

# Coastal Features

INFORMATION  
ABOUT THE  
RHODE ISLAND  
COASTAL  
RESOURCES  
MANAGEMENT  
PROGRAM

SUMMER 1994

VOLUME II, No. 3

## PROGRESS REPORT

### Rhode Island's Coastal Nonpoint Pollution Control Program

Last summer, the Coastal Resources Management Council (CRMC) devoted an entire issue of *Coastal Features* to the subject of nonpoint source pollution and the new federal mandates designed to control and minimize the introduction of this type of pollution into our coastal waters. Over the past year, the cooperative efforts of the CRMC, the Rhode Island Department of Environmental Management (RIDEM) and the Rhode Island Department of Administration, Division of Planning (RIDOP), with the assistance of several advisory committees, have led to significant progress in the development of Rhode Island's Coastal Nonpoint Pollution Control Program (CNPCP). To keep you informed of this progress, we are again publishing a special edition of *Coastal Features*. The purpose of this issue is to provide a general review of the federal requirements for nonpoint source pollution control contained in the Coastal Zone Act Reauthorization Amendments of 1990 and an update on the progress that has been made to date towards meeting those requirements.

#### An Overview of Nonpoint Source Pollution in Coastal Waters

Simply defined, nonpoint source pollution is polluted runoff. Nonpoint pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away both natural pollutants and pollutants resulting from human activities. These pollutants include sediments, nutrients, pesticides, pathogens, viruses and toxic materials such as hydrocarbons and heavy metals. Eventually, these pollutants are deposited in rivers, wetlands, coastal waters, and ground waters.

Numerous environmental problems

are associated with nonpoint pollution. Among those problems which are of particular concern to Rhode Islanders are eutrophication and bacterial contamination. Eutrophication is the enrichment of a waterbody with nutrients, typically nitrogen or phosphorous. While nutrients are necessary to the functioning of any healthy ecosystem, excessive concentrations of nutrients can devastate waterbodies, particularly poorly flushed estuaries such as Rhode Island's Salt Ponds and the Narrow River. An overabundance of nutrients, from sources such as fertilizers, human and animal wastes, and detergents, may result in algal blooms which cause waters to become depleted of oxygen, leading to the suffocation of marine life. Bacterial contamination from sources such as failed septic systems, runoff from animal operations, and sewage discharged from boats can pose serious threats to human health. Exposure to bacterial contamination either through direct contact (e.g. swimming) or consumption of contaminated shellfish can lead to hepatitis, gastroenteritis, and other illnesses. Further problems associated with nonpoint pollution include: excessive sedimentation which results in habitat losses and marine life mortality; contamination of drinking water supplies; and, the closure of shellfish beds.

In a 1992 report on the status of

polluted runoff problems and state programs, the Environmental Protection Agency (EPA) reported that at least 1.2 million acres of coastal waters were impaired or threatened by polluted runoff. The sources of this runoff are varied and, at times, difficult to trace. Nonetheless, certain activities and land uses have been identified by EPA and the National Atmospheric and Oceanic Administration (NOAA) as having the most significant impacts on coastal water quality nationally and, as a result, in need of greater regulation.

#### Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990

In order to address the problems associated with nonpoint sources of pollution, Congress adopted Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990. Section 6217, entitled "Protecting Coastal Waters", requires each coastal state participating in the federal coastal management program to develop a Coastal Nonpoint Pollution Control Program (CNPCP) to be approved jointly by the EPA and the NOAA. Once approved, Rhode Island's CNPCP will be implemented through changes to existing programs administered by the CRMC, RIDEM, RIDOP,

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## Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990

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and local governments. Failure to develop an approved CNPCP by July of 1995 will result in fiscal penalties on both the RIDEM's Nonpoint Source Management Program, developed in accordance with requirements contained in Section 319 of the Clean Water Act, and the CRMC's Coastal Resources Management Program (CRMP).

The central purpose of Section 6217 is to enhance state and local efforts to manage land use activities that degrade coastal waters and coastal habitats. Section 6217 will, for the first time, bring together the authorities and expertise of state water quality (e.g., RIDEM) and state coastal zone management (e.g., CRMC) agencies to jointly address the problem of nonpoint pollution of coastal waters. In addition, the development of Rhode Island's CNPCP will require coordinating a wide range of regulatory and nonregulatory nonpoint source management programs as well as technical assistance and monitoring efforts. Accordingly, it is clear that broad participation in the development and implementation of R.I.'s CNPCP will be necessary.

Essentially, Section 6217 is a two tiered program. The first tier involves the broad implementation of technology-based management measures within a specified management area of

each coastal state. In Rhode Island, this area encompasses almost the entire state. These measures, commonly referred to as the (g) measures, can be classified into three categories: measures that establish performance standards, such as an 80% removal of total suspended solids from stormwater; measures that establish a procedure for reducing polluted runoff, such as the implementation of nutrient management plans for agricultural operations; and, general pollution prevention measures, such as a requirement for educational programs for recreational boaters. Each (g) measure is accompanied by a series of recommended best management practices (BMPs) which either individually or in combination achieve the (g) measure. These (g) measures and recommended BMPs are contained in the federal guidance document, *Guidance Specifying Management Measures for Nonpoint Pollution in Coastal Waters* (EPA, 1993). The *Guidance* is divided into chapters, each containing a series of (g) measures, which address specific sources that NOAA and EPA have determined to be the leading contributors of nonpoint pollution to coastal waters nationally. These sources include agricultural activities; silvicultural (forestry) activities; urban land uses and development activities; hydromodifications; and marinas and recreational boating. A final chapter contains management measures for wetlands and riparian areas which, when properly protected and maintained, can serve important nonpoint pollution abatement functions.

In accordance with the statute, states must: implement the prescribed (g) measures; or, implement measures which are at least as effective as the (g) measures; or, demonstrate that the measures are unnecessary either because the nonpoint source is not present nor reasonably anticipated in the management area, or that the source poses no significant threat, actual or reasonably anticipated, to human health or living coastal resources.

The second tier of Section 6217 involves a more water quality-based approach to address known nonpoint source water quality problems which are either not addressed in the *Guidance* or which, due to the severity or localized nature of the problem, require more stringent or intensive regulation than that which is required by the (g) measures. This second tier

requires the development of additional management measures to protect and improve threatened and impaired coastal waters and critical areas. While the additional management measures and critical areas are important components of the CNPCP, the efforts of the past year have focused on the first four of the specific CNPCP requirements.

### Specific CNPCP Requirements

- Coordination with existing state programs
- Determination of the Section 6217 management area
- Public participation
- Identification of management measures to be implemented in conformance with the (g) measures
- Identification of additional management measures necessary to protect impaired or threatened waters
- Technical and other assistance to local governments and the public to implement additional management measures

A unique component of this program which differentiates it from prior nonpoint pollution control programs is that the (g) measures and the additional management measures must be implemented through enforceable policies and mechanisms. Enforceable policies include such things as constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions that enable a state to exert control over both private and public land and water uses and natural resources.

In January of 1993, when NOAA and EPA jointly issued the *Guidance* (EPA, 1993) and the companion document, *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance* (EPA and NOAA, 1993), the clock began ticking for each coastal state to develop and have approved a CNPCP by July of 1995. Since that time, and indeed prior to the issuance of these documents, the CRMC, RIDEM and RIDOP have been working together, utilizing a series of advisory committees, to develop an approvable CNPCP for Rhode Island.

## Coastal Features

*Coastal Features* is a publication of the Rhode Island Coastal Resources Management Council (CRMC). The Preparation of this newsletter was financed, in part, by a grant from the National Oceanic and Atmospheric Administration (NOAA) pursuant to the 1972 Coastal Zone Management Act (as amended).

This issue of *Coastal Features* was edited by Laura Kelley Miguel and the assistant editor was Mark T. Imperial. To comment on any article or to make address changes, please write to the CRMC at the Oliver Stedman Government Center, Tower Hill Road, Wakefield, Rhode Island, 02879.



# Program Development

Rhode Island is faced with two separate, but related challenges for controlling nonpoint pollution, which stem from different federal mandates. The first of these, and the subject of this newsletter, is the development, approval and implementation of the CNPCP as required by Section 6217; the second is the update of *Rhode Island's Nonpoint Source Management Plan*. With regard to the latter, in accordance with Clean Water Act requirements, each state must identify control measures and management approaches for categories of nonpoint pollutants identified in the state's nonpoint source assessment report as impacting or threatening water quality. The *Plan* outlines a framework for state and local coordination, as well as specific nonpoint source management objectives of the RIDEM. Funds made available by EPA under the provisions of Section 319 of the Clean Water Act may be allocated to implement the *Plan's* recommendations.

The CRMC and the RIDEM, as the state's nonpoint source management agency designated under section 319, have "a dual and co-equal role and responsibility in developing and implementing the coastal nonpoint program". Accordingly, the CRMC and the RIDEM, in conjunction with the RIDOP, have been focusing their efforts on a coordinated approach for developing Rhode Island's CNPCP and updating the *Nonpoint Source Management Plan*.

As noted, a primary distinction between a state's CNPCP and a state's *Nonpoint Source Management Plan* is the requirement that the CNPCP be implemented through enforceable policies. In contrast, implementation of the state's *Nonpoint Source Management Plan* relies on demonstration projects and voluntary participation with financial assistance as an incentive for participation. While this voluntary approach has been the primary means for *Plan* implementation in the past, in an effort to coordinate the Section 6217 and the Section 319 programs, the updated *Plan* is expected to be adopted as an element of the *State Guide Plan* administered by the RIDOP. Once adopted, municipalities will be required to be consistent with it when making land use decisions and

incorporate its policies into municipal comprehensive plans. Therefore, policies contained in *Rhode Island's Nonpoint Source Management Plan* will become enforceable.

## Progress to Date

In the year leading up to the publication of *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance* (EPA and NOAA 1993) and the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA 1993), the CRMC held numerous informal meetings with the RIDEM and the RIDOP to discuss issues related to the development of Rhode Island's CNPCP and the update of *Rhode Island's Nonpoint Source Management Plan*. The CRMC and the RIDEM also co-sponsored, in conjunction with the RIDOP, Soil Conservation Service (SCS), Rhode Island Sea Grant, University of Rhode Island Coastal Resources Center (CRC), and the Rhode Island Cooperative Extension (CE), a statewide conference on nonpoint source pollution which focused on the requirements of Section 6217 and the development of the CNPCP.

When the *Guidance* was published in January 1993, the CRMC and the RIDEM created a steering committee which included representatives of the CRMC, RIDEM, RIDOP, SCS, CE and CRC. In April of 1993, the RIDEM sponsored an interagency workshop where all relevant federal and state agencies were represented. At this workshop it was agreed that the steering committee would be responsible for creating an advisory committee framework which could be used to both develop the CNPCP and update the Rhode Island Nonpoint Source Management Plan (e.g., develop the *Nonpoint Source State Guide Plan Element*). It was also agreed that strong public involvement, education, and outreach during the development of the CNPCP was a high priority.

As a result of the steering

committee's efforts, the Interagency Nonpoint Source Advisory Committee (INSAC) was created. The INSAC is co-chaired by the CRMC, RIDEM, and RIDOP. The INSAC reports to the CRMC and the State Planning Council and coordinates the efforts of the technical advisory subcommittees. It was determined that the vast majority of the work would be done by the subcommittees and all final work products would be brought before the INSAC for review. These work products will include: the updated *Rhode Island's Nonpoint Source Management Plan*, draft regulation changes, Section 6217 threshold review documents, and the CNPCP which will be submitted to the NOAA and EPA for approval in July 1995.

## Technical Advisory Subcommittees

Since there are many sources of nonpoint pollution and an equally diverse range of agencies and organizations involved in nonpoint source issues, the RIDEM, CRMC, and RIDOP chose to utilize a series of technical advisory subcommittees. The subcommittees are organized around particular nonpoint sources (e.g., agriculture, forestry, ISDS, stormwater and erosion and sediment control, land use, and marinas) and additional federal requirements for Section 6217 and Section 319 (e.g., watershed prioritization, public outreach, and monitoring). The subcommittees are comprised of key officials from federal, state, and local levels of government as well as members of nongovernmental organizations and the general public. The steering committee made a concerted effort to identify appropriate groups for representation on the various subcommittees. While the initial membership of the subcommittees was reviewed and approved by the INSAC, it was agreed that the subcommittees would have the flexibility to expand their membership as needed. Generally, subcommittee

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**management measures** — economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives.



# Summary of the Section 6217 (g) Management Measures and Proposed Approaches

The following is a brief summary of the requirements contained in the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution to Coastal Waters* and the general approach proposed for meeting those requirements. These approaches have been developed by consensus, primarily at the subcommittee level. In many cases, particularly with regard to the measures for urban areas, the approaches, out of necessity, network and propose amendments to existing programs. Given the structure of local and state government in Rhode Island, the proposed approaches were determined by the subcommittees to be the most efficient and practical for meeting the requirements of Section 6217. These proposed approaches will be reviewed by federal officials during Rhode Island's threshold review scheduled for late August, 1994. Comments received from federal officials based on the threshold review may require some of the proposed approaches to be modified. In addition, these approaches will be subject to further public review and comment prior to July of 1995, when Rhode Island's final CNPCP must be submitted to NOAA and EPA.

## I. Agriculture

Primary sources of agricultural nonpoint source pollution are nutrients, sediment, animal wastes, salts, and pesticides. There are six management measures associated with agricultural activities. They focus on: erosion and sediment control; management of confined animal facilities (there are separate measures for large and small facilities); nutrient management; pesticide management; grazing management; and, irrigation management.

The Agriculture and Forestry Subcommittee has determined that agriculture does not and is not reasonably expected to, individually or cumulatively, present significant adverse effects to living coastal resources or human health. This is the second scenario under which a state may request an exclusion from a particular category or subcategory of

nonpoint pollutants. As a result, an exclusion from the management measures related to agriculture will be requested at the threshold review in August.

## II. Forestry

Forestry (or silvicultural) activities may impact water quality by accelerating erosion, and by increasing nutrient and chemical runoff, the amount of organic matter in adjacent waters, water temperatures, and streamflows. Ten management measures provided under this source category include requirements for preharvesting plans, road management and revegetation of disturbed areas. The management measures apply generally on lands where forestry operations are planned or conducted.

While a significant amount of land area is forested in Rhode Island (approximately 50%), there is very little commercial forestry activity. The Agriculture and Forestry subcommittee has determined that forestry is not a significant contributor to nonpoint source pollution to Rhode Island's coastal waters. Therefore, the State will request an exclusion from the forestry management measures based on the second scenario under which an exclusion may be allowed; that is, forestry does not and is not reasonably expected to, individually or cumulatively, present significant adverse effects to living coastal resources or human health.

## III. Urban Runoff

Urban runoff is one of the major nonpoint sources of pollution to Rhode Island's coastal waters, as Rhode Island is the most densely populated state in the U.S. Conversion of open space, and agricultural and forested lands to urban land uses results in more impervious surfaces, greater runoff volumes, and

increases in pollutant loadings. Major pollutants associated with urban nonpoint source pollution are sediment, nutrients, road salts, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. These pollutants generally enter coastal waters through stormwater runoff and onsite sewage disposal systems.

Fifteen management measures address this category of nonpoint source pollutants. Recognizing that once an area becomes urbanized it is often difficult and extremely expensive to install systems to control nonpoint pollution, the *Guidance* provides separate measures for existing and new urban development. Measures for existing development emphasize reducing nonpoint pollution resulting from ongoing activities, while those for new development focus on preventing new contributions of nonpoint pollution by providing siting and design, construction, and post-development standards. The *Guidance* also contains specific measures for new and existing roads highways and bridges.

### *Management measures for new development*

- *New development* – For new development and redevelopment, as well as new and relocated roads, highways and bridges, runoff must be managed so as to reduce the average annual total suspended solids (TSS) loading by 80%. The management measure also requires that, to the maximum extent practicable, the post development peak runoff rate and average volume are maintained at a level similar to the predevelopment level.

- *Site development* – This management measure requires development activities to be sited in a manner which avoids areas susceptible to erosion, limits increases in impervious surfaces, and minimizes land disturbances. The measure applies to all site development

**enforceable policies** — state policies which are legally binding through constitutional provisions, laws, regulations, land use plans, ordinances, or judicial or administrative decisions, by which a State exerts control over private and public land and water uses and natural resources in the coastal zone.



activities including those associated with roads, highways and bridges.

- *Erosion and sediment control* – This management measure requires the preparation and implementation of erosion and sediment control plans for construction sites. The measure applies to all construction activities on sites less than five acres. It does not apply to construction of single family homes on sites larger than 1/2 acre or to construction projects that do not disturb over 5,000 sq. ft. of land.

- *Chemical control* – This management measure is designed to limit the application, generation and migration of toxic substances (pesticides, fertilizers, petro-chemicals and wastes), and to ensure proper storage and disposal of toxic substances through the implementation of recommended practices. The measure applies to those construction activities included under the erosion and sediment control management measure.

- *Watershed protection* – This management measure requires the development of a comprehensive watershed protection program which avoids development on areas particularly susceptible to erosion, preserves sensitive areas, and minimizes the impacts of development on waterbodies and drainage systems.

- *New On-site Sewage Disposal Systems (OSDSs)* – New systems are to be sited, designed, installed, operated, and maintained so as to minimize their impacts to ground and surface waters.

### **Management measures for existing development**

- *Existing Development* – For previously developed areas watershed management programs are required to be developed and implemented. Opportunities for nonpoint source pollutant reduction must be identified, a schedule for implementing appropriate controls developed, and disturbances of natural conveyance systems minimized. The measure also calls for the preservation, enhancement and establishment of buffers.

- *Existing On-site Sewage Disposal Systems (OSDSs)* – Policies for operation, inspection and maintenance of existing OSDSs must be developed and implemented. In cases where coastal waters or ground waters are significantly affected by nitrogen loadings from existing OSDSs, the



*Marinas, recreational boating activities and runoff from paved surfaces can be major sources of nonpoint pollution.*

installation of an OSDS which reduces nitrogen loading by 50% is required.

- *Pollution prevention* – Rhode Island must implement pollution prevention and educational programs to better inform the general public on routine activities which cause nonpoint source pollution and ways in which sources can be reduced. Activities and sources to be addressed include; hazardous household chemicals, lawn and garden activities, turf management, the discharge of pollutants into storm drains, and commercial activities not currently regulated under the federal point source pollution control program (NPDES program).

### **Management measures for roads, highways, and bridges (new and existing)**

Six management measures require that roads, highways and bridges be planned, sited and designed so as to protect sensitive areas, limit land disturbances, and minimize runoff and erosion. The measures also require that operation and maintenance plans include pollution prevention procedures.

These management measures will be the most difficult to achieve and

require an approach which networks the State Guide Plan; RIDEM freshwater wetlands, ISDS and RIPDES regulations; the Coastal Resources Management Program (CRMP); and, the local comprehensive land use and harbor management planning processes. The CRMC will fully implement the measures related to urban areas within its jurisdiction and the RIDEM will continue to implement those measures currently implemented by its regulatory programs. In accordance with subcommittee recommendations, remaining management measures are proposed to be met by incorporating requirements into the State Guide Plan, and as additional elements to be addressed in the community comprehensive land use plans. These programs are administered by the RIDOP.

## **IV. Marinas and Recreational Boating**

Nonpoint source pollution associated with marinas and recreational boating activities can result in increased water toxicity, elevated pollutant levels in aquatic organisms,

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# Program Development

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membership is open to any interested person or organization. Accordingly, the subcommittee memberships have expanded to include additional representatives.

The role of each subcommittee is to provide technical assistance and guidance to the CRMC, RIDEM and the RIDOP during the development of the CNPCP. The subcommittees also coordinate existing nonpoint source pollution control efforts throughout the State. The roles of each subcommittee differ depending on a number of factors which include:

- The nature of the particular pollution source or nonpoint source issue the subcommittee has been formed to address;
- The extent to which the §319 and §6217 requirements have been addressed;
- The need for new policies, regulations or recommendations; and,
- The complexity of statutory requirements.

In all cases, the subcommittees review and advise on relevant sections of the CNPCP and the updated *Nonpoint Source Management Plan* as

they are developed. Each technical advisory subcommittee also identifies public outreach and education needs, as they become evident, for the Public Outreach and Education Subcommittee to address. Essentially, each subcommittee addresses the relevant management issues, comments on draft work products, and makes recommendations to the RIDEM, CRMC, and RIDOP.

In general, the subcommittees began their efforts early in 1994 by evaluating the actual and potential water quality problems associated with a particular source of nonpoint pollution in order to determine if the source presents a significant nonpoint pollution problem to Rhode Island's coastal waters. In cases where the subcommittees determined that a coastal water quality problem does exist as a result of a particular nonpoint source of pollution, the subcommittees focused their efforts on reviewing individual management measures and identifying the extent to which existing programs currently implement individual management measures through enforceable policies. This process led to the identification of areas where action was needed in order to conform with (g) measure requirements. The subcommittees then considered options for addressing (g) measures not currently addressed statewide through enforceable policies. In each case, consensus was developed as to the best approach for implementing those measures through enforceable policies.

In cases where it was determined that a particular source does not present an actual or potential threat to coastal waters, the subcommittees focused their efforts on crafting solid arguments for exclusion from the measures, based on water quality and land use data. Finally, threshold review documents and related proposed regulation changes developed by the CRMC and RIDEM were brought to individual subcommittees for review. This entire process was greatly facilitated by the participation of subcommittee members from the private sector as well as the regulatory community who brought with them expertise in specific nonpoint source problems and existing regulatory and nonregulatory programs.

## Threshold Review

On August 24th and 25th, the CRMC, RIDEM, and the RIDOP are

scheduled to meet with representatives from EPA and NOAA for an informal threshold review of components of Rhode Island's proposed CNPCP. The purpose of this meeting is to provide EPA and NOAA with an initial review of proposed approaches to meeting specific requirements of the CNPCP in order to determine where future efforts need to be focused. At this time, proposed approaches for meeting program requirements related to: public participation; agriculture; forestry; urban land uses and development activities; marinas and recreational boating; wetlands and riparian areas; and, hydromodifications will be discussed. In general, these approaches have been reviewed and approved by relevant subcommittees. Proposed new or amended regulations and policies will also be presented in order to solicit feedback on the appropriateness of the mechanism and the adequacy of the approach in implementing specific management measures.

Following the threshold review, the CRMC, RIDEM and RIDOP, with the assistance of the technical advisory subcommittees, will continue to work on the development of Rhode Island's CNPCP and the update of *Rhode Island's Nonpoint Source Management Plan*. The focus of the agencies' cooperative efforts will largely depend on EPA and NOAA comments on proposed program implementation approaches contained in threshold review documents. In addition, CNPCP elements not addressed during the threshold review, such as the monitoring, public education, and technical assistance components, and the additional management measures, will be developed. The subcommittees will continue to meet as these additional programmatic requirements are addressed and as approaches currently proposed are modified in response to EPA and NOAA comments. Rhode Island's final CNPCP will be submitted for approval to NOAA and EPA by July of 1995.

Once Rhode Island's CNPCP has been approved, the State has until January of 1999 to fully implement the (g) measures and until January of 2004 to fully implement all additional management measures. However, it is expected that many of the (g) measures and additional management measures not currently implemented will be implemented prior to these deadlines.

### Rhode Island's Nonpoint Source Advisory Committee

#### Interagency Nonpoint Source Advisory Committee

- CRMC, Co-chair
- RIDEM, Environmental Coordination, Co-chair
- Department of Administration, Division of Planning, Co-chair

#### Technical Advisory Subcommittees

- Agriculture & Forestry
- Stormwater & Erosion Control
- Individual Sewage Disposal Systems
- Marinas
- Public Outreach and Technical Assistance
- Monitoring
- Priority Watersheds
- Land Use



# Summary of Section 6217 (g)

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and contamination of water quality as a result of pathogens. Recreational boating activities can also disrupt sediment and habitat, and cause shoaling and erosion. There are fifteen management measures for marinas and recreational boating activities contained in the Section 6217 (g) guidance.

These management measures are grouped under two broad categories: siting and design; and operation and maintenance.

## Siting and design

Section 6217 requires that seven management measures be applied when reviewing the siting and design of new marinas. These management measures require that: marina sites allow for regular flushing of surrounding waters; water quality assessments be performed as part of marina siting and design; marinas be sited and designed in a manner which protects important habitats; the shoreline be stabilized when erosion is a problem; runoff control strategies including an 80% TSS removal rate from hull maintenance areas be implemented; fueling stations be designed to allow for ease of spill cleanup; and, the installation of pumpout, dump station and restroom facilities when necessary.



## Marina and boat operation and maintenance

The Section 6217 (g) guidance also includes eight management measures focusing on routine activities, and locations in marinas which can be sources of nonpoint source pollution. In general, these measures require: proper disposal of solid wastes; fish waste management; management of potentially harmful liquid materials such as solvents and paints; reducing the amount of fuel and oil discharged into the water through the use of automatic shut-off fuel nozzles and by promoting the use of fuel/air separators and oil absorbing materials in bilge areas; the implementation of boat cleaning practices which

minimize the release of harmful cleaners, solvents, and paints; proper maintenance and encouraged use of sewage pumpout facilities; and, restrictions on boating to protect shallow water habitats and decrease turbidity. The measures also require the implementation of education programs for the boating public and marina operators to prevent improper disposal of pollutants.

These measures will be implemented through minor changes to the CRMC's Coastal Resources Management Program (CRMP) and amendments to the Harbor Management program.

## V. Hydromodifications

Hydromodifications include channelization and channel modification, dams, and streambank and shoreline erosion. Hydromodifications contribute to nonpoint source pollu-

tion by disrupting habitats, sedimentation patterns, erosion rates, and water flows. The Section 6217 (g) guidance contains six management measures for hydromodifications designed to address problems associated with the alteration of the physical characteristics of surface waters and the resulting impacts on instream and riparian habitats. Generally, the measures require impacts associated with these sources be minimized through operation and maintenance practices as well as the protection of water quality and instream and riparian habitats.

Although a definitive approach to meeting these measures has not yet been determined, it is expected that these measures will be implemented through amendments to the CRMP.

## VI. Wetlands, Riparian Areas, and Vegetated Treatment Systems

The Section 6217 (g) guidance contains three management measures which do not address a specific source of nonpoint source pollution, but rather, promote the protection and restoration of wetlands and riparian areas as well as the use of vegetated treatment systems to control and minimize nonpoint source pollution. These management measures require states to protect wetlands and riparian areas which serve a nonpoint source abatement function, promote the use of vegetative filter strips and buffer zones, and to restore degraded wetlands and riparian areas.

These measures are, for the most part, currently implemented by the CRMC and the RIDEM's Freshwater Wetlands programs.

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## Available Information on the Section 6217 CNPCP

The following are available at no charge from the Environmental Protection Agency:

- *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*
- *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance*

To obtain a copy of these documents please contact Ann Beier, Assessment and Watershed Protection Division, Nonpoint Source Control Branch (WH-553), U.S. EPA, 401 M Street, SW, Washington, DC 20460. Phone: (202) 260-7085. Fax: (202) 260-7024.

To obtain a copy of *Upstream Solutions to Downstream Pollution, a Citizens' Guide to Protecting Seacoasts and Great Lakes by Cleaning Up Polluted Runoff* (Natural Resources Defense Council and Coast Alliance, 1993) please contact Sarah Chasis, Natural Resources Defense Council, 40 West 20th St., NY, NY 10011. Phone (212)727-4424; or, Beth Milleman, Coast Alliance, 235 Pennsylvania Ave., SE, Washington, D.C. 20003. Phone (202)546-9554. There is a charge for this publication.

To obtain copies of fact sheets, the CRMC's previous special issue newsletter and other public outreach materials related to Rhode Island's CNPCP, or to be added to the CNPCP mailing list, please contact either Laura Kelley Miguel or Mark T. Imperial at the CRMC (401) 277-2476.

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