession.

Flooding has plagued the Delaware Estuary and its major tributaries. In June 2001, Tropical Storm Allison inflicted \$ 35 million in damages to Bucks and Montgomery counties. In September 2003, three major storms hit the Pennsylvania area causing major flooding. In 2004, Pennsylvania was affected again by flooding, receiving total disaster assistance of \$ 111.4 million from Federal Emergency Management Agency (FEMA). Flooding continued to occur in 2005, and Pennsylvania received \$ 3.4 million in disaster relief aid.

In reaction to this flooding, four major actions have been taken to protect the Delaware Estuary and its major tributaries. Since 2003, CRM has given nine grants worth approximately \$ 320,000 to local municipalities to address storm water issues. In addition, CRM has awarded grant money to the Borough of Morrisville for seawall repair and improved public access to their local flood control levee on the Delaware River.

FEMA and the Pennsylvania Emergency Management Agency (PEMA) have released funds to buy homes that are considered to be in flood risk areas. Recently, 59 homes were bought in Bucks, Delaware and Montgomery Counties, making a total of 700 homes acquired since 1994.

In May 2002 the Delaware River Basin Commission Flood Advisory Committee developed "*Recommendations to Address Flood Warnings Deficits in The Delaware River Basin.*" The report called for federal funding to provide equipment and support to sustain Advanced Hydrologic Prediction Services (AHPS) for the Delaware Estuary and surrounding areas.

A Pennsylvania Growing Greener project allocated \$ 260,000 to replace an existing manually operated Tide Gate with a self-regulating Tide Gate located adjacent John Heinz Wildlife Refuge. The Tidal gate has resulted in preventing flooding at the same time allowing for wide range of wildlife use.

Management Characterization

Changes to the State's hazards protection program since the last assessment.

Mechanism	Changes since Last Assessment		
Building setback/restriction	<u>Significant</u>	Moderate	None
Methodologies for determining setbacks	Significant	<u>Moderate</u>	None
Repair/rebuilding restrictions	Significant	<u>Moderate</u>	None
Restriction of hard shoreline protection structures	Significant	Moderate	<u>None</u>
Promotion of alternative shoreline stabilization methodologies	Significant	Moderate	<u>None</u>
Renovation of shoreline protection structure	Significant	<u>Moderate</u>	None
Beach/dune protection	Significant	<u>Moderate</u>	None
Permit compliance program	Significant	<u>Moderate</u>	None
Inlet management plans	Significant	Moderate	<u>None</u>
Special Area Management Plans	<u>Significant</u>	Moderate	None
Local hazards mitigation planning	<u>Significant</u>	Moderate	None
Local post-disaster redevelopment plans	Significant	Moderate	<u>None</u>
Real estate sales disclosure requirements	Significant	Moderate	<u>None</u>
Restrictions on publicly funded infrastructure	Significant	Moderate	<u>None</u>
Public education and outreach	Significant	<u>Moderate</u>	None
Mapping/GIS/tracking of hazard areas	<u>Significant</u>	Moderate	None

Shoreline Protection Structures:

In the past, there was inconsistency in establishing permitting standards for shoreline protection structures. Lack of specific criteria in the form of reference data--for length, height and spacing of shore perpendicular structures--created difficulties in correctly processing permits and insuring that installations would perform as expected. CRM is finalizing a set of criteria to specify and standardize the reference data, which will allow for consistent permitting. This document (*Criteria and Methodology for the Proper and Consistent Placement of Shoreline Stabilization Structures along Pennsylvania's Lake Erie Shoreline*) is in the process of becoming a Department guidance document.

Permit and Compliance Program:

In response to a 2001 petition to the Environmental Quality Board by Millcreek Township, Erie County, to clarify the designation of Bluff Recession Hazard Areas (BRHAs) along Lake Erie, DEP conducted a study of Pennsylvania's entire Lake Erie shoreline to determine BRHAs. After considering the results of this study and other related studies and data, and responses from the coastal municipalities along Lake Erie concerning tentative designation of BRHAs, DEP recommended including the City of Erie as a municipality identified as having a BRHA. These changes will require updates to the Department's Chapter 85 regulations, which cover bluff issues. It is anticipated that the process for the regulatory change will formally begin in 2006.

The Uniform Construction Code (UCC) became effective in Pennsylvania in 2004. The UCC is based on the 2003 International Codes and addresses three types of slopes that can occur in a BRHA. The UCC has effectively standardized municipal enforcement of the Bluff Recession Setback Act and its implementing regulations.

Methodologies for determining setbacks:

CRM has undertaken initiatives to enhance monitoring through utilization of both a global positioning system and a geographic information system. Through the use of these technologies, CRM has been able to improve bluff monitoring in the LECZ. Recently, major improvements have been made to the accuracy of the global positioning system, facilitating more effective navigation and monitoring of bluff recession. Monitoring occurs in a four-year cycle, and is next scheduled to occur in 2006-2007.

Conclusion

CRM will continue administering bluff recession and evaluating the effectiveness of the BRSA. The previous assessment ranked this area as a medium priority. In this assessment, Coastal Hazards are also being considered a medium priority in consideration of ongoing CRM activities dealing with the bluffs. The DEP anticipates publishing the previously mentioned *Shoreline Stabilization Structures* document. Placing a staff position in the Lake Erie coastal zone has improved oversight of day-to-day administration of the BRSA and development of shoreline permits, and has established a more cooperative working relationship with local code enforcement and zoning officers.

2001 Assessment
High _____
Medium X
Low _____

2005 Assessment
High _____
Medium X
Low _____

Wetlands

Legislative Objective

309 (a) (1) Protection, restoration or enhancement of the existing coastal wetlands base or creation of new coastal wetlands.

Section 309 Programmatic Objective

- I. Protect and preserve existing levels of wetlands, as measured by acreage and functions, from direct, indirect and cumulative adverse impacts, by developing or improving regulatory programs.
- II. Increase acres and associated functions (e.g., fish and wildlife habitat, water quality protection, flood protection) of restored wetlands, including restoration and monitoring of habitat for threatened and endangered species.
- III. Utilize non-regulatory and innovative techniques to provide for the protection, restoration, and acquisition of coastal wetlands.
- IV. Develop and improve wetlands creation programs.

Resource Characterization

Extent of LECZ Coastal Wetlands

Wetlands Type	Extent (acres & year of data)*	Trends (\pm acres/year)*
Tidal	0 acres	N/A
Non-Tidal/Freshwater	9,9995.2 acres (5,397.4 acres shallow water zone of Lake Erie)	+ 6.46 acres/year based on 1986 – 1999 average.
Publicly Acquired Wetlands	2,720.0 acres	Erie Bluffs SP +41.9 acres
Restored Wetlands	Unavailable	Unavailable
Created Wetlands	Permit mitigation = 6.8 acres	0 acres

Extent of DECZ Coastal Wetlands

Wetlands Type*	Extent (acres & year of data)*	Trends (\pm acres/year)*
Tidal	1465.9 acres	Total combined = +0.4 acres/year based on 1986 – 1999 average.
Non-Tidal/Freshwater	1663.8 acres	
Publicly Acquired Wetlands	1409.4 acres	Ridley Twp Marina +6.6 acres Silver Lake Nature Center +2.0 acres
Restored Wetlands	Unavailable	Unavailable
Created Wetlands	Permitted mitigation = 76.9 acres	+ 12.4 acres

The wetland information presented in the above tables is based on the October 2002 report *Wetlands of Pennsylvania's Coastal Zone: Wetland Status, Preliminary Functional Assessment, and Recent Trends (1986-1999)*. The study was performed by the USFWS National Wetlands Inventory Program, with funding from CRM. The analysis was largely based on 1999 1:24,000 leaf-off color infrared (CIR) aerial photography supplied by the CRM. The original objectives of the study included: 1) updating NWI data for the Pennsylvania Coastal Zone, 2) enhancement of NWI data by adding hydrogeomorphic-type attributes for landscape position, landform, and water flow path, 3) using the improved NWI database to produce a preliminary assessment of wetland functions for the study area, and 4) conducting a wetland trends analysis for Pennsylvania coastal zones.

During the 13-year period of the status and trends study, overall acreage in the coastal zones has remained fairly consistent. In the DECZ, 101 acres of losses were balanced by 106 acres of gain for a net total of +5.3 wetland acres. It is important to note that the study did not evaluate qualitative differences of the lost and gained wetlands, thus functionality could be lost while acreage is reported as a gain. Non-vegetated wetlands, including ponds, accounted for 82.8 acres of the gain (78%). In net total the study indicates the Delaware Estuary lost 14.2 acres of vegetated wetlands during the period from 1986 – 1999. The data suggests a change in functionality that is hard to quantify, but essential in developing meaningful long-term monitoring and management programs. The reported gains of non-vegetated ponds should be analyzed further to determine the acreage attributable to storm water retention and detention basins.

In the LECZ there was a net gain of +83.7 acres of wetland (120.6 acres of gain – 36.9 acres of loss). Most of the gains took place on former agricultural land and included 40.2 acres of ponds. A net increase of 37 acres of vegetated wetlands was also reported. It is noteworthy that 75% of vegetated wetlands in the LECZ are forested. Wetland losses were mostly attributed to agricultural and residential development (80% of losses).

In summarizing and discussing wetlands data, it becomes apparent that the differing definitions of “wetland” greatly influence the discussion. The Commonwealth defines wetland within Chapter 105 rules and regulations as “Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.” All agencies within the Commonwealth use the same technical manual and methodology as the federal government when identifying and delineating wetlands (Corps

of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, 1987 Manual). However, the Corps does not distinguish between the term wetland and special aquatic areas, and both are regulated as waters of the United States. Within the Commonwealth, shallow water habitat is not managed or tracked as a “wetland”. In addition, areas with wetland features matching the 1987 manual, but located within the banks of watercourses, are considered to be part of the watercourse and are not managed or tracked as wetlands.

Shallow water habitat was not considered when providing the data for publicly acquired wetlands. Using just NWI nomenclature, 5,397.4 acres of shallow water habitat in Lake Erie could have been considered “publicly acquired” because the Commonwealth maintains ownership of these submerged lands. Of the 2,720 acres of publicly acquired wetlands in the LECZ, 2,560 acres are located on just two sites, State Game Land 314 and Presque Isle State Park. The recent acquisition of Erie Bluffs State Park added 41.9 acres of “exceptional value” wetlands. Exceptional Value wetlands are defined in Chapter 105 regulations and deserve greater protection because of their significance.

In the DECZ, 1,404.9 acres were determined to be publicly acquired. Close to half of this, 651.3 acres were attributed to John Heinz National Wildlife Refuge. Silver Lake Nature Center, a county park in southern Bucks County, protects 167.8 acres of wetland. This park contains the largest and best example of a remaining coastal plain forested wetland in the state.

The data presented in the above tables represents our best efforts to accurately supply the information requested. CRM recognizes the need for more accurate, comprehensive, detailed, and coordinated data and plans to address this shortcoming as part of our current 309 Strategy.

In December 2004 rectified CIR aerial photography captured during the 2004 growing season became available through the Pennsylvania Spatial Data Access (PASDA) web site. PASDA serves as the Commonwealth’s geospatial data clearinghouse. The National Agriculture Imagery Program (NAIP) supplied the original imagery; the Commonwealth supplied additional funding for upgrading the resolution and scope of the imagery. Traditionally, wetland-monitoring efforts are based on leaf-off CIR aerial photography, allowing visibility through tree canopies and other vegetation so that saturated soil conditions are not obscured on the photography. The availability of CIR photography captured during the growing season allowed a new opportunity to evaluate emergent wetlands with non-persistent vegetation. By overlaying the newly available CIR layer with existing wetland inventory layers, it became apparent that many vegetated tidal mudflats in the DECZ were either missed or misidentified as being “nonvegetated”. A similar but probably less significant error was noted for areas of Lake Erie with emergent vegetation in previously determined open water. In recent years, remote sensing data with better resolution has become available and that trend will likely continue, allowing for a more refined wetlands inventory. CRM currently has more refined wetland inventory data available, but it is not a complete data set. In order to present consistent data, the FWS Status and Trends analysis was used to present the data in the 309 Assessment. It is a goal of the program to integrate CRM-generated wetland inventory data with the 2002 FWS updated NWI/hydrogeomorphic/functional assessment data and the NWI data readily available to the public on Internet through NWI and the National Mapper.

Direct and indirect threats to coastal wetlands, both natural and man-made:

Threat	Significance		
Development/fill	high	<u>medium</u>	low
Alteration of hydrology	<u>high</u>	medium	low
Erosion	high	<u>medium</u>	low
Pollution	high	<u>medium</u>	low
Channelization	high	medium	<u>low</u>
Nuisance or exotic species	<u>high</u>	medium	low
Freshwater input	high	medium	<u>low</u>
Sea/Lake level rise	high	<u>medium</u>	low
Other–All Terrain Vehicles (ATVs)	high	<u>medium</u>	low

Development/fill:

The DECZ is highly developed. The lack of undeveloped land for commercial or residential development causes consistent developmental pressures on remaining wetlands. This pressure will continue. Recent demands for increased public access, including additional recreational boat access, may present potential resource conflicts between two CRM programmatic objectives during the next five years.

The LECZ has experienced increased residential development, both to the west and east of the City of Erie. Previously implemented farmland preservation programs and associated conservation easements successfully offer many wetlands in the eastern portion of the coastal zone protection from development. Wetlands were not the main focus during the acquisitions of agricultural easements, and the wetland data (including level of protection) was not readily available. It is anticipated that development pressures will continue at about the same rate during the next five years, as the movement away from the urban center of Erie continues.

Development and fill pressures are addressed through DEP’s Chapter 105 program with added resource assistance from CRM.

Alteration of hydrology:

The significance of this threat is listed as “high,” specifically due to the threats associated with bluff seep wetlands in the LECZ. Groundwater seeping from the bluff face that becomes channelized is often blamed for increased bluff erosion. Many property owners look for ways to eliminate this potential source of erosion by altering site hydrology. One method involves construction of groundwater infiltration trenches that capture the water and convey it directly to the beach through piping. In some poorly designed situations, the outlets of the pipes have been located partially down the bluff face, actually causing increased erosion.

Bluff seep wetlands are unique habitats and often support Pennsylvania threatened and endangered species. Several bluff seep wetlands are specifically identified as Biological Diversity Areas in the Erie County Natural Heritage Inventory. CRM recognizes the apparent conflict between protection from coastal hazards associated with bluff erosion and the need for maintaining existing biodiversity. The significance of bluff seep wetlands and potential conflicts with other CRM priorities were identified in the Special Area Management Plan for Pennsylvania’s Lake Erie Bluffs and Shoreline.

Support of bluff seep and slump wetlands identification, evaluation, and preservation remains a priority project for implementation of the SAMP.

Historically, alteration of hydrology (ditching) for development and agricultural production was common in the flat coastal plain of the DECZ. Because of land use changes and regulatory controls, this threat is probably less significant today. Recognizing the impacts of altered hydrology may prove beneficial in restoring or creating additional wetland acreage in the DECZ.

Ground and surface water withdrawals can also alter hydrology and negatively impact wetlands. This became a controversial issue at a site within the DECZ watershed when a proposed public water supply source was determined to have a potential impact on the state and federally protected bog turtle. Given the variety of inputs and outputs, determining water budgets for wetlands can be quite complex and difficult. The Water Resources Planning Act (Act 220) requires the Department of Environmental Protection to conduct a statewide water withdrawal and use registration and reporting program. The information gathered from this program will be used to update the State Water Plan, identify Critical Water Planning Areas, and develop Critical Area Resource Plans. As development of the State Water Plan continues, habitat impacts associated with water quantity issues may need to be addressed and managed by CRM.

Erosion:

Bluff erosion may cause the temporary loss of bluff seep wetlands in the LECZ. Provided that hydrology remains, revegetation should occur. If neighboring seep wetlands with native vegetation are protected, they can offer a seed bank for revegetation. If an appropriate seed bank is not present and invasive species have taken a foothold somewhere in the surrounding area, the newly exposed section will be more susceptible to colonization by opportunistic invasive species. Erosion of wetlands in the DECZ does not appear to be a significant threat.

Pollution:

Sediments in Presque Isle Bay, the Schuylkill River, and the Delaware River are known to contain contamination from an industrial past. At this time, CRM does not consider pollution to be a significant threat to wetlands in either the LECZ or the DECZ.

Channelization:

Channelization does not appear to be a significant threat in either coastal zone.

Nuisance or exotic species:

Invasive exotic species are significantly impacting wetlands in both coastal zones. The 2002 status and trends analysis indicates that 54% of vegetated wetlands in the DECZ contain phragmites.

Pennsylvania rare, threatened, and endangered species are being displaced in both coastal zones.

Managers of protected wetland natural areas have designed programs of varying intensities in order to battle invasive species. This includes protected wetland areas managed by federal, state, and local governments, as well as NGOs.

DCNR has designated areas within state parks that contain unique scenic, geologic, or ecological value as "Natural Areas," deemed to be worthy of added protective management. To date, 22 Natural Areas have been identified statewide. This includes marshes within the 67-acre Gull Point Special Management Area of Presque Isle State Park and 71 acres of freshwater tidal marsh in Neshaminy State Park. These important natural areas offer wetland habitat to threatened and endangered plant and animal species, and both are heavily impacted by invasive species. The management of exotic and

invasive wetland plants extends beyond the borders of publicly protected wetlands. cursory surveys of bluff seep wetlands in western Erie County in 2004 indicated the presence of Phragmites, a relative newcomer to these unique plant communities.

The Commonwealth is working on developing a statewide Aquatic Invasive Species Early Detection and Monitoring Program, as well as a State Management Plan for all invasive species, terrestrial and aquatic. It is not clear at this time how significant a role invasive wetland plants will have in the management plans. Invasive species, and Pennsylvania's effort to manage the problem, are addressed in more detail in the Ocean and Great Lakes Resources section of this Assessment and Strategy.

A GIS-based presence/absence or relative abundance survey as part of a wetland inventory program would aid in determining the current severity of threats to bluff seep wetlands, as well as provide baseline data for future monitoring efforts. This information would improve management by prioritizing efforts by species and/or geographical areas.

Sea/Lake level rise:

Working with support from CRM, the Delaware Valley Regional Planning Commission completed a final report entitled *Impacts of Sea Level Rise on Wetlands, Salinity, Water Quality, Public Access, and Hazardous Waste Sites in the Delaware Estuary of Pennsylvania* (September 2004). As indicated in the study, wetland acreage losses associated with sea level rise can be naturally mitigated through two processes (i) inward migration and (ii) wetland accretion (deposition of sediments at a rate greater than sea level rise). The shoreline of the DECZ is highly developed, and shoreline armoring in the form of seawalls and bulkheads is substantial. Thus, natural wetland migration into existing upland areas will be prevented and the impacts of sea level rise on Pennsylvania's tidal wetlands appears potentially significant. The report includes the statement: "...estimates support the simple hypothesis that a one to two meter rise in sea level would destroy most existing – and create little new – tidal wetlands in the Delaware Estuary."

In areas that are not fully developed and armored, new development set back a certain distance from existing tidal wetlands would allow landward wetland migration. Pennsylvania does not currently have wetland buffer or setback regulations. Prioritizing public acquisition of areas adjacent to existing tidal wetlands for open space and recreation may be a strategy to allow for some natural wetland replacement (inward migration) for the predicted acreage losses. The transition of the DECZ's waterfront from centers of heavy industry to mixed-use communities that emphasize public access and open space offers an opportunity to create buffers between development and rising seas.

The report recognizes that more accurate predictions would require field observations and accurate topographic data, specifically mentioning the use of Light Detecting and Ranging (LIDAR) sensors to generate accurate elevation models. As part of the PAMAP project, the entire Commonwealth will be flown by LIDAR in 2006 in order to generate accurate digital elevation models (DEMs). This may provide useful data, if a more detailed sea level rise study is performed in the future.

Lake levels in Lake Erie fluctuate, but are currently below normal. Higher lake elevations cause increased erosion to the bluff face, causing slumping and the loss of vegetative cover. To some extent this is a natural process (often accelerated by human activities), and the vegetative communities would begin the process of succeeding back to a stable community. The presence of non-native species may interfere with the vegetative community's evolution back to the pre-slump community. At this time Lake level rise is not considered a significant threat to wetlands in the LECZ.

Other – All Terrain Vehicles:

In the spring of 2005, wetland damage caused by all terrain vehicles (ATVs) was noted throughout the LECZ, in both publicly “protected” and privately held wetlands. This includes wetlands listed in the Erie County Natural Heritage Inventory as having exceptional value due to the presence of species of special concern. Tire ruts leading from wetlands on bluff and ravine tops to steep slopes create a pathway for increased erosion and effectively drain forested wetlands. In addition to damaging the habitat, there was direct damage to amphibian egg cases and tadpoles. Vegetation was eliminated and soils were left bare to more quickly erode. The damaged area is also considerably more susceptible to colonization by invasive species. There is an obvious attraction to riding these vehicles through “mud,” and advertising reinforces that desire and activity. The number of ATV owners has been growing, and that trend will likely continue. Pennsylvania DCNR has tried to support suitable areas for ATV use and provides information on where ATV use is permitted on state lands. The Allegheny National Forest also provides ATV trails. Unfortunately, travel is required to reach these destinations and the problem of a suitable local area to ride is not being addressed.

DCNR administers an ATV registration program. All ATVs in Pennsylvania, except ATVs used solely for business or agricultural purposes, need to be registered and titled. All law enforcement officers in the state, including state park rangers, game commission officers, and local and state police are authorized to enforce the ATV law. However, this enforcement is not a priority and budget limitations preclude any comprehensive surveillance initiatives (even in areas with known repeat offenders). To date, most strategies that address this increasing problem have focused on rider education through organized ATV membership groups. Many in these groups recognize that the future of their sport may depend on proper etiquette. This strategy has had limited success, and the damage from ATVs appears to be growing substantially in the LECZ. While ATV damage has been noted in DECZ wetlands, the absence of large expanses of rural areas will likely preclude the threat from becoming significant.

Management Characterization**Regulatory program changes:**

Section 404(e) of the Clean Water Act allows for the issuance of general permits on a statewide basis, which operate in conjunction with a State regulatory program that protects the aquatic environment in a manner equivalent to the Department of the Army regulatory program. During this assessment period Pennsylvania State Programmatic General Permit #2 (PASPGP-2) was issued. This allows Pennsylvania to continue issuing several categories of Section 404 permits, providing for a more efficient permit process for the regulated community. The need for single and complete project determinations was stressed as part of the new PASPGP-2 approval. PASPGP-2 expires June 30, 2006. Plans for PASPGP-3 are being developed.

The Department issued a new General Permit (GP-11) for the maintenance, testing, repair, rehabilitation, and replacement of existing water obstructions and encroachments. One goal of GP-11 is to encourage smart growth through the revitalization of existing infrastructure. Under GP-11, temporary impacts to wetlands must be restored to original grade and contours, and projects cannot permanently impact greater than 0.05 acres of wetland.

Assessment methodologies (health, function, extent):

The USFWS National Wetlands Inventory Program included a preliminary functional assessment in a status and trends analysis completed in October 2002. The findings are presented in the report

Wetlands of Pennsylvania's Coastal Zone: Wetland Status, Preliminary Functional Assessment, and Recent Trends (1986-1999). In the "Appropriate Use of this Report" section the following cautions and clarifiers are provided: "While the results are useful for gaining an overall perspective of "coastal zone" wetlands and their relative importance in performing certain functions, the report does not identify differences among wetlands of similar type and function. The latter information is often critical for making decisions about wetland acquisition and designating certain wetlands as more important for preservation versus others with the same classification. Additional information gained through consulting with agencies having specific expertise in the subject area and by conducting field investigations to verify the preliminary assessments are necessary."

DEP's Division of Waterways, Wetlands, and Stormwater Management has been actively involved in statewide wetland health and function assessments. Working with the Penn State Wetlands Cooperative Center and the Mid-Atlantic Wetland Workgroup (MAWWG), DEP has developed a tiered GIS-based landscape assessment and Rapid Assessment Protocol for wetlands. The tool is nearing completion for implementation in a pilot scale program. MAWWG was formed in 2002 and has been supported with funding from an EPA Region III Wetlands Program Development Grant. The goal is to provide regionalized tools necessary for long-term incorporation of wetlands into CWA water quality monitoring programs and antidegradation policies.

Mitigation banking:

In June 2002, DEP, the U.S. Army Corps of Engineers, and the U.S. Fish and Wildlife Service approved the first Wetland Mitigation Banking Agreement for use throughout Pennsylvania. The multi-agency agreement allows the Pennsylvania Department of Transportation to construct wetland banks to offset wetland impacts associated with transportation construction and improvements. As of June 2005, 277 acres of banked wetland acreage had been created. No banks have been created within Pennsylvania's coastal zones; but one 4-acre site has been created in the Conneaut Creek watershed, which is within the Lake Erie watershed.

Wetland creation/restoration/enhancement programs:

Growing Greener II was created to clean up rivers and streams and protect natural areas, open spaces and working farms. Consistent with the DEP's focus on comprehensive watershed management, these grants are implemented through local initiatives and can be used for wetland conservation initiatives, including acquisition, creation, restoration, or enhancement. Other potential funding programs include Section 319 grants, Pennsylvania's Conservation Reserve Enhancement Program (CREP), USFWS Partners for Wildlife, and the NRCS Wetland Reserve Program.

The Pennsylvania Wetland Replacement Project (PWRP) is administered by DEP in cooperation with the National Fish and Wildlife Foundation. This program established a fund to assist permit applicants in meeting the wetland replacement requirements in Chapter 105. If during permit review DEP finds that onsite replacement is not practicable or environmentally necessary, the applicant may contribute to the fund to satisfy replacement requirements. Generally the fund is only used for impacts less than 0.5 acres. Environmental benefits include the fact that wetland creation projects on a larger scale are generally more successful and meaningful in replacing lost functions and values. Previous 309 Assessments and Strategies considered this a positive change and assumed larger, more diverse coastal wetlands would be built. However, in the 10-year history of the PWRP no wetlands have been built within the coastal zones. This highlights the importance of the wetland replacement siting regulations found at Chapter 105.20a(a)(3). These regulations specify that the replacement of wetlands should be within the designated boundaries of the coastal zone management area where the loss occurs.

Mapping/GIS/tracking systems and Impact Analysis:

Permitted wetland impacts are tracked through DEP's eFacts (Environmental Facilities Application & Compliance Tracking System) database. The database has now been linked to DEP's eMap, a GIS-based system available to the public via the Internet. Permitted wetland impacts now average less than 75 acres per year.

The Commonwealth has expanded from a wetland protection – no net loss policy to a wetlands net gain strategy. That strategy includes a commitment in the Chesapeake 2000 Agreement, for restoration of 25,000 acres of tidal and non-tidal wetlands in the Chesapeake Bay watershed by the year 2010. Pennsylvania committed to restoring 400 acres of non-tidal wetlands per year (Pennsylvania has no tidal wetlands in the Chesapeake watershed). Largely driven by commitments to meet specific numbers as part of this agreement, the Department has developed standardized definitions, tracking, monitoring and reporting procedures for “known” federal, state, and private wetland programs. Data is collected using a computerized “*PA Wetland Net Gain Data Form*”. Restoration/Creation projects and Enhancement/Functional Gain projects are tracked individually.

A major change in the Commonwealth's ability to track water quality issues involves using a watershed-based approach that has been developed as the National Hydro Dataset (NHD) for the entire Commonwealth. Based on ArcHydro concepts, the NHD combines all water quality attributes across program boundaries into one tracking and monitoring system. The NHD will provide a single system for querying interrelated water quality data searches, provide for quicker and more comprehensive emergency responses, and allow for the development of complex water quality models.

Using the GIS shapefile data compiled by the USFWS National Wetlands Inventory for the October 2002 status and trends and preliminary functional assessment analysis, CRM began a GIS-based tracking and monitoring system for coastal wetlands. Additional data, in shapefile format, has been added to the October 2002 data. CRM has also begun tracking permitted wetland mitigation sites, wetland restoration/creation sites, and potential wetland restoration/creation sites using shapefiles. These preliminary efforts have identified several gaps in the management of data for coastal wetlands. CRM feels that these gaps should be addressed in order to meet the programmatic objectives for this enhancement area and are including these efforts in the current Strategy.

Acquisition programs

The Coastal and Estuarine Land Conservation Program (or CELCP) is a federal funding program administered by the National Oceanic and Atmospheric Administration (NOAA). The program is intended to provide federal funds for the acquisition of critical coastal properties; these acquisitions may be as fee-simple purchases or by securing easements for conservation purposes. All CELCP funds must be matched on a 50/50 basis and all properties and easements must be held by a political sub-division. All coastal states and territories were asked to prepare a CELCP Plan if they wished to participate in the program. Pennsylvania prepared its plan and forwarded it to NOAA in October 2005 for review and comment.

Conclusion

Priority needs and major gaps

Pennsylvania's CRM program has identified three priority needs and major gaps in addressing the programmatic objectives of wetlands:

- 1) More accurate delineation of the location and extent of bluff seep and tidal wetlands.
- 2) Determine and document the prevalence of invasive species in order to establish baseline-monitoring conditions and better manage future threats and impacts. Integration of wetland invasive species data into the forthcoming statewide Aquatic Invasive Species Early Detection and Monitoring Program.
- 3) Development of a comprehensive data management system for coastal wetland data, including:
 - a. Migration of existing GIS shapefile-based coastal wetland data into a GIS geodatabase system.
 - b. Evaluation of existing statewide tracking systems for their applicability in tracking the required coastal wetland data.
 - c. Development of a comprehensive data dictionary for efficient data collection in the field that can meet a variety of needs (indicators, functional assessment, invasive species, HGM, T&E species).

Many government agencies and non-government organizations have recognized the benefits of performance based measurement standards and have or are developing environmental indicators and performance measures to track progress and identify needs. As a networked program, CRM interacts with many of these agencies and groups, and is often asked to provide data for this type of assessment. Probably most significant at this time are the National Coastal Management Performance Measurement System (NCMPMS) indicators. Habitat/wetland indicators are part of Phase II implementation, with the first report being due October 1, 2007. CRM has identified a need to examine all of the various wetland tracking, monitoring, and indicator programs and determine how to most efficiently manage the data necessary for NCMPMS implementation, while simultaneously meeting the data needs of the Commonwealth and other monitoring and indicator efforts. This will likely require changes to existing statewide systems as well as the design of a new geo-database system specific to coastal wetlands. Other monitoring and indicator efforts to potentially consider include the Great Lakes Wetlands Consortium, the Delaware Estuary Program, the Delaware River Basin Commission, DCNR Natural Areas, and the Aquatic Invasive Species Early Detection and Monitoring Program being developed by the Pennsylvania Invasive Species Council.

A major gap with the existing statewide tracking system involves the way Chapter 105 characterizes wetland-type areas within stream channels. The Department, through Chapter 105, has adopted the 1987 Corps of Engineers Wetland Delineation Manual as the method for delineation and identification of wetlands. However, the Commonwealth considers wetland-type areas within stream channels to be part of the watercourse and impacts are tracked accordingly. Thus, the Cowardian classification for Riverine wetlands was not included in the statewide tracking system. The majority of tidal wetlands in Pennsylvania's Delaware Estuary are classified as Riverine wetlands. In addition, the most recent NWI data available indicates 9,995.2 acres of wetland in the LECZ. Of this, approximately 54% are the shallow lacustrine waters of Lake Erie, an area not considered as wetlands by the Commonwealth under Chapter 105 regulations.

CRM's existing wetlands layers are based on the updated NWI provided by the USFWS NWI program in October 2002. Two significant wetland types – bluff seeps and tidal flats – are inadequately identified in these layers. The generally vertical orientation and small size of bluff seep wetlands makes identification by orthophotography difficult. The significance of bluff seep wetlands was discussed in previous 309 Assessments. The Lake Erie Bluffs and Shoreline Special Area Management Plan, generated as part of the 1997 Section 309 Strategy, includes as a habitat and wetland goal "Identification/classification of bluff seep and slump wetlands." The 2001 309

Assessment identifies bluff seep wetlands and impacts of urbanization as a topic identified in the SAMP that still needed to be addressed. The goal of identification and classification of bluff seep wetlands has not yet been accomplished. Leaf-off aerial photography, timed without consideration for tidal stage, fails to identify tidal flats with non-persistent vegetation. This became readily apparent when color infrared photography captured at the height of the growing season (primarily for agricultural purposes) became available statewide in 2004. Tidal freshwater wetlands are nationally significant for their uniqueness, productivity, and long history of significant losses and impacts. Given the likelihood of considerable redevelopment of the DECZ waterfronts in the near future, it is important to generate and distribute accurate tidal wetland data in a timely manner. The revised tidal wetland data will also be used to update oil spill contingency plans in the Delaware Estuary.

The 1997 and 2001 Section 309 Assessment and Strategy considered wetlands as medium priorities. For the current Assessment, CRM is increasing the priority to high and plans to address identified gaps and potential changes as part of our Strategy for the next five- year period.

2001 Assessment
 High _____
Medium X
 Low _____

2005 Assessment
High X
 Medium _____
 Low _____

Marine Debris

Legislative Objective

309 (a) (4) Reducing marine debris entering the Nation's coastal and ocean environment by managing uses and activities that contribute to the entry of such debris.

Section 309 Programmatic Objective

Develop or revise programs that reduce the amount of marine and/or lake debris in the coastal zone.

Marine/Lake Debris Characterization

Marine/Lake Debris Impacts on the Coastal Zone

Source	Impact (Significant/moderate/insignificant)	Type of Impact (Aesthetic, resource damage, etc.)
Stormwater, Combined Sewer Outfalls, Floatables	Moderate	Primarily aesthetic, some resource damage.
Recreational Fishing and Boating	Insignificant	Primarily aesthetic, some resource damage.
Commercial Fishing	Insignificant	Aesthetic
Commercial Shipping and Cruise Ships	Insignificant	Aesthetic
Land-based Litter and Illegal Dumping	Moderate	Primarily aesthetic, some resource damage.
Permitted Landfills	Insignificant	Aesthetic

Marine debris is any man-made object discarded, disposed of, or abandoned that enters coastal waters. It may enter directly from a ship, or indirectly when washed out to sea through rivers, streams and storm drains. Generally speaking, there are two sources of marine debris, land-based and ocean-based. EPA states that land-based debris accounts for 80% of the nation's marine debris. The percentage in Pennsylvania's coastal waters is probably much higher. Land based sources include storm water runoff, landfills, combined sewer overflows (CSOs), street litter (wind and water driven), damaged structures, illegal dumps, and recreational users who litter. Street litter, entering coastal waters through various pathways, is Pennsylvania's most significant source of marine debris.

The above table was not provided in the last assessment. Efforts in both coastal zones to reduce floatables from CSOs and outfalls have reduced the volume of debris entering Lake Erie and the Delaware Estuary, but quantifying the difference is difficult. Beach and stream cleanup data is available through cleanup efforts associated with the International Coastal Cleanup, the Great Pennsylvania Cleanup, and through several Pennsylvania Forest Beautification cleanups conducted

within both coastal zones. In addition, the Philadelphia Water Department has become more active in sponsoring organized stream cleanups during this assessment period. The beach cleanup data is used as an indicator of where waste reduction methods may need to be better employed and has also been used as an educational tool in both coastal zones. CRM recognizes that cleanups are not truly effective tools in pollution prevention if they do not go hand-in-hand with public outreach and education. Notable cleanup and outreach efforts have been implemented or improved during this report period and are discussed below.

Management Characterization

Statewide Efforts:

Increased recycling and waste management efforts continue to be a priority in the state of Pennsylvania. With more than 3,247 participating recycling and reuse businesses, employing more than 81,000 employees and generating over \$18.4 billion in gross annual sales, Pennsylvania's recycling industry leads the nation in terms of employment and sales numbers. The state's recycling programs have been hugely successful and more than 85 Pennsylvania businesses are using recyclables to make new products.

Pennsylvania's major change in recycling and waste reduction was initiated with the Municipal Waste Planning, Recycling and Waste Reduction Act of 1988 (Act 101). This Act required that municipalities with a population greater than 10,000 develop municipal waste management plans and provides grants to help offset expenses. Mandated municipalities must collect at least three of the following recyclable materials: clear glass, colored glass, plastics, aluminum, steel, bimetallic cans, high-grade office paper, corrugated paper and newspaper. Commercial, municipal, and institutional establishments within a mandated municipality are required to recycle aluminum, high-grade office paper, corrugated paper, and other materials as designated by the municipality. All of the municipalities within Pennsylvania's two coastal zones have mandatory curbside pickup of recyclable materials with the exception of Springfield Township in Erie County, which is still considered a rural municipality.

As the original waste reduction and recycling goals have been met, the Commonwealth has made amendments to its targets. After the original goal of recycling 25% of waste generated was met, the Commonwealth increased the goal to recycling 35% of waste generated. The 35% goal was met in 2002. The most recent amendments were made during this reporting period and codified by Act 175 of 2002, with the goal of making municipal recycling programs financially self-sufficient. Act 175 required DEP to develop a plan, currently available to the public as a working draft, that includes market development recommendations and suggestions for municipalities.

Grants to support Pennsylvania's ambitious recycling efforts are funded through the Recycling Fund, financed by a \$2/ton fee on all materials disposed of in Pennsylvania landfills through 2008. In addition, the Growing Greener II bond issue includes \$25 million per year to support the Recycling Fund. In November 2004, DEP awarded Penn State University a \$863,429 grant to develop the Pennsylvania Recycling Market Center at its Harrisburg campus. The mission of the Recycling Markets Center is to expand and develop more secure and robust markets for recovered secondary materials, stimulate demand for products with recycled content, and research and maintain up-to-date market trend data.

Water-based sources of marine debris are largely addressed by PFBC, who enforce the federal Clean Vessel Act and the Marine Plastics Pollution Research and Control Act. The PFBC also conducts on-going education and outreach programs to keep the public aware of the problems associated with litter from boats.

Combined Sewer Overflows and Storm Water:

CSOs in urban areas can have a significant impact as a source of marine debris. Both the City of Erie and the City of Philadelphia continue to take steps to decrease pollution impacts associated with outfalls. Some of these efforts are required by the NPDES permitting process.

Since the last Assessment, the City of Erie contracted with CTE Engineers to complete wastewater treatment plant modifications. The project included construction of a new parallel lake outfall, an overflow retention facility, and headworks improvements, all of which will help with secondary treatment capacity during storm events. These improvements allow more water to be treated by the filtration process and additional debris will be removed through conventional screens and racks.

The Philadelphia Water Department manages 1,600 miles of combined sewers, 1,200 miles of separate sanitary and storm sewer lines, 150 miles of intercepting sewers, 169 combined sewer regulating chambers, 85,600 manholes, and 75,000 stormwater inlets. They continue to address Solids and Floatables as part of the Nine Minimum Controls incorporated into the Long Term Control Plan for its CSOs. The ultimate goal is to reduce, if not eliminate, by relatively simple means, the discharge of floatables and coarse solids from CSOs. The determination of the best, or most appropriate technology is an on-going process during implementation. Technologies for controlling floatables could include baffles, booms, catch basin modifications, netting systems, swirl concentrators, screens, and trash racks. An in-line netting system continues to operate and provide data at an outfall on Tacony Creek. This data, combined with inlet cleaning program data, suggests that street surface litter dominates the volume of solids and floatables entering the sewer system. City pollution prevention efforts to target street city litter include litter ordinances, hazardous waste collection, illegal dumping policies and enforcement, bulk refuse disposal practices, and recycling programs.

In 2004 the Philadelphia Water Department initiated an additional effort designed to address debris and floatable materials coming from CSOs and stormwater outfalls following rain events. During this first year, the Waterways Restoration Program removed 100 tons of debris from Philadelphia streams. In another effort to address floatable debris, the Philadelphia Water Department purchased a skimming vessel during this assessment period. The purchase was partially supported by a CRM grant. In addition to achieving an actual reduction in floatable debris in targeted areas of the Schuylkill and Delaware Rivers, the vessel also provides a visible reminder for public outreach and education efforts.

Beach and Watershed Cleanups:

The International Coastal Cleanup, or ICC, began in Texas in 1986. Sponsored by the Ocean Conservancy, by the year 2001 the event had spread to most coastal states and 120 other countries. ICC cleanups occurred prior to this assessment period, but the growth of the event during this period should be noted. On the Lake Erie coast, Presque Isle State Park was the only participant for many years. In 2003 an ICC Steering Committee was formed, chaired by the CRM regional coastal zone planner, and a small coastal zone grant was awarded to support the associated outreach efforts. In 2003 close to 650 volunteers removed 42,000 pounds of trash from watershed streams and the Lake Erie shoreline. The 2003 effort was a finalist for a Western Pennsylvania Environmental Award and received a citation from Erie County for Community Leadership. The 2004 effort was hampered by the remnants of Hurricane Ivan but still involved 401 volunteers. The 2005 effort grew to include the

Pennsylvania Department of Transportation's Adopt-a-Highway program and had over 500 volunteers participate.

Outreach and education efforts are an important component of the Lake Erie ICC. The event is covered extensively by the Erie Times-News, and includes special "Newspaper-in-Education" pull-out pages that provides students with facts and figures after the cleanup so they can examine the problems and help search for local solutions. The Lake Erie-Allegheny Earth Force program works directly with students, using data collected to try to find solutions and document improvements in their local watersheds.

Inspired by the success of the ICC in Lake Erie, in 2005 the CRM program joined existing volunteers in an effort to help expand the effort in the Delaware Estuary. The event drew 64 volunteers who removed large debris and filled 152 trash bags while cleaning a mile and a half of shoreline. The results of the cleanup were presented at a booth at Southeast Pennsylvania's Coast Days, held the following week at the Fairmount Water Works Environmental Center in Philadelphia. The new relationships formed during 2005 should lead to a larger effort in 2006.

The networks formed through these cleanups offer year-round advantages in addressing other debris issues. In 2004, when large amounts of extruded rubber mats from a former industrial process began eroding from the bluff and drifting with the currents, the Lake Erie ICC steering committee was quick to organize sponsors and volunteers to address the problem, without a protracted investigation into who was responsible and who would pay. A similar scenario was repeated in 2005 when tires, placed on the bluff face decades ago as a form of erosion control, began eroding onto the beach. Again, the ICC steering committee was quick to organize sponsors and volunteers to address the problem in a timely manner at the local level.

The Great Pennsylvania Cleanup:

The Great Pennsylvania Cleanup is a statewide volunteer cleanup effort that was initiated in 2004. It is part of the Great American Cleanup and coincides with Earthday, and draws approximately 10,000 volunteers statewide. Although not specific to beaches or stream banks, numerous coastal watershed groups participate in the cleanup. The Pennsylvania Waste Industries Association is a major partner who offered free disposal of waste collected during the cleanup in 2005. Cleanup data is collected and reported on the Keep America Beautiful website, providing a benchmark for future cleanups.

Forest Lands Beautification Program:

The Forest Lands Beautification Program is a partnership between the DCNR and the non-profit group, PA CleanWays. The goal is to rid Pennsylvania State Forests and Parks of illegally dumped trash and deter future dumping by forming local partnerships, educating residents about proper disposal and recycling efforts, constructing vehicle barriers, and prosecuting offenders. This program completed nine cleanups in the Delaware Estuary Coastal Zone during this assessment period, removing 2,625 tires and 165 tons of miscellaneous debris. Sites within the estuary included Little Tinicum Island (a state forest), Neshaminy State Park, and Delaware Canal State Park. The program is funded by DCNR, but CRM provided technical assistance and participated in many of the cleanups. Publicity and outreach are included, data is collected, local sponsors are sought, and recommendations for deterrence are made. Recent legislation has extended the funding for this program through December 2008. One of the goals of the efforts at Little Tinicum Island was to track what items re-accumulated on the beaches and how long it took for this to happen. The Athos oil spill of December 2004 heavily impacted the island and interfered with the data collection and planning for a 2005 cleanup event.

EPA Operation Clean Below:

On April 18, 2004, the Philadelphia Water Department and several local schools participated in the EPA's "Operation Clean Below." Approximately 400 volunteers, including divers, assisted in the removal of debris from the Schuylkill River's banks and riverbed.

Recreational Boating:

Recreational boating accounts for a small portion of the marine debris entering our coastal waterways and various efforts continue to address this source.

In 2004, with the assistance of a Coastal Zone Management grant, the Smart Boating, Clean Waters Campaign was begun by the Philadelphia Water Department. Partners include PA Sea Grant, Delaware County Conservation District, Schuylkill County Conservation District, the Philadelphia Water Department, and the PA Fish & Boat Commission. PA Sea Grant has taken the lead to extend their program to the LECZ, then possibly statewide in future years. The campaign aims to educate and offer guidance and assistance to the recreational boating community regarding environmentally friendly boating practices. The Smart Boating, Clean Waters Campaign also provides yacht club, marina, and boat ramp operators with guidance and technical assistance regarding facility operation and maintenance procedures to reduce on-site pollution.

The Smart Boating program is developing a major promotional program intended to encourage practices that prevent pollution and debris from entering the DECZ. Additionally, the program intends to promote the use of bilge socks to help prevent the release of petroleum products into coastal waters. Currently, the program does not intend to pursue full Clean Marinas program status, but will continue to analyze the results of the planned promotional campaigns and program activities to determine if other efforts may be needed.

Finally, proper sewage disposal through the availability of pump out facilities is also a concern at coastal marinas. Proper disposal is particularly important in Presque Isle Bay, because the bay contains only one channel for water exchange with the open lake. Pump out facilities are available at 9 marinas in the Lake Erie Coastal Zone. Two of these are at public facilities. Pump out facilities are available at 8 marinas in the Delaware Estuary Coastal Zone. Only one of these is located at a public facility.

Conclusion

No major gaps were identified in how CRM is able to address the reduction of marine and lake debris entering our coastal waters. Previous assessments each rated this as a low priority and this strategy and assessment will also rate marine debris as a low priority. CRM has the ability to work within existing regulations and programs designed to address the reduction of marine debris. CRM will focus on additional network building and coordination with the numerous volunteer cleanup activities in the coastal zones, with particular emphasis in the Delaware Estuary. The cooperative efforts within the LECZ during this last report period are a noteworthy success.

2001 Assessment

High	_____
Medium	_____
Low	<u> X </u>

2005 Assessment

High	_____
Medium	_____
Low	<u> X </u>

Energy & Government Facility Siting

Legislative Objective

309 (a) (8) Adoption of procedures and enforceable policies to help facilitate the siting of energy facilities and government facilities and energy-related activities and Government activities which may be greater than local significance.

Section 309 Programmatic Objectives

- I. Enhance existing procedures and long range planning processes for considering the needs of energy-related and government facilities and activities of greater than local significance.
- II. Improve program policies and standards that affect the subject uses and activities so as to facilitate siting while maintaining current levels of coastal resource protection.

Management Characterization

For the purpose of this assessment, energy facilities and activities of greater than local significance are defined as the production, generation, transmission, distribution, or supply of natural or artificial gas, electricity, or steam for the production of light, heat, or power, to or for the public for compensation. Also included is the transportation or conveyance of natural or artificial gas, crude oil, gasoline, petroleum products, materials for refrigeration, oxygen, nitrogen, or other fluid substance by pipeline or conduit to the public for compensation.

Examples of government facility siting and activities of greater than local significance include the Philadelphia and Erie International Airports, the Philadelphia Naval Business Center, Army Corps of Engineers Dredge Disposal facilities, and the U.S. Coast Guard Stations. Government activities of greater than local significance are defined as any actions taken by these facilities that are necessary to fulfill their specifically assigned responsibilities or tasks.

Recent projects involve the construction of a gas to electric generating station, natural gas and oil pipelines under the Delaware River, the dredging of U.S. navigation channels, construction of a rail line to transport federal dredge material for beneficial reuse, the lengthening of three runways, planning of major airport expansion, and the construction of port facilities needed to facilitate the rapid transport of U.S. military equipment. All have been or are being adequately addressed by existing state regulations and procedures.

Within the DECZ, the Coastal Resources Management Program has created and utilizes a process known as the Urban Waterfront Action Group (UWAG) to facilitate proper siting of proposed projects, including energy and government facilities. The purpose of UWAG is to provide a forum whereby applicants and a variety of federal, state, and local regulatory agencies get together to identify potential permitting issues in advance of detailed project engineering and permit application submittals. This procedure has been very effective when managing complex siting issues within the estuary and formation of a similar forum for the LECZ is being considered.

In a broader perspective Pennsylvania has made energy issues a statewide priority during this assessment period. On April 8, 2004, Governor Rendell signed an executive order to revitalize the Pennsylvania Energy Development Authority. The Authority's mission is to finance clean, advanced energy projects in Pennsylvania. Pennsylvania projects that could potentially qualify for funding from the Authority include solar energy, wind, low-impact hydropower, geothermal, biomass, landfill gas, fuel cells, Integrated Gasification Combined Cycle (IGCC), waste coal, coal-mine methane and demand management measures. In November 2004, the General Assembly passed the Alternative Energy Portfolio Standards Act, which specifies that by 2020 nearly 18 percent of electric energy sold by a distribution company or electric generation supplier to a retail customer in Pennsylvania must be generated from alternative energy sources. The search for cleaner renewable energy sources is being supported by grants programs such as the Energy Harvest Program, which helped to fund a wind turbine generator at Presque Isle State Park in the LECZ. As the Commonwealth continues to support the development of new energy technologies and facilities, the CRM program may be faced with new energy siting considerations with new potential conflicts to consider. Among the most significant new energy siting issues to potentially consider are offshore wind turbines in Lake Erie and LNG import-shipping facilities in the Delaware Estuary.

Lake Erie Wind Power:

The feasibility of wind turbines on the open waters of Lake Erie is a concept that continues to receive additional attention and support. Advancements in technology and the need and support for cleaner domestic sources of energy continue to make the concept more financially viable. Wind gauges have been installed above Lake Erie and the potential for Lake Erie wind turbines will continue to be explored and evaluated during the next five years. Potential wildlife impacts, especially to migrating birds and bats, remain an issue of potential conflict and research continues.

LNG Import-shipping facilities:

In November of 2004 Mayor Street and the Philadelphia Gas Works (PGW) announced the release of an RFP inviting energy companies to submit proposals to expand PGW's Port Richmond LNG plant along the Delaware River into a liquefied natural gas (LNG) import-shipping terminal. The proposed facility would be referred to as the Philadelphia Freedom Energy Center and would take advantage of the existing Tioga Marine Terminal. The proposed Crown Landing LNG terminal is in New Jersey, across the Delaware River from Trainer, PA. The only direct impact to Pennsylvania is the shipping transport through Pennsylvania waters and the new construction of appurtenant gas lines under the bed of the Delaware River into Pennsylvania. Potential public safety concerns include the possibility of explosion of either transport vessels or facilities near highly populated areas. CRM continues to evaluate the implications of the FERC "exclusive authority" provisions contained in the federal Energy Policy Act of 2005. It appears that Section 311 of the Act preempts State regulation and licensing for the siting of LNG terminals under FERC jurisdiction.

Philadelphia Airport Runway 17-35 Expansion and Capacity Enhancement:

Philadelphia International Airport (PHL) is owned by the City of Philadelphia. The Philadelphia Airport System has undergone more than \$1 billion in capital improvements since January 2000, including the Runway 17-35 Extension Project, which was approved by the FAA to address persistent airport delays and future operational demands. PHI is now in the planning and review stages for a more major expansion, referred to as the Capacity Enhancement Program. Transportation Secretary Mineta chose this project for "expedited environmental review" under Executive Order 13274, Environmental Stewardship and Transportation Infrastructure Project Review, and it will be monitored by the Transportation Infrastructure Streamlining Task Force to assist agencies in the review process under NEPA and related laws. The City of Philadelphia, the Federal Aviation Administration (FAA),

and the review agencies will be working together to integrate individual responsibilities, to collaborate on environmental stewardship, and to fulfill responsibilities concurrently, rather than sequentially.

Conclusion

Acting through the legislature, regulatory reform, grant programs, and the state’s permitting processes, the Commonwealth continues to improve its ability to provide for the siting of energy-related and government facilities and activities of greater than local significance. CRM also continues to evaluate and seek clarification of the impacts of the Energy Policy Act of 2005 as it pertains to LNG facility siting and existing enforceable policies.

While existing procedures were sufficient to address siting issues that arose during this assessment period, CRM recognizes that challenging and potentially controversial energy siting projects may be presented in the near future. At this time, CRM has not identified any specific management gaps requiring changes in order to meet programmatic objectives. However, due to rising energy prices, the program anticipates a need to be able to adapt to potential conflicts that may arise as new sources of energy are pursued. Due to the priority placed on the development of clean domestic energy sources, and the relatively new siting challenges that may face CRM in the near future (LNG import terminals and Lake Erie windmills), this enhancement area is being elevated to a high priority, from its status as a medium priority in the prior assessment.

2001 Assessment

High _____
Medium X
Low _____

2005 Assessment

High X
Medium _____
Low _____

Aquaculture

Legislative Objective

309 (a) (9) Adoption of procedures and policies to evaluate and facilitate the siting of public and private aquaculture facilities in the coastal zone, which will enable States to formulate, administer, and implement strategic plans for marine/coastal aquaculture.

Section 309 Programmatic Objective

- I. Enhance existing procedures and long range planning processes for considering the siting of public and private marine aquaculture facilities in the coastal zone.
- II. Improve program policies and standards which affect aquaculture activities and uses so as to facilitate siting while ensuring the protection of coastal resources and waters.

Resource Characterization

According to the Aquaculture Census of the Pennsylvania Agricultural Statistics 2004-2005, Pennsylvania aquaculture producers reported sales of \$10.9 million in the 2004 calendar year. Sales of food fish comprised 68% of total sales for the period, with the remainder including sport and game fish, baitfish, crustaceans, mollusks, ornamental fish, and other species and products such as tadpoles, frogs, and trout eggs.

At present, Aquaculture in Pennsylvania's coastal waters is limited to those operations that support the recreational fishing industry. Most significant are those aquaculture operations supporting the Lake Erie steelhead fishery, reported earlier in the Public Access assessment. PFBC annually stocks over one million steelhead smolts into Lake Erie to support this important fishery, more than half of the total steelhead trout stockings in Lake Erie by all other state or provincial agencies combined.

The fisheries of the Lake Erie coastal zone tributaries are supported through a combination of state and private non-profit hatcheries water quality concerns associated with finfish aquaculture extend to the entire coastal watershed. During this reporting period additional attention has been paid to a PCB problem first discovered in 1998 when the PFBC and DEP detected PCBs in edible tissues of salmonides from PFBC hatcheries. Additional studies have been done at the Benner Springs Fish Research Station to better quantify the source of the PCBs. These studies concluded that, although low levels of PCBs may be present in hatchery source water, the primary source of PCBs were feeds dressed with marine derived fish oils, common throughout the industry. The study also concluded that the FDA standard of 0.2 ppm PCBs in fish feeds is adequate to ensure that trout raised to a "catchable" size will have fillet concentrations below 0.1 ppm (the level at which Pennsylvania advises the public to limit fish consumption to one meal per week or less). This is the same blanket advisory level applicable to all recreational caught sport fish in the Commonwealth, when stricter advisories are not present.

In 2003 the Pennsylvania Fish and Boat Commission formally terminated their Coho salmon hatchery/stocking program. This was done for a number of reasons, including hatchery costs, impact on forage fish including the rainbow smelt, and natural environmental stresses that lead to poor returns and low viability.

Due to facility age and emphasis on water quality concerns, the Pennsylvania Fish and Boat Commission is seeking to repair and improve many hatcheries across the state, including the Fairview Fish Culture Station, located in the LECZ. This culture station is instrumental in supplying steelhead trout smolts to support the lake's recreational fishery. The CRM supported a hydrogeologic investigation to develop a better groundwater source for the station, and also supported a project related to recreational fishing called the Mission Fish Raceway. This project involved a group of volunteers (SONS of Lake Erie, 3CU, and other Steelhead fishing clubs) building a steelhead raceway in the Godfrey Run watershed in Girard Township.

Also during this reporting period the CRM supported a project located at the Tom Ridge Center at Presque Isle State Park that will demonstrate sustainable techniques and applications in aquaculture. The aquaculture facilities will be used for both education and research and will focus on low-energy, 100% recirculating systems with hydroponic components. The systems are expected to be used to grow sport fish such as yellow perch, walleye or steelhead to help supplement the Lake Erie recreational fishery.

In the DECZ, CRM supported the production of a master plan for the redevelopment of Pleasant Hill Park. Pleasant Hill Park is often referred to locally as Fish Hatchery Park. Pleasant Hill Park was first inaugurated as a fish hatchery in 1904 and primarily served as a shad hatchery. It was operated by state government until the 1950s, when ownership was transferred to the city. Future plans include small-scale hatchery/aquaculture operations that will support education and may supplement an existing children's fishing program that utilizes the hatchery building and fish ponds.

Currently, no significant commercial facilities exist in the DECZ. However, as re-circulating technology advances, indoor, closed-system aquaculture may become a more economically viable alternative, capable of supplying urban centers with fresh seafood.

Management Characterization

Until 1998, the aquaculture industry in Pennsylvania was licensed and regulated primarily by the Pennsylvania Fish and Boat Commission as an activity related to fish and fishing in Pennsylvania waters. Act 1998-94, recognized aquaculture as a normal farming activity and transferred registration of those engaged in aquaculture activities to the Pennsylvania Department of Agriculture. The Aquaculture Development Act includes the statement that "It is the policy of the Commonwealth that aquaculture is an agricultural activity which adds to the diversity of our food and fiber production system and should be conserved, protected and encouraged to develop and grow within this Commonwealth." As required by that Act, the Department of Agriculture developed the Aquaculture Production Development Program. The objective of that program, as specified in Chapter 106.1, is as follows:

The APDP is designed to stimulate the expansion and assist in the retention of fish farms for the purpose of creating new businesses and jobs and retaining existing business within this Commonwealth. The APDP provides low-interest loan financing for a portion of the costs of land, building, machinery and equipment, working capital and training to businesses to enable them to fully finance these projects by leveraging equity, bank financing, or other private and public sources. The APDP may be used in conjunction with other State financing programs or with programs operated by local and regional economic development providers.

The Aquaculture Production Development Program is located in the Bureau of Market Development, and is designed to help current and prospective aquaculture farmers to easily access information to help them achieve success. The program provides:

- Links to information regarding regulations impacting aquaculture, species production research sales and marketing.
- Guidance on business development.
- Strategies.
- Access to local sources for food fish, ornamental fish, sports fish and bait fish.
- Marketing initiatives designed to help Pennsylvania fish farmers penetrate new markets and expand current sales.
- Educational opportunities for aquaculturalists.

The Department of Agriculture continues to have the primary responsibility for regulating the aquaculture industry and ensuring compliance with registration requirements, as well as promoting and supporting aquaculture enterprises. The DOA is supported by a 21-member Aquaculture Advisory Committee, which includes the Secretary of DEP. This committee last met in October 2005 and is currently focusing on developing a five-year strategic plan to develop and expand the aquaculture industry in Pennsylvania. The Pennsylvania Fish and Boat Commission still has the authority and responsibility to enforce regulations on stocking, importation, sale, purchase, introduction, and transportation of fish – these items were unchanged by Act 1998-94. The Fish and Boat Commission also continues to determine which species of fish may be propagated in each watershed. The Department of Agriculture has responsibility for determining what species of fish may be sold by dealers of live aquatic organisms and will consult the Fish and Boat Commission on this determination.

During this reporting period, the Pennsylvania Fish and Boat Commission and Department of Agriculture have continued to refine their rules, regulations, and policies concerning the aquaculture industry. The changes made during this reporting period are considered minor and are a fine-tuning of the more major changes mandated by the Aquaculture Development Act. Regulatory changes during this reporting period include:

Title 7 Chapter 105 – Department of Agriculture. Promulgated the implementing regulations for the Aquaculture Development Plan.

Title 58 Chapters 71 and 73 – Pennsylvania Fish and Boat Commission. Amended to reflect that the Pennsylvania Fish and Boat Commission no longer issues artificial propagation licenses, live fish, fishbait and baitfish dealer licenses and resident and nonresident fish transportation licenses.

Title 58 Chapter 71, §§71.2 and 71.3 – Pennsylvania Fish and Boat Commission. Amended to comply with the Aquaculture Development Act's requirement that the Fish and Boat Commission will determine and provide to the Department of Agriculture a list of which species of fish can be propagated in each watershed. Section 71.3 is specific to closed systems, and includes standards by which a system will be considered "closed."

Title 58 Chapter 71, §71.6 – Pennsylvania Fish and Boat Commission. Made it illegal to introduce or import live snakehead species into waters of the Commonwealth.

Title 58 Chapter 73, §73.1 – Pennsylvania Fish and Boat Commission.
Made it illegal to transport live snakehead species in or through the Commonwealth.

“Individual Permit Application for Aquaculture Production Operations” – Pennsylvania Department of Environmental Protection.

As required by the Aquaculture Development Act, this permit was developed to provide one application for all potential permits required by DEP for a new or existing aquaculture facility. The application consists of a General Information Form and Modules A thru E.

Module A: Stormwater NPDES permit for construction activities.

Module B: Water Quality Management Part II permit for constructing new or modified wastewater discharge treatment facilities.

Module C: Water Obstruction and Encroachment permit for impacts to wetlands or streams including fills, intakes, outfalls, culverts, road crossings, etc.

Module D: Environmental Assessment form, which may be required for water Obstruction and Encroachment or Dam permits.

Module E: Dam permit application for a dam where the depth is greater than 15 feet or the drainage area is greater than 100 acres.

Pennsylvania Sea Grant has remained active in managing issues relevant to aquaculture, especially invasive species prevention. During this assessment period PA Sea Grant provided outreach and training at the Penn Aqua 2002 and 2004 conferences and provided an HACAAP training program at the US Fish and Wildlife Service hatchery in Lamar, PA. Their *Year 9 and 10 Proposal*, submitted to NOAA in December of 2005, outlines their prospective fisheries and aquaculture activities.

Conclusion

No gaps have been identified with regard to Coastal Zone Management initiatives within the aquaculture enhancement area. Changes to the program with regard to aquaculture will not be considered in the current Section 309 strategy.

CRM will work with networked partners DOA and PFBC if issues arise concerning aquaculture, and will provide input through the Coastal Zone Management State Advisory Committee and the Aquaculture Advisory Committee.

The hatchery support of the Lake Erie recreational fishery is an important component of managing the resource. Due to the increased awareness of potential pollution issues associated with hatcheries, as well as the increased desire to upgrade Pennsylvania Fish and Boat Commission hatcheries, aquaculture will be considered as a medium priority. CRM will continue to support aquaculture research when appropriate and review any future coastal activities for program consistency.

2001 Assessment

High _____

Medium X

Low _____

2005 Assessment

High _____

Medium X

Low _____

309 Strategy

Program Changes

CRM's new Strategy builds on past program enhancement efforts and responds to issues and needs that became apparent during past Assessments, particularly related to SAMPS, Wetlands and Ocean and Great Lakes Resources. Potential administrative and program changes, further described below, are expected to occur as a consequence of CRM activities in these enhancement areas, although these changes may evolve over the course of this 309 timeframe. This 309 process will enable CRM to focus its limited resources and efforts, assist in identifying the responsibilities of other partners who will help provide various planning and protection services, and help to define how CRM can act as the facilitator in fulfilling its mission to enhance the planning and protection processes within the coastal resource areas. Additionally, this approach will attempt to consolidate CRM and non-CRM resources, providing a broader spectrum of protection opportunities and building relationships to create a collaborative planning process.

The program has rated *Energy & Government Facility Siting* as a high priority in the Assessment portion of this document. The program anticipates that there may be conflicts that arise as new sources of energy are pursued due to rising energy costs. In order to stay ahead of potential issues that would require a quick and efficient response, the program will closely monitor energy facility siting issues and pursue specific program changes as situations warrant. The program at this point in time would prefer to focus its limited resources on the identified specific program changes for the other enhancement areas identified as high priorities. The proposed utilization of those resources, along with the proposed program changes, are identified in the remaining part of this document.

By developing any necessary formal changes to the program document, *Commonwealth of Pennsylvania Coastal Zone Management and Final Environmental Impact Statement*, (FEIS), CRM will bring greater visibility and broader coverage within the Commonwealth's coastal areas for their multidisciplinary planning approach.

Overall Likelihood of Success

CRM anticipates that by establishing these changes, its partners and constituents will look very favorably upon developing supporting policies in the areas listed. CRM regards this approach as an opportunity to build on very successful elements of the current program. It has become apparent to CRM that successful management of natural resources requires the cooperative effort of various sectors representing government, non-profit groups, business and industry, and private citizens. To that end, expanding CRM's current program policies and activities serves to build on past successes. Pennsylvania's emphasis on sustainable environments and economies, defined on a watershed basis, will provide a supportive background for the success of CRM's new Strategy.

I. Ocean and Great Lakes Resources

Program Change(s)

Draft an Invasive Species Management Plan that will contain both aquatic and terrestrial components and include new procedures and administrative decisions that Pennsylvania's networked CRM agencies and commissions will employ in protecting coastal resources. CRM's Policy XI (Ocean Resources) will be amended as needed. CRM will be the lead state program working to help draft portions of an Aquatic Invasive Species Management plan that addresses coastal issues, including priority species such as Zebra mussels (*Dreissena polymorpha*), Quagga mussels (*Dreissena bugensis*) and water chestnut (*Trapa natans*), that threaten the biology and economy of the coastal zones. A special Aquatic Working Group is composing the aquatic component, utilizing a variety of approved plans as templates, including the Great Lakes model, Hawaii, and Virginia plans. The Council will utilize the *Guidance for State and Interstate Aquatic Nuisance Species Management Plans* and the *Model Comprehensive State Management Plan for the Prevention and Control of Nonindigenous Aquatic Nuisance Species*. The management goals include preventing new introductions of nonindigenous aquatic species, limiting the spread of established populations, and abating harmful ecological, economic, social and public health impacts resulting from infestations. The plan will detail an implementation schedule as well as monitoring and evaluation. The success of a comprehensive Invasive Species Management Plan depends upon collaboration between local officials at all levels of government and the private sector with full public participation. Pennsylvania's Invasive Species Council will develop a plan through an open and transparent public participation process. Since the Council is an advisory body, it will recommend that the Governor adopt the plan and management process. Because current species control and management efforts are scattered among multiple state agencies and partners, who are part of CRM's networked program also created by Executive Order, a joint Invasive species Management Plan is the most appropriate and efficient way to identify invasive species threats to coastal resources and the parties responsible for funding and leading specific implementation activities and securing meaningful federal support and participation.

This change will enable CRM to effectively address complex coastal resource issues. Currently, efforts to address invasive species in the coastal areas are often not coordinated or funded adequately, lessening their potential impact. This change would significantly increase the program's ability to create an efficient command and control structure for invasive species management efforts and monitor and respond to effectively employ resources in this area.

CRM Policy XI (Ocean Resources) will be amended to adopt the plan, if program review determines that this change is needed.

Work Plan/Schedule – Ocean and Great Lakes Resources

2006:

- A. Research other coastal state policies and definitions.
- B. Develop a draft definition for Invasive Species.
- C. Create work teams to address specific issues.
- D. Begin research on issues as agreed upon by the Invasive Species Council.

2007:

- A. Conduct technical research on IS issues.
- B. Use Criteria to Identify Target Species for Management and Control.
- C. Identify CRM role in prevention and rapid response.

2008:

- A. Finalize Management Plan and submit to Governor for review.

2009:

- A. Management Plan Implementation.
- B. Draft and submit RPCs, as needed.

2010:

- A. Continue to implement the plan.

Likelihood of Success – Ocean and Great Lakes Resources

The CRM program has been instrumental in moving invasive species planning forward within the Commonwealth of Pennsylvania. CRM plans to continue the momentum created by the Governor’s executive order by working closely with the Invasives Species Council to minimize and mitigate threats to Ocean and Great Lakes Resources. CRM is recognized as a leader in aquatic invasive issues, and will build upon relationships with networked agencies and commissions to ensure the ultimate development of a comprehensive and effective plan. There are no obvious impediments to the successful development of an Invasive Species Management Plan.

II. Coastal Wetlands

Program Change(s)

Develop changes to the regulations found in PA Code Title 25, Chapter 105 – Dam Safety and Waterway Management. These are the implementing rules and regulations of the Dam Safety and Encroachments Act. Changes will focus on defining tidal wetlands and defining the Delaware Estuary as a waterbody instead of a watercourse. The proposed definition of the Delaware Estuary will be consistent with the Drainage Lists found in PA Code Title 25, Chapter 93, which cites the Commonwealth’s Water Quality Standards and Designated/Protected Uses. These proposed changes will lead to regulatory recognition of tidal wetlands as a unique entity as opposed to a portion of the watercourse and will facilitate increased awareness and tracking of tidal freshwater wetlands and impacts in the main stems of the Schuylkill and Delaware Rivers as well as the tidal areas of tributaries.

Develop new Department guidance for the entering of permit related impact information into the Department’s Environmental Facility Application Compliance Tracking System (eFACTS). EFACTS is a statewide tracking system used to track and report all environmental related permitting and compliance information, including permitted wetland and watercourse impacts. The new guidance will benefit Pennsylvania’s coastal areas by allowing for the tracking, monitoring, and reporting of impacts specific to tidal wetlands and shallow water habitats in the Delaware Estuary and lacustrine emergent wetlands in Lake Erie.

Develop written guidance, for the collection and management of Coastal Wetland Inventory data, that will serve multiple purposes and avoid duplication of effort. The data collection guidance will take into account the National Coastal Management Performance Measurement System (NCMPMS) indicators, the Department’s pilot Rapid Assessment Protocol (currently being tested in the Lower Susquehanna Watershed), regional Delaware Estuary indicators, regional Great Lakes indicators, and invasive species monitoring efforts.

In conjunction with implementing the above program changes, CRM will conduct an analysis to determine what written changes to the approved program document wetland policies (policies 4.1 and 4.2) will most effectively address the management needs identified in the assessment. CRM policies 4.1 and 4.2 will be amended, as needed. The definition of “Coastal Wetland” will be added.

Work Plan/Schedule – Coastal Wetlands

2006:

- A. Inventory sources of existing wetlands data. Determine applicability for coastal zone management needs and priorities. Look for opportunities to coordinate with other efforts to combine resources and avoid duplication.
- B. Analyze existing statewide wetland tracking systems. Identify potential solutions to management gaps.
- C. Become proficient in the Rapid Assessment Protocols for wetlands being developed by the Mid-Atlantic Wetland Workgroup, Penn State, and DEP’s Division of Waterways, Wetlands, and Stormwater Management. Consider any unique circumstances relative to Pennsylvania’s coastal wetlands. Begin attending Mid-Atlantic Wetland Workgroup meetings.
- D. Conduct field research to address missing and inaccurate data.
- E. Attend Wetlands Protection Advisory Committee (WetPAC) meetings, monitor potential Chapter 105 regulation changes and schedules. Propose and support program initiated changes when appropriate.
- F. Work with partners to identify funding sources for wetlands projects.

2007:

- A. Conduct continued field research to fill missing data gaps.
- B. Research database needs and develop a plan to address CRM information storage issues. Develop geodatabase.
- C. Provide NCPMS indicators, based on most accurate information available from our field research and developing geodatabase.
- D. Continue to attend Wetlands Protection Advisory Committee (WetPAC) meetings, monitor potential Chapter 105 regulation changes and schedules. Propose and support program initiated changes when appropriate.
- E. Continue involvement with Mid-Atlantic Wetland Workgroup.

2008:

- A. Analyze wetlands data, conduct additional field work as needed.
- B. Finalize the development of the Coastal Wetland Inventory geodatabase and produce comprehensive and accurate metadata.
- C. Share corrected data sets with partners; encourage its use in regional indicator development and wetland assessment programs.
- D. Pilot the wetland Rapid Assessment Protocols being developed by Penn State and DEP on Pennsylvania’s coastal wetlands. Suggest/implement changes appropriate for use within coastal wetlands. Coordinate with Mid-Atlantic and Great Lakes regional efforts.
- E. Continue to attend Wetlands Protection Advisory Committee (WetPAC) meetings, monitor potential Chapter 105 regulation changes and schedules. Propose and support program initiated regulatory changes when appropriate.
- F. Continue involvement with Mid-Atlantic Wetland Workgroup.

2009:

- A. Document final data collection and data management procedures in a written technical guidance document.
- B. Continue to implement Rapid Assessment Protocols on coastal wetlands, integrate efforts and results in regional efforts.
- C. It is anticipated that Chapter 105 regulation changes will be completed by this time. However, if needed, continue to attend Wetlands Protection Advisory Committee (WetPAC) meetings and support program initiated regulatory changes when appropriate.
- D. Identify RPCs including potential changes to policies 4.1 and 4.2 of the approved CRM program document. Focus on assessment and potential designations of impairment.
- E. Continue involvement with Mid-Atlantic Wetland Workgroup.

2010:

- A. Implement any necessary RPCs.
- B. Provide data and recommendations for Section 309 Assessment and Strategy.

Likelihood of Success – Coastal Wetlands

Pennsylvania’s Chapter 105 regulations have been largely successful in managing wetland resources, and have provided some degree of reassurance as federal wetland regulatory programs change and remain uncertain as they continue to receive court scrutiny and review. However, shortcomings in Chapter 105 regulations have been identified and potential improvements have been drafted or suggested. CRM anticipates formal changes to Chapter 105 regulations during this strategy period, and will continue to work to insure that coastal wetland resources receive adequate attention and protection. Ultimately, the decision to open Chapter 105 to the regulatory review process is not within CRM’s authority, and the changes we support and propose to make may not be included within final revisions to the regulations. However, by maintaining a consistent and determined presence during regulatory development and review, CRM feels confident we can accomplish the program changes suggested in this strategy.

Consistent wetland monitoring and assessment methodologies across jurisdictional boundaries have become increasingly important to our neighboring states, regional programs, and federal partners. There is universal recognition that ecosystem approaches will require consistent data that is transferable across agency regions as well as state and international borders. Efforts to accomplish these goals will get wide support. It is also recognized that if important management decisions will be based on wetland data, that baseline data must be as accurate as possible. CRM feels this strategy addresses the management gaps identified in the assessment and the strategy will be strongly supported by our partners in coastal wetlands protection, thus leading to a high likelihood of success.

III. Special Area Management Plans

Program Change(s)

Amend CRM guidance on the Special Area Management Plan process to incorporate Critical Water Planning Areas and Critical Area Resource Plans (CARPs), in order to enhance the program’s ability to protect coastal resources. Develop guidance for the CARPs and develop a CARP in one of PA’s coastal watersheds.

Amending CRM's Guidance Document to include Critical Water Planning Areas (CWPAs) and Critical Area Resource Plans (CARPs) will enable the program to employ planning tools recently authorized by Act 220 in coastal watersheds. Economic growth and development in the coastal areas of Pennsylvania continues to increase pressure on water resources and is creating the potential for conflict among water users.

The Water Resources Planning Act (Act 220 of 2002) requires identification of areas where demands on the water resources exceed or threaten to exceed availability. The Act also requires the development of a CARP in all CWPAs. CARPs are intended to be problem-solving plans. The key problem or problems within a CWPA will have been identified in the CWPA designation process. CARPs will include a detailed investigation of water availability and current and future demands for water in the designated CWPA, with a focus on the key problem(s) identified in the CWPA designation process and emphasis on prioritizing resources toward completion of the CARP elements that address the key problem(s). Existing and potential conflicts among users will be identified, along with possible alternatives to resolve such conflicts. Supply-side and demand-side alternatives to assure an adequate supply of water in the future will be identified. The Regional Committee will establish a Critical Area Advisory Committee to guide the Department's development of each CARP. The CARP that results from the study is not a regulatory document and will not be binding. It will, however, suggest measures and actions that could be implemented voluntarily to address the potential water shortage in the area.

The plans are watershed-based, and will provide an opportunity for effective coordination and cooperation between municipalities and local authorities. Act 220 has created a planning process that involves all levels of government and a representative mix of stakeholders. Amending the SAMP process will allow CRM to support development and implementation of CARPs in coastal areas.

The areas listed above will be utilized as a starting point for CRM and will serve as a guide for development of any implementation studies and projects.

As stated earlier in the document, this 309 Strategy will build on CRM's comprehensive approach to managing Pennsylvania's coastal waters watersheds, and Ocean and Great Lakes related resources.

Work Plan/Schedule – Special Area Management Plans

2006:

- A. Initiate an analysis of existing state and federal programs, laws, and regulations addressing water resources planning.
- B. Gather water resources data for coastal areas.
- C. Analyze CWPA procedures and identify areas where CRM or CRM contractors can provide technical support.

2007:

- A. Analyze water resources data from coastal areas.
- B. Work with the State Water Planning Committee and Lake Erie and Delaware River Regional Water Planning Committees to determine need for CWPAs or CARPs in coastal areas.

2008:

- A. Begin early (initial) drafting of a CARP, as needed in coastal watersheds and directed by regional committees.
- B. Concurrently draft CARP guidance.

2009:

- A. Finalize CARP guidance.
- B. Continue drafting a CARP in one of PA's coastal watersheds.

2010:

- A. Finalize a CARP in one of PA's coastal watersheds.

Likelihood of Success – Special Area Management Plans

There is a high degree of likelihood that the proposed SAMP strategy will be successful and accomplished. Pennsylvania is experiencing a renewed interest in water quantity issues, due to recent major flood events occurring between long periods of drought watches and warnings. Because too much or too little water can be devastating to coastal resources, citizens in the coastal areas of Pennsylvania have been very active in the activities surrounding the update of the State Water Plan. Developing CARPs and incorporating the related regulatory documents into our Coastal program will be a key element of ensuring the success of our water planning efforts.

Cost Estimates

2006: \$180,000 Staff Cost (1/2 year), development or contractor (consultant)

Estimated Breakdown of Budget by Category:

DEP Personnel Costs (Salaries, Fringe, Travel, etc): \$70,000

Contractor or Consultant: \$110,000

2007: \$180,000 Staff Cost (1/2 year), development or contractor (consultant)

Estimated Breakdown of Budget by Category:

DEP Personnel Costs (Salaries, Fringe, Travel, etc): \$70,000

Contractor or Consultant: \$110,000

2008: \$180,000 Staff Cost (1/2 year), development or contractor (consultant)

Estimated Breakdown of Budget by Category:

DEP Personnel Costs (Salaries, Fringe, Travel, etc): \$70,000

Contractor or Consultant: \$110,000

2009: \$180,000 Staff Cost (1/2 year) & implementation projects

Estimated Breakdown of Budget by Category:

DEP Personnel Costs (Salaries, Fringe, Travel, etc): \$70,000

Projects: \$110,000

2010: \$180,000 Staff Cost (1/2 year) & implementation projects

Estimated Breakdown of Budget by Category:

DEP Personnel Costs (Salaries, Fringe, Travel, etc): \$70,000

Projects: \$110,000

Technical and Fiscal Needs

In the immediate future, the Department of Environmental Protection cannot realistically expect any increase in state funding levels specific to coastal resources management beyond cost to carry. While watershed and municipal planning funding are newly enhanced through Growing Greener II, coastal projects are in statewide competition. During the past Strategy, private foundations have been singularly supportive of watershed protection, preservation and restoration efforts in Pennsylvania, and there is optimism that these investments will continue. Successful investment of funds from all sources and demonstrated resource improvements will help determine future Commonwealth appropriations. Pennsylvania's Strategy implementation will help demonstrate the need for additional funding in areas of coastal concern.