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Rhode Island's Coastal Nonpoint Pollution Control Program

An Interagency Partnership

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Volume II

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Chapter 7
Marina Measures

Introduction

Between five and ten million tourists visit Rhode Island each year, primarily in the summer and often using the State's coastal zone and its resources (NBP 1992). Tourism is now the third largest employer in the state and recreational boating activities are a major component of that industry. Over 32,000 boats are registered with the State's Department of Environmental Management, Division of Boater Registration. The DEM also estimates an additional 18,000 recreational boats are registered with other states, or are not required to register but use the Rhode Island's coastal waters. Rhode Island's *State Comprehensive Outdoor Recreation Plan* notes that 23% of Rhode Islanders regularly went motorboating, and 20% regularly sailed (RIDOP 1992).

A large majority of boaters use marinas, mooring fields, and public launching ramps to access Rhode Island's coastal waters. According to the National Marine Manufacturing Association's (NMMA) *Marina Directory for Rhode Island*, Rhode Island has 162 marinas, boatyards, and yacht clubs that service five or more boats (NMMA, 1993) (Table 7.1 and 7.2). They range from small boat clubs on the salt ponds servicing a relatively small number of vessels to large-scale marina operations in Newport and Warwick servicing hundreds of boats. Thirty six of the marina facilities maintain over one hundred slips, and twelve maintain over two hundred slips (NMMA, 1993).

While Rhode Island's marinas can be found in almost every coastal town, a large percentage of the facilities are located in a handful of communities. Warwick tops the list with twenty marinas, South Kingston, and Newport each have fifteen facilities, and Westerly has twelve.

There are also a number of public mooring areas which are managed by municipalities pursuant to approved (both final and interim) harbor management plans and harbor ordinances. All totaled, there were 6,924 moorings in municipal mooring fields statewide during the 1993 boating season (Table 7.3). The typical size of a mooring field varies significantly and includes both small mooring fields of 25 boats or less in small coastal embayments, and much larger mooring fields with almost 1,000 boats in areas such as Newport Harbor and Jamestown Harbor.

At this time, the best estimate of the total number of marina moorings and marina slips is 13,043 (Table 7.4). According to the RIDEM, Division of Water Resources, in order to service these boats, there are 21 existing pumpout facilities (pers. com., Joe Migliore, 6/8/95) (Figure 7.1). These facilities were funded in part through grants

made available under the Clean Vessel Act. In order to obtain a no-discharge designation pursuant to Section 312 of the Clean Water Act, Rhode Island needs to

Table 7.1 Number of Marina Facilities in Rhode Island

Marinas	107
Yacht Clubs	16
Boatyards	34
Drystack Marinas	2
Dockominiums	1

Source: National Marine Manufacturer's Association. 1993. *Marina Directory: Rhode Island.*

install at least 4 additional pumpout facilities at strategic locations. This calculation is based on using the Environmental Protection Agency's (EPA's) recommended threshold of one pumpout per 300 boats in transient harbors and one pumpout per 600 boats in nontransient harbors.

Table 7.2 Type of Marina Facilities in Rhode Island

Slips	9,462
Drybays	3,128
Moorings	2,599
Launching Ramps	49

Source: National Marine Manufacturer's Association. 1993. *Marina Directory Rhode Island.*

Accordingly, by the end of 1995 Rhode Island should be very close to the necessary number of pumpouts needed to designate Narragansett Bay as a "No Discharge Area".

Magnitude of the Nonpoint Source Problem

Potential nonpoint source problems associated with marinas and recreational boating can be attributed to poor marina siting and design, maintenance dredging, routine marina operation/maintenance, and boat operations. Contaminants such as toxins, heavy metals, hydrocarbons, bacteria, and nutrients can enter coastal waters as a result of marina operations. The following are examples of environmental problems associated with marina activities:

- Sewage discharged from recreational boats can increase BOD loadings resulting in low dissolved oxygen levels.
- Sewage discharged from recreational boats can result in fecal coliform contamination of shellfish resources.
- Lead, arsenic, zinc, copper, and other metals utilized in boat maintenance and repair activities can reach surface waters.
- Fueling stations located on piers, docks and wharves pose a direct threat to marina waters.
- Aquatic plants can be uprooted by propellers and denied proper sunlight due to turbidity in the water column.
- Dredging during construction may alter water quality by increasing turbidity, reducing sunlight penetration, reducing oxygen content, and burying benthic organisms.
- Shoaling and shoreline erosion can result from fixed marina structures as well as from powerboat wakes.
- Manmade structures can cause sediments to be deposited on benthic habitats and vegetation.
- Physical restrictions which impact existing uses.

In addition, pollutants from marinas can combine with other upland sources such as stormwater runoff, leachate from ISDS, and leaking underground storage tanks, to cause significant water quality problems in localized areas.

Based on the findings of the Narragansett Bay Project (NBP) Comprehensive Conservation and Management Plan (CCMP) (NBP 1992) for the Narragansett Bay Watershed and the special area management plans prepared by the Coastal Resources Management Council (CRMC) for the Salt Ponds (CRMC 1984), Narrow River (CRMC 1986), and Pawcatuck River Estuary (CRMC 1993), it can be concluded that in certain areas nonpoint source pollution from marina facilities located in and adjacent to Rhode Island's coastal waters are reasonably expected to, either individually or cumulatively, present significant adverse effects to living coastal resources or human health. Improved marina siting and design along with the implementation of best management practices for marina operation and maintenance will help minimize nonpoint source impacts associated with marina development and operation.

Table 7.3 Total Number of Moorings in Municipal Mooring Fields

Municipality	Total Moorings
Barrington	256
Bristol	757
Charlestown	300
Cranston	105
East Greenwich	120
East Providence	184
Jamestown	987
Little Compton	133
Middletown	65
Narragansett	412
Newport	890
New Shoreham	372
Portsmouth	777
North Kingston	604
South Kingstown	150
Tiverton	300
Warren	187 (est.)
Westerly	269
Total	6,924

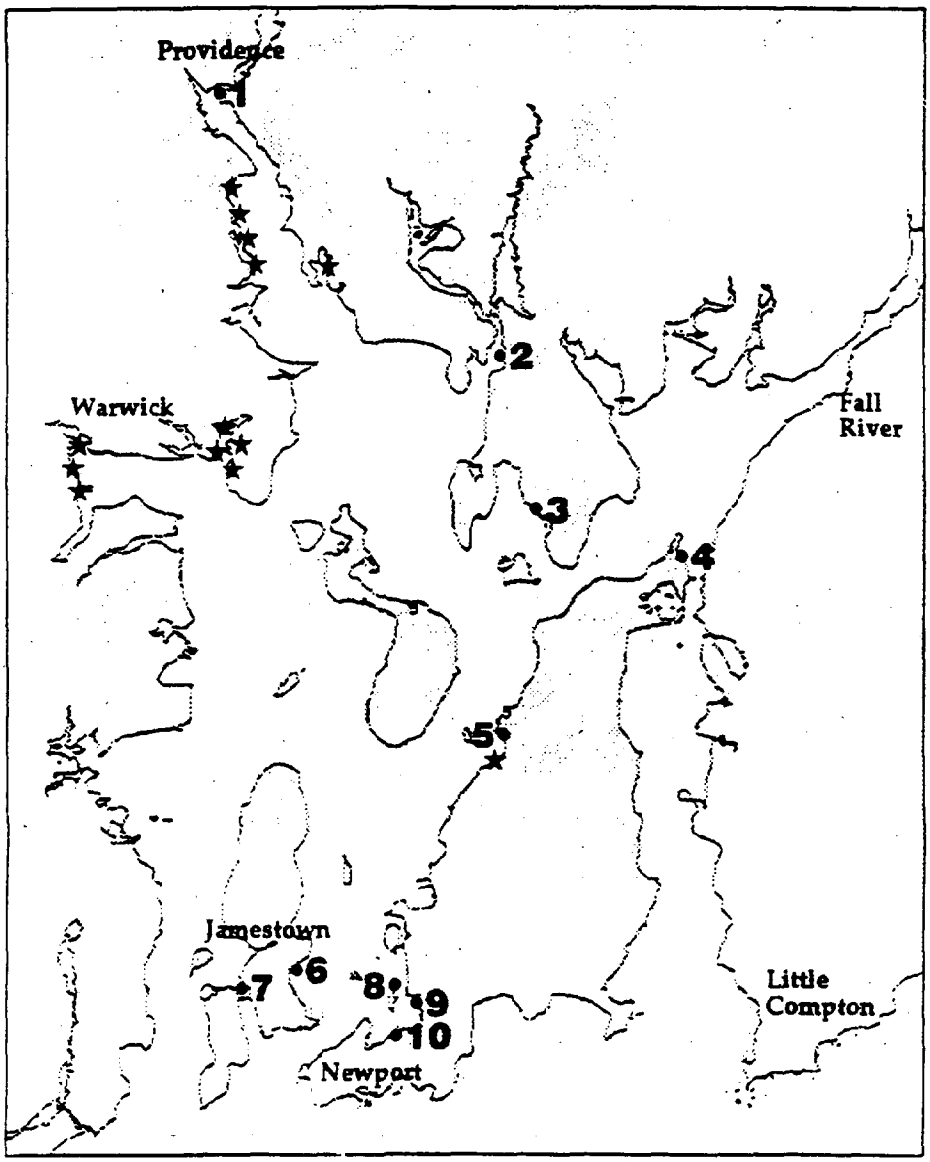
Table 7.4 Total Number of Moorings and Slips and Pumpouts Needed

Location	Moorings & Slips	Existing Pumpouts	Planned Pumpouts	Pumpouts Needed
Seekonk River	86	1	-	-
Bullock Cove	494	0	-	1
Warren River	480	1	-	-
Kickamuit River	147	0	-	1
Bristol Harbor	761	0	1	1
Sakonnet Harbor	457	1	-	-
East Passage	360	1	-	-
Sakonnet Harbor	138	0	-	1
Providence River	549	0		1
Warwick Cove	1639	0	-	3
Apponaug Cove	984	0	-	2
Greenwich Cove	781	0	-	2
Allen Harbor	139	0	-	1
Wickford Harbor	720	0	-	2
Narragansett Pier	82	0	-	1
Pt. Judith Pond	1320	0	1	2
Pawcatuck River	969	1	-	1
Jamestown*	463	3	-	-
Block Island*	1501	4	-	-
Newport Harbor	1484	2	1	2
Total	13043	14	3	21

**Transient Harbors = 1 Pumpout/300 Boats*
Nontransient Harbors = 1 Pumpout/600 Boats

Source: Narragansett Bay Project. 1993. *Marina Pumpout Management Plan. Providence, RI Rhode Island Department of Environmental Management, Narragansett Bay Project Draft. May.*

Figure 7.1 Existing and Proposed Pumpout Facilities



(As of July 1994)

● = Pump-out facilities open and ready for use
★ = Future pump-out sites

Source: Narragansett Bay Project. 1993. *Marina Pumpout Management Plan. Providence, RI: Rhode Island Department of Environmental Management, Narragansett Bay Project. Draft. May.*

Implementation of the Marina Management Measures

In order to implement the Marina Management Measures, Rhode Island will rely on several programs: the permit requirements associated with the Coastal Resources Management Council's (CRMC's) Rhode Island Coastal Resources Management Program (RICRMP); the CRMC's Municipal Harbor Management Program (MHMP); and, the Rhode Island Water Quality Regulations implemented by the RIDEM Division of Water Resources as well as numerous programs which include, but are not limited to, the Water Quality Certification Program and the Shellfish Growing Area Monitoring Program.

This chapter contains references to both existing CRMC requirements and proposed CRMC requirements. Existing and proposed CRMC marina regulations and harbor management regulations that will be used to implement some of the management measures are contained in Appendix 7A. It should be noted that specific RICRMP section numbers referenced in this chapter and in Appendix 7A are subject to change due to ongoing RICRMP revisions unrelated to the CNPCP. Any changes to RICRMP section references will not affect current or future implementation of the regulations. The RIDEM's Water Quality Regulations are contained in Appendix C. For more information on these programs, please consult Chapter 2 which contains descriptions of all of the programs being used to implement the management measures.

Unresolved Issues

Several issues remain unresolved between the Rhode Island Department of Environmental Management (RIDEM) and the Coastal Resources Management Council (CRMC). These issues primarily revolve around the inconsistencies between the CRMC's programs and the RIDEM's Water Quality Regulations. In most cases, these inconsistencies do not prevent full implementation of the 6217 management measures. Nonetheless, the State would be best served by resolution of inconsistencies. To that end, both agencies are working toward the resolution of these issues evident by meetings between the two agencies, including the CRMC/RIDEM Water Quality Work Group formed in February 1994. This group was formed to work out problems that have risen between the CRMC's programs and the RIDEM Water Quality Certification Program.

To further this effort, the Narragansett Bay Project has devoted considerable effort to identifying regulatory inconsistencies between the two agencies. These efforts have included identifying specific areas where CRMC water types conflict with RIDEM water classifications; identification of inconsistencies in regulatory definitions; and identification of inconsistencies in policies and regulations. In particular, efforts on the part of the Narragansett Bay Project have allowed the CRMC and Division of Water Resources to focus on actual, rather than merely perceived, inconsistencies.

In a related effort to resolve past programmatic inconsistencies, the CRMC has been working with the Division of Water Resources as the existing water quality regulations are revised and has supported the adoption of an independent regulatory "Water Quality Permit". The CRMC will continue to work with the Division of Water Resources to ensure that revised regulations successfully address programmatic inconsistencies to the maximum extent possible. Where inconsistencies cannot be resolved through the revised regulations due to conflicting agency mandates, the CRMC and the Division of Water Resources will continue to work together to minimize conflicts.

Marina Flushing

Marina Flushing
Site and design marinas such that tides and/or currents will aid in flushing of the site or renew its water regularly.

Applicability

This management measure applies to all new and expanding marinas. Marinas are defined as any facility with 10 or more slips, piers where 10 or more boats tie up, or any facility where a boat for hire is docked. Other facilities covered by this management measure include: boat maintenance and repair yards adjacent to the water; any federal, state, or local facility that involves recreational boat maintenance or repair that is adjacent to or on the water; public or commercial boat ramps; any residential or planned community marina with 10 or more slips; and, any mooring field where 10 or more boats are moored. The definition of a marina expansion is consistent with the Coastal Resources Management Council's regulations.

Programs Implementing the Measure

This management measure will be implement by the Rhode Island Coastal Resources Management Program (CRMC's permit process), the CRMC's Municipal Harbor Management Program (MHMP), and the Rhode Island Department of Environmental Management, Division of Water Resources' Water Quality Regulations and the Water Quality Certification Program. Relevant sections of these programs are described below. A more detailed description of these programs is contained in Chapter 2 of this document. It should be noted that a draft of proposed marina regulations is contained in Appendix 7A which also contains the existing requirements. Therefore, some references are to existing requirements, while other are to proposed requirements.

Rhode Island Coastal Resources Management Program

Implementation of the Measure
The Marina Flushing Management Measure will be implemented by the CRMC pursuant to the regulatory requirements of the RICRMP. As defined by the CRMC, marinas are currently defined as any facility that contains five or more boats, or piers where five or more boats may tie up (RICRMP §300.4.A.2) Proposed RICRMP

a. amendments will include marina mooring areas, and mooring areas managed by private organizations in this definition(Proposed RICRMP §300.4.A.5).

There are three separate provisions in the RICRMP which implement, or will implement, this management measure.

1. Water Type Policies (RICRMP Table 1 and §200.3)

The CRMC's Water Types pre-identify appropriate locations for consideration as marina locations. New marinas and significant expansions of marinas are only permitted in Type 3, 4, 5, and 6 waters (See Table 1 Matrices). The Type 3 waters classification focuses specifically on marina development. The designation of Type 3 waters takes into account factors associated with the siting and design of marinas. Type 3 waters are generally classified for areas where there is suitable upland for support facilities and adequate water depths and circulation to ensure that water quality would not be adversely affected by the siting of new marina facilities. If existing marina facilities are present, but the area is inappropriate for further marina development, the waters are classified as Type 2 which allows the marinas to maintain existing use levels but prohibits significant expansions of in water facilities (RICRMP §200.2). Significant expansions of in-water facilities are defined as "alterations which propose to increase the numbers of vessels accommodated at in-water facilities beyond 25% of the capacity as defined in the original Council Assent and/or extend the facility beyond the defined perimeters, or alter the purpose of the facility (Proposed RICRMP §300.4.A.6.)."

2. Category B Requirements

Table 1 of the RICRMP indicates that all new marina facilities are reviewed as Category B applications and significant in-water expansions of marinas are also reviewed as Category B applications. As a Category B application, the applicant must satisfy the general requirements outlined in RICRMP §300.1. Specific to the Marina Flushing management measure, each applicant proposing a new marina or a significant expansion to an existing marina facility is required to:

"describe the boundaries of the coastal waters and land area that are anticipated to be affected (RICRMP §300.1.3)."

"demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters (RICRMP §300.1.4)."

"demonstrate that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation (RICRMP §300.1.7)."

"demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM (RICRMP §300.1.8)."

"demonstrate that the alteration or activity will not result in significant conflicts with water-dependent uses and activities such as recreational boating, fishing, swimming, navigation, and commerce (RICRMP §300.1.10)."

Each of these requirements must be addressed in the application and site plans.

3. Requirements of §300.4 of the RICRMP

While the requirements associated with numbers 1 and 2 above effectively combine to implement the Marina Flushing Management Measure, the CRMC is also proposing to amend its existing standards for marina construction. The proposed amendments contained in Appendix 7A are intended to further strengthen the CRMC's implementation of this management measure. All new marinas and significant expansions of marinas (Proposed RICRMP §300.4.A.6) must be consistent with the standards contained in RICRMP §300.4.E. There are two proposed amendments which pertain to this management measure. They are:

"Site and design marinas and ancillary structures such that tides and/or currents will aid in flushing of the site and renew its water regularly. Turning basins and navigation channels shall be designed to prevent long-term degradation of water quality. In areas where there is poor water quality circulation, the depth of boat basins and access channels should not exceed that of the navigable channel (Proposed RICRMP §300.4.E.1.a)".

"Demonstrate that the proposed activity does not create significant adverse effects on water quality during and following construction of the marina facility (Proposed RICRMP §300.4.E.1.b)".

The CRMC's permit review process, which is decribed in chapter 2 of this document, will ensure that this measure is implemented for all new marinas and significant expansions of marinas.

Management Measure Oversight
Oversight of this program is the responsibility of the CRMC.

Enforcement
The CRMC will enforce the measure's implementation using its existing enforcement and permit staff. Each permitting team (engineer and biologist) is assigned specific towns. As a result of this approach, each permit team becomes extremely familiar with existing conditions, permitted projects (past and ongoing)

and other activities within these towns. This also allows CRMC staff members to easily identify unauthorized activities within these communities.

CRMC permit staff are in the field (in assigned coastal towns) daily. Enforcement staff is dedicated full-time to identifying and following up on reported violations statewide. When unauthorized activity is detected, any CRMC staff member, including Council members, may immediately issue a cease and desist order. To aid in this effort, CRMC has recently installed mobile communication units in each of the agency's vehicles assigned to staff. This allows for instantaneous communication from the field to the main office where staff can check on questionable activities, permit history, etc. Furthering the efficacy of this approach, the CRMC has recently significantly improved its computer data base for permit and enforcement action history. Office staff are therefore able to access data immediately when field staff has concerns. This allows for easy access to permit conditions for ensuring compliance.

In addition to on-land enforcement activities, the CRMC has two vessels which are used to patrol shoreline areas throughout the State. These vessels are also equipped with mobile communications units allowing communication with on-land CRMC vehicles and the main office. Potential violations which may be undetectable from land can be detected from the water and immediately investigated.

The CRMC also works with RIDEM Conservation Officers who maintain a 24-hour hotline for reporting alleged violations. These officers maintain round-the-clock patrols from land and water. Should a RICRMP violation be suspected during evening or weekend hours, callers to the CRMC are referred to the 24-hour hotline. Depending on the potential severity of the suspected violation, Conservation Officers will either immediately investigate the problem, or wait until the CRMC office is opened. In all cases, the CRMC will follow up on any suspected violation.

The CRMC also maintains good contact with Save The Bay, particularly the Bay Keeper Program, which maintains a regular patrol vigil on Narragansett Bay and a 24-hour hotline for reporting potential pollution problems. CRMC staff has met with the current Bay Keeper and agreed to work closely with this program to identify potential violations.

When necessary, the Council may issue cease and desist orders and fines when violations are detected. The property owner is afforded an administrative hearing where most violations are resolved through the signing of a consent order. This document obligates the violator to rectify the violation in accordance with conditions contained in the consent order. Frequently, an administrative fee is assessed for the violation. Additionally, the consent order is often times registered on the property title to ensure compliance in the case of property transfer. Where a consent order cannot be reached or is not adhered to, the CRMC can pursue adjudicatory remedy through state superior court. CRMC prosecutes violators in

accordance with R.I.G.L. 46-23-7.3 and the Administrative Procedures Act when all administrative remedies have been exhausted.

Most CRMC Assents are registered on title as deed restrictions to ensure the current and future property owner(s) will adhere to conditions contained within the Assent. Since this procedure typically prevents title transfers and refinancing where there is an outstanding violation, it is a very effective for ensuring resolution of violations and long-term enforcement of the program. Registering deed restrictions on title also serves to inform potential buyers of that particular property of conditions that carry with the title.

Monitoring

The CRMC will monitor its implementation of the management measure when it monitors the implementation of the CRMC Assent. The CRMC's permit staff routinely conduct field checks while a project is being constructed to ensure that the applicant adheres to all stipulations of the Assent.

Financial Needs

The CRMC currently has only two enforcement staff. While the Council's most recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the marina measures.

Technical Needs

At this time it is unclear if there are any clear technical needs associated with the implementation of this measure.

Overall Program Effectiveness

The CRMC has been permitting marina activities since its inception in 1971. It adopted its first regulations in 1976 and obtained its federal program approval in 1978. In 1983 the RICRMP was substantially revised and all of the Water Types adopted. In 1990, the RICRMP was again substantially revised and has undergone numerous amendments since then. The CRMC's implementation of its federal program has been successful. The findings of the most recent Section 312 Evaluation concluded that the CRMC was implementing all of the provisions of its federally approved program (OCRM, 1993). It also noted a wide range of improvements that have been made including its improved enforcement capabilities. In addition, the CRMC has adopted some innovative programs, such as the Council's dock registration program, to ensure compliance with its regulations .

CRMC's Municipal Harbor Management Program (MHMP)

The CRMC will rely on its Municipal Harbor Management Program (MHMP) to implement applicable Section 6217 "g" measures for public mooring areas. Public mooring areas are defined as those mooring areas managed by municipal or state agencies (Proposed RICRMP §300.4.A.5). All new public mooring areas and significant expansions of public mooring areas currently require the Council's approval in the form of its approval of amendments to a municipal harbor management plan and harbor ordinance. Significant expansions of public mooring areas are defined as any expansion of a public mooring area beyond its previously designated perimeter limit (Proposed RICRMP §300.15.A.3). In reaching its decision, the Council ensures that the proposal is consistent will all applicable policies and requirements contained in the RICRMP, notably those contained in §300.15 (Proposed RICRMP §300.15) and the CRMC's *Guidelines for the Development of Municipal Harbor Management Plans* (Appendix F).

Implementation of the Measure

The CRMC's Municipal Harbor Management Program (MHMP) will be used to implement the Marina Flushing Management Measure with respect to the siting and design of new public mooring areas or significant expansions to existing public mooring areas. The siting and design of all public mooring areas are subject to the requirements contained in the *Guidelines for the Development of Municipal Harbor Management Plans* and Proposed RICRMP §300.15 (Municipal Harbor Regulations). Since no municipality can implement a harbor ordinance or charge mooring fees unless the CRMC has approved its HMP and ordinance, the CRMC enforces the implementation of this measure with its approval (Proposed RICRMP §300.15.B.1, 2, & 4). Each harbor ordinance must also be consistent with R.I.G.L. 46-4-2. It should be noted that many towns are actually trying to reduce the size of their existing mooring fields as a result of HMPs not increase them. In addition, most of the suitable locations for mooring fields are already utilized. Thus, there are not a lot of opportunities for constructing new public mooring areas or significantly expanding existing mooring areas.

The CRMC will address the measure in three ways.

1. Requirements of Section 300.15.

All new public mooring areas and significant expansions of public mooring areas must be consistent with the requirements outlined in the proposed RICRMP §300.15. The proposed amendments to this section will require the following:

> "3. All new and significantly expanded public mooring areas shall be sited in a manner which ensures that: (a) the tides and/or currents will aid in flushing of the site or renew its water regularly; (b) the proposed mooring

area does not cause significant adverse effects on water quality; . . (Proposed RICRMP §300.15.C.3)"

Therefore the Council's approval of amendments to municipal HMPs and harbor ordinances which result in new or significantly expanded public mooring areas will be reviewed in accordance with this requirement, ensuring the implementation of the measure.

2. **Revised *Guidelines for the Development of Municipal Harbor Management Plans***

The CRMC is currently involved in several projects intended to strengthen the CRMC's MHMP pursuant to the Section 309 Enhancement Grants Program (See CRMC's Section 309 Strategy for more detail). One of these tasks is the development of revised *Guidelines for the Development of Municipal Harbor Management Plans*. The revised *Guidelines* will include all of the requirements continued in Proposed RICRMP §300.15 as well as additional policies and requirements associated with developing municipal HMPs. One of the goals of this task and the revised *Guidelines* is to expand the scope of HMPs beyond moorings and to provide better guidance on other issues such as water quality, public access, and shoreline development. To this end, the revised *Guidelines* are being developed for inclusion in the state regulations for comprehensive planning and the CRMC is working with the RIDOP to incorporate HMPs into municipal comprehensive plans. These changes will link the MHMP with the RIDOP's municipal comprehensive planning program in order to improve the planning and management of shoreline areas.

3. **Implementation of municipal harbor management plans and harbor ordinances.**

In order to approve a Harbor Management Plan, the CRMC requires that the municipality develop and approve a harbor ordinance that implements relevant portions of a municipal harbor management plan (See Appendix J for a sample harbor management plan and ordinance). Once the CRMC's revised *Guidelines* are adopted, the CRMC will not approve any new public mooring areas or significant expansions of existing mooring areas unless a municipality has demonstrated that the public mooring area is effectively sited in a manner which satisfies the management measure's requirements.

Management Measure Oversight
Oversight of this program's implementation is the responsibility of the CRMC.

Enforcement
The CRMC has broad enforcement authority. If a HMP is found not to be consistent with the RICRMP, the municipality cannot enforce and therefore cannot implement its harbor ordinance(s). The inability to enforce a HMP on the municipal level

without CRMC approval effectively results in CRMC oversight of local administration of harbor plans and ordinances. As the State agency responsible for managing coastal resources, the CRMC has the authority to resume any management responsibilities delegated to the municipalities including the implementation of harbor plans. Although the Council cannot implement the local harbor ordinance (RIGL 46-23), if a municipality chose not to manage a mooring field, the moorings would then be subject to the CRMC's review and approval (unless they were riparian moorings). Furthermore, if a municipality attempted to install a new mooring field or significantly expand an existing field without first receiving a Council Assent, the municipality would be in violation of the RICRMP and could be subject to a cease and desist order and possible administrative fees or fines. The CRMC has yet to utilize any of these options. Instead, the Council has been successful in working cooperatively with communities by providing the necessary technical assistance to develop and implement effective HMPs and harbor ordinances.

Since the CRMC's enforcement staff and local harbor masters regularly patrol the state's waters, it is unlikely that new mooring fields or existing mooring fields can be expanded without going undetected. In addition, the CRMC requires each mooring field to be delineated on a site plan stamped by a registered land surveyor or professional engineer which clearly identified the mooring field coordinates on the state plane coordinate system. Thus, it is easy for the Council to check suspected violations.

Monitoring

The CRMC will monitor implementation of the management measure when it monitors implementation of a HMP. The CRMC's staff regularly tour the harbors with the municipal harbor masters to ensure compliance with their HMP. The CRMC also requires municipalities to submit annual reports of mooring information. These annual reports allow the CRMC to monitor the number of boats in mooring fields and this information could be used to identify possible unauthorized expansions of public mooring areas. The CRMC's enforcement staff also monitor mooring fields to ensure that they are not expanding without prior approval

Financial Needs

There are several financial needs associated with the implementation of this measure. First, due to current funding constraints, the CRMC is not in a position to fund the desired level of technical assistance to municipalities or to monitor the implementation of municipal HMPs as effectively as in the past. Second, the municipalities often lack the financial resources necessary to prepare adequate maps of their mooring fields. This may make it difficult for the CRMC to enforce against unauthorized expansions. Finally, the municipalities often lack the necessary technical expertise when developing HMPs this requires an additional expenditure

of financial resources ..nich often are not available. These technical needs are discussed in more detail below.

Technical Needs

The CRMC has no technical needs associated with implementing this measure. Municipalities often do have technical needs. They lack trained staff to adequately assess flushing dynamics and water quality impacts. They also lack staff with the technical expertise necessary to survey their mooring fields. Addressing both of these technical needs through CRMC staff dedicated to harbor managment planning will improve implementation of this measure.

Overall Program Effectiveness

The goal of the MHMP was to get each of the 21 coastal towns to develop and implement a local harbor management plan (HMP) and harbor ordinance. Thus far the program has been very successful. As of May 1995, 12 municipalities have received Council approval for their HMPs. Two (2) have locally approved HMPs and are awaiting Council review/approval. Three (3) are developing HMPs for local approval. Two (2) have no harbor related ordinances which require Council approval, and therefore are not required to develop HMPs. If activities that require management begin to occur in these communities, then each will have to develop a HMP. The remaining two (2) are working with CRMC staff to begin the planning and development phases for their HMPs.

One reason for the high level of participation by local governments is that the CRMC has taken several steps to assist cities and towns with the development of their HMPs and ordinances. First, the CRMC began the Harbor Management Project by developing prototype harbor management plans for four communities that were representative of certain dominant physical characteristics and types of recreational and commercial uses. These four plans served as models for the other communities. Second, the CRMC developed *Guidelines* for both the development and approval of HMPs. These *Guidelines* clearly state what is required for the CRMC to approve a HMP. It is expected that the revised *Guidelines* which are currently being developed will further enhance and improve the development and implementation of municipal harbor management plans and ordinances. Third, the CRMC prepared a model ordinance which can be used to implement a HMP. The model ordinance has proved to be extremely useful and several towns have used the model ordinance as the basis of their ordinance. Fourth, CRMC staff provide technical assistance to the towns throughout the planning process. Typically, staff attend local harbor commission meetings to answer questions and provide information on approaches to specific problems and issues.

The MHMP has been successful in bringing coastal management to the local level by increasing the visibility and importance of coastal issues to municipal officials. The harbor management process has also been very successful in helping cities and towns resolve resource and user conflicts. For example, the harbor management

process was the catalyst for resolving a long standing boundary dispute between two towns regarding the regulation of moorings.

RIDEM Division of Water Resources, Water Quality Certification Program

This management measure will also be implemented by the Rhode Island Department of Environmental Management's (RIDEM), Division of Water Resources pursuant to R.I.G.L. 46-12, 42-17.1, 42-17.6 and 42-35, in accordance with the Rhode Island Water Quality Regulations for Water Pollution Control. The Rhode Island Water Quality Certification Program evaluates proposed projects to determine compliance with Rhode Island's water quality standards implemented under the Federal Clean Water Act.

Implementation of the Measure
Proposed projects requiring federal permits or licenses which may result in the discharge of pollutants to waters of the State must obtain water quality certification prior to issuance of the federal permit or license. In addition, proposed projects requiring state approvals are afforded review and certification initiated by the state agency issuing the approval. The water quality certification review assesses all aspects of a proposed project and its impacts to water quality. Certification of the project is granted when a determination has been made that, under conditions specified in the certification, the project is in compliance with the Rhode Island Water Quality Regulations for Water Pollution Control. Specifically:

-Discharges shall not violate water quality standards
-Discharges shall not further degrade low quality waters
-Discharges shall not degrade high quality waters
-Any existing instream water uses being achieved, and the water quality necessary to protect those existing uses shall be maintained and protected.

The Water Quality Regulations set specific criteria for all surface waters of the state. These criteria are numeric and narrative in nature. For example all waters must meet the EPA aquatic life criteria, human health criteria as well as state criteria for dissolved oxygen, color, turbidity, aesthetics, total and fecal coliform and nutrients. A water quality certification review assesses all the potential impacts on water quality in terms of these criteria.

In general, the Rhode Island Water Quality Certification (WQC) Program (the Program), which is more inclusive than the 401 Program, provides for review of projects within the State for compliance with the Rhode Island Water Quality Regulations. These regulations allow for broad interpretation, therefore affording the ability to prevent further degradation and loss of uses by denying WQC or placing approprite conditions in a WQC to protect existing water quality and uses. If conditions of a WQC are not complied with, the R.I.G.L. 42-17.1, 42-17.6 and 46-12

give authority to seek penalties as well as require rectification of the impact(s) resulting from noncompliance.

All states have the authority to issue WQCs for federal projects under section 401 of the Clean Water Act. Rhode Island has expanded its Program to include projects which require state permits. Both CRMC and RIDEM Division of Freshwater Wetlands regulations require WQC for certain activities. In order to clarify the requirements of the WQC Program and how it functions, draft Water Quality Regulations contain language describing the Program and listing projects requiring certification.

When a marina project is under review for WQC, that review would include siting and design of the marina to minimize water quality and existing impacts. Any requirements that would be necessary for the project to be in compliance with the Regulations would be contained in the WQC, i.e., conditions of the WQC.
In accordance with Section 401 of the Clean Water Act, a federal agency cannot issue a final license or permit for any activity involving a potential discharge prior to the applicant receiving a state water quality certification. Any conditions contained in a water quality certification must become part of the federal permit or license.

Management Measure Oversight
Oversight of this program is the responsibility of the permitting agency as well as the RIDEM, Division of Water Resources.

Enforcement
Violation of those conditions can be enforced by the federal permitting agency or by the State pursuant to R.I.G.L. 42-17.1, 42-17.6 and 46-12. Fines may be levied by the federal agency in accordance with their statutory ability and by the RIDEM Division of Water Resources in accordance with R.I.G.L. 46-12 of up to $25,000 per day. State agencies have the ability to require water quality certification as a condition of permit issuance. Conditions of a water quality certification incorporated into the issuing agency permit is enforceable by the issuing agency and the RIDEM Division of Water Resources pursuant to R.I.G.L. 42-17.1, 42-17.6 and 46-12. Fines may be levied by the State permitting agency in accordance with their statutory authority and by the RIDEM Division of Water Resources in accordance with R.I.G.L. 46-12 of up to $25,000 per day.

Monitoring
Monitoring of conditions of the water quality certification can be conducted by the permitting agency or by RIDEM, Division of Water Resources during construction and/or after construction to assure implementation of the management measure.

Financial Needs

Implementation and enforcement of this management measure may require additional staff. Accordingly, the RIDEM may need additional financial resources to implement this measure.

Technical Needs

The RIDEM, Division of Water Resources may require additional technical needs in the development of addition materials to aid in decision making in terms of impacts to existing uses.

Overall Program Effectiveness

Rhode Island had a water quality program prior to delegation by USEPA of implementation of the provision of the Clean Water Act in 1984. The Rhode Island Water Quality Regulations were most recently updated in 1988. As required per Section 303 of the Clean Water Act, the regulations are currently being updated. The proposed changes are expected to allow for more efficient implementation of the management measure.

Water Quality Assessment

Water Quality Assessment
Assess water quality as part of marina siting and design.

Applicability

See Marina Flushing Management Measure.

Programs Implementing the Measure

This management measure will be implement by the Rhode Island Coastal Resources Management Program (CRMC's permit process), the CRMC's Municipal Harbor Management Program (MHMP), and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the discussion contained in the section addressing the Marina Flushing Management Measure.

Implementation of the Measure
The Water Quality Assessment Management Measure will be implemented by the CRMC, in coordination with the RIDEM, pursuant to the regulatory requirements of the RICRMP for all marinas. As defined by the CRMC, marinas are currently defined as any facility that contains five or more boats, or piers where five or more boats may tie up (RICRMP §300.4.A.2) Proposed RICRMP amendments will include marina mooring areas, and mooring areas managed by private organizations in this definition(Proposed RICRMP §300.4.A.5).

There are three separate provisions in the RICRMP which implement, or will implement, this management measure.

1. Water Type Policies (RICRMP Table 1 and §200.3)

See the discussion contained in the section addressing the Marina Flushing Management Measure.

2. Category B Requirements

Table 1 of the RICRMP indicates that all new marina facilities are reviewed as Category B applications and significant in-water expansions of marinas are also reviewed as Category B applications. As a Category B application, the applicant must satisfy the general requirements outlined in RICRMP §300.1. Accordingly, each applicant proposing a new marina or a significant expansion to a marina facility is required to:

> "describe the boundaries of the coastal waters and land area that are anticipated to be affected (RICRMP §300.1.3)."
>
> "demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters (RICRMP §300.1.4)."
>
> "demonstrate that the alteration will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation (RICRMP §300.1.7)."
>
> "demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM (RICRMP §300.1.8)."
>
> "demonstrate that the alteration or activity will not result in significant conflicts with water-dependent uses and activities such as recreational boating, fishing, swimming, navigation, and commerce (RICRMP §300.1.10)."

Each of these requirements must be addressed in the application and site plans. These requirements ensure that water quality is assessed as part of the siting and design of a marina.

As previously described (see Chapter 2 and the discussion contained in the section addressing the Marina Flushing Management Measure), a CRMC permit team, comprised of a biologist and an engineer, evaluate proposed new marinas and significant expansions of existing marinas to ensure compliance with the goals, policies and standards of the RICRMP. Such review includes evaluation of existing and proposed conditions and any potential impacts of the project. Working in a team approach which allows for a holistic view of the proposed project and its impacts, the staff biologist and engineer analyze potential disruption of habitat and effects on adjacent flora and fauna as well as other coastal resources. In conducting

project evaluations, staff rely upon the best available information during the review, including: professionally sanctioned guidance manuals, recent research literature, task force studies, and the like. When necessary and in accordance with the CRMC's Enabling legislation (RIGL 46-23-14), experts in specific fields can be called upon to provide supplemental information.

3. Requirements of §300.4 of the RICRMP

While the requirements associated with numbers 1 and 2 above effectively combine to implement the Water Quality Assessment Management Measure, the CRMC is also proposing to amend its existing standards for marina construction. The proposed amendments contained in Appendix 7A are intended to further strengthen the CRMC's implementation of this management measure. All new marinas and significant expansions of marinas (Proposed RICRMP §300.4.A.6) must be consistent with the standards contained in RICRMP §300.4.E. There are two proposed amendments which pertain to this management measure. They are:

> "Site and design marinas and ancillary structures such that tides and/or currents will aid in flushing of the site and renew its water regularly. Turning basins and navigation channels shall be designed to prevent long-term degradation of water quality. In areas where there is poor water quality circulation, the depth of boat basins and access channels should not exceed that of the navigable channel (Proposed RICRMP §300.4.E.1.a)"

> "Demonstrate that the proposed activity does not create significant adverse effects on water quality during and following construction of the marina facility (Proposed RICRMP §300.4.E.1.a)"

The CRMC's permit review process, which is described in more detail in Chapter 2 of this document, will ensure that this measure is implemented for all new marinas and significant expansions of marinas.

Management Measure Oversight
Oversight of this program is the responsibility of the CRMC.

Financial Needs
One of the problems associated with enforcement of this measure will be in the availability of enforcement staff. The CRMC currently has only two enforcement staff. While the Council's recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the marina measures.

Technical Needs

At this time it is unclear if there are any clear technical needs associated with the implementation of this measure.

Monitoring

The CRMC can require applicants to monitor prior to, and during, marina construction activities to ensure that permit conditions, i.e., BMPs, are effective in maintaining water quality. As described under CRMC implementation of the measure, all new marinas are subject to Category B requirements (Section 300.1) and Section 300.4. Applicants for activities which are reviewed at a Category B level (including new and significantly expanding marinas) must "demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM". In order to demonstrate no significant impacts to water quality, applicants must develop baseline data, which, in effect, requires the establishment of pre-existing conditions through monitoring.

The CRMC may require additonal monitoring as a marina permit condition. However, additonal resources would be required to ensure that these permit conditions, including any monitoring requirements, are being met and that the results of monitoring do not indicate problems which require additional follow-up.

For more information on the monitoring and enforcement of this measure, see the discussion contained in Chapter 2 of this document and under the Marina Flushing Management Measure.

CRMC's Harbor Management Program

This management measure will be implemented through requirements of the CRMC s Municipal Harbor Management Program (MHMP). For a more detailed discussion of the MHMP, see Chapter 2 of this document. For a more detailed discussion of the program s monitoring and enforcement and its overall effectiveness see the Marina Flushing Management Measure.

Implementation of the Measure

The CRMC's Municipal Harbor Management Program (MHMP) will be used to implement the Water Quality Assessment Management Measure with respect to the siting and design of new public mooring areas or significant expansions to existing public mooring areas similar to the implementation of the Marina Flushing Management Measure. The CRMC will address the measure in three ways.

1. Requirements of Section 300.15.

All new public moorings areas and significant expansions of public mooring areas must be consistent with the requirements outlined in the Proposed RICRMP §300.15. The proposed amendments to this section will require the following:

> "3. All new and significantly expanded public mooring areas shall be sited in a manner which ensures that: (a) the tides and/or currents will aid in flushing of the site or renew its water regularly; (b) the proposed mooring area does not cause significant adverse effects on water quality; . . . (Proposed RICRMP §300.15.C.3)"

Therefore the Council's approval of amendments to municipal HMPs and harbor ordinances which result in new or significantly expanded public mooring areas will be reviewed in accordance with this requirement and ensure the implementation of the measure.

2. Revised *Guidelines for the Development of Municipal Harbor Management Plans*

The CRMC is currently involved in several projects intended to strengthen the CRMC's MHMP pursuant to the Section 309 Enhancement Grants Program (See CRMC's Section 309 Strategy for more detail). One of these tasks is the development of revised *Guidelines for the Development of Municipal Harbor Management Plans*. The revised *Guidelines* will include all of the requirements continued in Proposed RICRMP §300.15 as well as additional policies and requirements associated with developing municipal HMPs.

3. Implementation of municipal harbor management plans and harbor ordinances.

In order to approve a Harbor Management Plan, the CRMC requires that the municipality develop and approve a harbor ordinance that implements relevant portions of a municipal harbor management plan (See Appendix J for a sample harbor management plan and ordinance). Once the CRMC's revised *Guidelines* are adopted, the CRMC will not approve any new public mooring areas or significant expansions of existing mooring areas unless a municipality has demonstrated that the public mooring area is effectively sited in a manner which satisfies the management measure's requirements.

Management Measure Oversight
Oversight of this program's implementation is the responsibility of the CRMC.

Financial Needs
There are several financial needs associated with the implementation of this measure. First, due to state budget cuts, the CRMC is not in a position to fund the desired level of technical assistance to municipalities or to effectively monitor the

implementation of municipal HMPs. Second, there is insufficient financial resources to expand monitoring activities to a level which could be useful in terms of monitoring the effectiveness of this management measure. Third, the municipalities often lack the financial resources necessary to prepare adequate maps of their mooring fields. This makes it difficult for the CRMC to enforce expansions. Finally, the municipalities often lack necessary technical expertise when developing HMPs this requires and additional expenditure of financial resources which often are not available. These technical needs are discussed in more detail below.

Technical Needs

The CRMC has no technical needs associated with implementing this measure. Municipalities often do have technical needs. They lack the trained staff to adequately assess flushing dynamics and water quality impacts. They also lack staff with the technical expertise necessary to survey their mooring fields. Addressing both of these technical needs will improve implementation of this measure.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Habitat Assessment

Habitat Assessment
Site and design marinas to protect against adverse effects on shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas as designated by local, State, or federal governments.

Applicability

This management measure applies to all new and expanding marinas where site changes may impact on wetlands, shellfish beds, submerged aquatic vegetation, or other important habitats. See Marina Flushing Management Measure for definition of a marina, marina expansion, and other marina facilities covered by this management measure.

Programs Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process), the CRMC's Municipal Harbor Management Program (MHMP), and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The Habitat Assessment Management Measure will be implemented by the CRMC pursuant to the regulatory requirements of the RICRMP for all marinas. As defined by the CRMC, marinas are currently defined as any facility that contains five or more boats, or piers where five or more boats may tie up (RICRMP §300.4.A.2)

Proposed RICRMP amendments will include marina mooring areas, and mooring areas managed by private organizations in this definition(Proposed RICRMP §300.4.A.5).

There are three separate provisions in the RICRMP which implement, or will implement, this management measure.

1. Water Type Policies (RICRMP Table 1 and §200.3)

The designation of water types took into account factors associated with siting and design of marinas. Type 3 waters were generally classified for areas where there was suitable upland for support facilities and adequate water depths and circulation to ensure that water quality would not be adversely affected by the siting of new marina facilities. In addition, Type 1 and Type 2 Waters designations were designed to protect important riparian and aquatic habitat areas from further development. Type 1 and Type 2 waters comprise approximately 80% of the shoreline in Rhode Island. Accordingly, since new marinas and significant expansions of marinas are prohibited in Type 1 and Type 2 waters. The CRMC's water types effectively protect these areas and implement the management measure.

2. Category B Requirements

Table 1 of the RICRMP indicates that all new marina facilities are reviewed as Category B applications and significant in-water expansions of marinas are also reviewed as Category B applications. As a Category B application, the applicant must satisfy the general requirements outlined in RICRMP §300.1. Accordingly, each applicant proposing a new marina or a significant expansion to a marina facility is required to:

> "demonstrate that the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life (RICRMP §300.1.5)."

This requirement must be addressed in writing and submitted with the application and site plan. These requirement ensures that applicants assess habitats and the impact on habitats associated with a project.

3. Requirements of §300.4 of the RICRMP

While the requirements associated with numbers 1 and 2 above effectively combine to implement the Habitat Assessment Management Measure, the CRMC is also proposing to amend its existing standards for marina construction. The proposed amendments contained in Appendix 7A are intended to further strengthen the CRMC's implementation of this management measure. All new marinas and significant expansions of marinas (Proposed RICRMP §300.4.A.6) must be consistent

with the standards co...ained in RICRMP §300.4.E. The proposed amendment pertaining to this management measure is:

> "(c) Site and design marinas to protect against adverse effects on fish and shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas during and following construction (Proposed RICRMP §300.4.E.1.a)."

The CRMC's permit review process will ensure that this measure is implemented for all new marinas and significant expansions of marinas.

All applicants for new and significantly expanding marinas must meet the requirements of Sections 300.1 (Category B requirements) and 300.4 (Recreational Boating Facilities). Applications are reviewed in accordance with the requirements contained in these sections which are outlined in Chapter 2 and in the discussion under the Marina Flushing and Water Quality Assessment management measures.

Management Measure Oversight
The implementation of this management measure will be monitored and enforced in a manner similar to the Marina Flushing Measure. For more information see that discussion.

Financial Needs
The CRMC currently has only two enforcement staff. While the Council's recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the marina measures.

Technical Needs
Rhode Island lacks accurate maps of riparian and aquatic habitat areas at a scale appropriate for permitting. Accordingly, staff must often conduct field inspections to verify conditions on site.

Currently, Rhode Island uses the following information for resource inventories: Rhode Island Natural Heritage Program (rare, endangered and threatened occurence of species and their habitat), the Narragansett Bay Project habitat inventory and resources mapping, U.S.F.W.S. habitat data (partially on GIS); and DEM Division of Fish, Wildlife and Estuarine Resources shellfish and fin fish habitat data (hard copy reports only); and URI geologic materials mapping for shoreline areas. Rhode Island will be adding detailed submerged aquatic vegetation coverages for the entire State as part of the Narragansett Bay project. As the CRMC recently acquired a GIS, the State will be relying increasingly upon digital data for evaluating site specific proposals. As specific coverages are developed by the CRMC, they will be added to

the state GIS data base and therefore available to all users. Conversely, any updated habitat information developed and incorporated into the state GIS will be available to the CRMC. In addition, as site-specific data is generated through the evaluation of permit applications, habitat data will become part of CRMC's data set. The development and incorporation of this data into the Rhode Island Geographic Information System (RIGIS) could facilitate the review of projects, particularly minor applications, and the preparation of more detailed permit applications.

CRMC's Harbor Management Program

This management measure will be implemented through requirements of the CRMC's Municipal Harbor Management Program (MHMP). For a more detailed discussion of the MHMP and the overall effectiveness of the program see the discussion contained in the Marina Flushing Management Measure section.

Implementation of the Measure

The CRMC's Municipal Harbor Management Program (MHMP) will be used to implement the Habitat Assessment Management Measure with respect to the siting and design of new public mooring areas or significant expansions to existing public mooring areas similar to the implementation of the Marina Flushing Management Measure. The CRMC will address the measure in three ways.

1. **Requirements of Section 300.15.**

All new public mooring areas and significant expansions of public mooring areas must be consistent with the requirements outlined in the Proposed RICRMP §300.15. The proposed amendments to this section will require the following:

> "3. All new and significantly expanded public mooring areas shall be sited in a manner which ensures that: . . . (c) there are no significant adverse effects on fish and shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas; . . . (Proposed RICRMP §300.15.C.3)"

Therefore the Council's approval of amendments to municipal HMPs and harbor ordinances which result in new or significantly expanded public mooring areas will be reviewed in accordance with this requirement and ensure the implementation of the measure.

2. **Revised *Guidelines for the Development of Municipal Harbor Management Plans***

The CRMC is currently involved in several projects intended to strengthen the CRMC's MHMP pursuant to the Section 309 Enhancement Grants Program (See

CRMC's Section 309 S. ..egy for more detail). One of th... tasks is the development of revised *Guidelines for the Development of Municipal Harbor Management Plans*. The revised *Guidelines* will include all of the requirements contained in Proposed RICRMP §300.15 as well as additional policies and requirements associated with developing municipal HMPs.

3. **Implementation of municipal harbor management plans and harbor ordinances.**

In order to approve a Harbor Management Plan, the CRMC requires that the municipality develop and approve a harbor ordinance that implements relevant portions of a municipal harbor management plan (See Appendix J for a sample harbor management plan and ordinance). Once the CRMC's revised *Harbor Management Guidelines* are adopted, the CRMC will not approve any new public mooring areas or significant expansions of existing mooring areas unless a municipality has demonstrated that the public mooring area is effectively sited in a manner which satisfies the management measure's requirements.

Management Measure Oversight
Oversight of this program's implementation is the responsibility of the CRMC. For more information see the Marina Flushing Measure.

Financial Needs
There are several financial needs associated with the implementation of this measure. First, due to state budget cuts, the CRMC is not in a position to fund the desired level of technical assistance to municipalities or to effectively monitor the implementation of municipal HMPs. Second, there is insufficient financial resources to expand the monitoring activities to a level which could be useful in terms of monitoring the effectiveness of this management measure. Finally, the municipalities often lack the financial resources necessary to complete new resource inventories while preparing their HMPs and thus rely on existing reports. This makes it difficult for them to adequately judge impacts to important riparian and aquatic habitat areas. These technical needs are discussed in more detail below.

Technical Needs
The CRMC has no technical needs associated with implementing this measure. Municipalities often do have technical needs. They lack the trained staff to adequately assess habitat conditions. Accordingly, municipal officials must rely on previously published reports which are often at a scale unsuitable for the siting and design of new mooring fields They also lack staff with the technical expertise necessary to survey existing habitats. Addressing both of these technical needs will improve implementation of this measure. It could be accomplished by preparing a series of detailed resource inventories of near coastal waters and incorporating this information into the Rhode Island Geographic Information System (RIGIS) and is

one possible use of Section 6217 implementation funding. This information would also benefit the CRMC in its review of other related projects.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Shoreline Stabilization

Shoreline Stabilization
Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other shorelines and offshore areas.

Applicability

This management measure applies to all new and expanding marinas where site changes may result in shoreline erosion. See Marina Flushing Management Measure for definition of a marina, marina expansion, and other marina facilities covered by this measure.

Program Implementing the Measure

This management measure will be implement by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The Shoreline Stabilization Management Measure will be implemented by the CRMC pursuant to the regulatory requirements of the RICRMP for all marinas. As defined by the CRMC, marinas are currently defined as any facility that contains five or more boats, or piers where five or more boats may tie up (RICRMP §300.4.A.2) Proposed RICRMP amendments will include marina mooring areas, and mooring

areas managed by pr...te organizations in this definition (proposed RICRMP §300.4.A.5).

Marinas are generally not located in areas where shoreline erosion is a nonpoint pollution problem. RI has sandy beaches and rocky shorelines. No clay soils in the vicinity of areas suitable for marina development (very limited clay soils exist in inland areas). In areas where marina development is allowed, sand has never been determined to be a nonpoint pollution problem. In areas with rocky shores, clearly no nonpoint problems associated with eroding shorelines have been or are expected to be detected.

The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. **Policies for Water Types and Coastal Features (See Table 1 Matrices)**

The matrices contained in Table 1 of the RICRMP summarize where structural shoreline protection is and is not allowed. For example, structural shoreline protection is prohibited on all beaches and barrier beaches and on any coastal feature adjacent to Type 1 waters. Structural shoreline protection is also prohibited in Type 1 waters.

2. **RICRMP Section 300.7 Construction of Structural Shoreline Protection Facilities**

Section 300.7 of the RICRMP contains many of the Council's detailed policies and standards with respect to constructing structural shoreline protection facilities. The Council does favor non-structural methods for controlling erosion over structural forms (RICRMP Sections 300.7.B.1 and 300.7.E.1). In addition, applicants for structural shoreline protection facilities must:

> "(a) demonstrate that the proposed structure has a reasonable probability of controlling the erosion problem; (b) demonstrate that the proposed structure is not likely to increase erosion in adjacent areas; (c) demonstrate that the proposed structure is an appropriate solution to the erosion problem . . .; (d) describe the long-term maintenance program for the proposed facility . . .; and, (e) . . . be designed by a professional engineer (RICRMP Section 300.7.E.2)."

3. **Category B Requirements**

In addititon to other sections of the RICRMP, all marina development is subject to section 300.1 (Category B Requirements) whereby the applicant must "demonstrate that the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore or in tidal waters." Staff reviews potential

erosional wave action in the vicinity of the proposed activity. Staff also reviews coastal slopes, soil types, and vegetative cover of the area to ensure that the potential wave action and the development will not create a nonpoint pollution problem. To assist in this evaluation CRMC staff relies upon the Rhode Island Soils Survey, aerial photographs (for historic site conditions), and applicable engineering principles.

Accordingly, the Council's existing policies governing structural shoreline protection adequately implement the management measure. It should be noted that pursuant to a Project of Special Merit funded pursuant to Section 309 of the federal Coastal Zone Management Act, the Council is revising many of its barrier beach and structural shoreline protection policies. However, none of the regulation changes being developed will affect the regulations and requirements as described above.

Management Measure Oversight
The implementation of this management measure will be monitored and enforced in a manner similar to the Marina Flushing Measure. For more information see that discussion.

Financial Needs
The CRMC currently has only two enforcement staff. While the Council's recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the marina measures.

Technical Needs
There are no identified technical needs associated with implementing this management measure at this time.

RIDEM Division of Water Resources, Water Quality Certification Program

The WQC review for marinas, as for other projects, would require methods be employed to minimize/prevent shoreline erosion. Conditions to this end would be included in the WQC.

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the discussion contained in the Marina Flushing Management Measure.

Stormwater Runoff

Stormwater Runoff
Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas. Reduce the average annual loadings of TSS in runoff from hull maintenance areas by 80%. For the purposes of this measure, an 80% reduction of TSS is to be determined on an average annual basis.

Applicability

This management measure applies to all new and expanding marinas, and to existing marinas for *at least* the hull maintenance areas. See Marina Flushing Management Measure for definition of a marina, marina expansion, and other marina facilities covered by this management measure.

Program Implementing the Measure

This management measure will be implement by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The Stormwater Runoff Management Measure will be implemented by the CRMC pursuant to the regulatory requirements of the RICRMP for all marinas, as defined by the CRMC. Marinas are defined as any facility that contains five or more boats, or piers where five or more boats may tie up (Proposed RICRMP §300.4.A.2) and

includes marina mooring areas and mooring areas managed by private organizations (Proposed RICRMP §300.4.A.5).

The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. RICRMP Section 300.6 Treatment of Sewage and Stormwater

The Council's stormwater management requirements are contained in Section 300.6. In particular, Section 300.6(B) contains the following requirement:

> "6. After construction has been completed and the site has been permanently stabilized, the average annual total suspended solids (TSS) loadings shall be reduced by 80 percent. In addition, to the maximum extent practicable, the post development peak runoff rate and the average volume from 2-year, 25-year, and 100-year storm events shall be maintained at pre-development levels unless: i) the applicant has obtained local or state approval which certifies that the existing storm drain system has the capacity to accommodate the additional stormwater runoff; or ii) the stormwater runoff is conveyed, preferably without hardened channels, non-erosive to tidal waters."

For more information on the Council's stormwater management requirements see the discussion contained in Chapter 6 focusing on the New Development Management Measure.

2. Proposed RICRMP Section 300.4 Recreational Boating Facilities

Additional stormwater management requirements designed to implement this measure are contained in the proposed RICRMP amendments to Section 300.4 contained in Appendix 7A. Specifically, these proposed regulations require that new marinas, and significant expansions of existing marinas:

> (e) Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas. Reduce the average annual loadings of TSS in runoff from hull maintenance areas by 80% in accordance with the policies and standards contained in Section 300.6. (Proposed RICRMP §300.4.E.1.e)

For existing marinas, the proposed RICRMP amendments to Section 300.4 will require each marina to develop and implement an operation and maintenance program in accordance with the requirements contained in this section. Specifically, the proposed regulations require that:

> "All marina facilities shall have an operation and maintenance program approved by the Council in accordance with the requirements of this section

by January 1, 1999. Each operation and maintenance program shall be consistent with the most recent version of the *Environmental Guide for Marinas* (Proposed RICRMP §300.4.B.12)

Each marina operation and maintenance plan will be required to address, through the implementation of best management practices, a series of elements including stormwater runoff, fueling stations, solid wastes, liquid materials, fish waste, petroleum control, boat cleaning operations, and maintenance of sewage disposal facilities in order to implement (g)measures associated with marina operation and maintenance. Operation and maintenance programs will be required to be updated every five years.

With reference to the stormwater runoff measure for existing marinas, marina operation and maintenance programs must, at a minimum, demonstrate the following:

> "(1) *When hull maintenance areas are present*: Effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas are implemented such that the average annual loadings of Total Suspended Solids (TSS) is reduced by 80% in accordance with the requirements of Section 300.6; . . . (Proposed RICRMP §300.4.E.2.b.1)."

Like the (g)Guidance, the *Environmental Guide for Marinas* recommends a series of BMPs which, either individually or in combination, and dependent upon site conditions, will meet the 80% TSS. For example, the Manual recommends the use or installation of vegetated buffers, wet ponds, crushed gravel in lieu of asphalt, etc. The choice of BMPs is left to the design professional and evaluated by CRMC staff to ensure that the 80% TSS standard, as well as all other marina siting and design standards, are met in consideration of site-specific conditions.

For additional discussion of the proposed operation and maintenance program see the discussion of the Solid Waste Management Measure in this Chapter.

3. ***Rhode Island Stormwater Design and Installation Standards Manual***

In addition to the regulatory requirements contained in Section 300.4 and Section 300.6, the *Rhode Island Stormwater Design and Installation Standards Manual* was recently adopted by the state and is explicitly referenced in the Council's stormwater management regulations (Appendix K). All applicants must treat their stormwater and prepare stormwater management plans in a manner consistent with this manual.

Management Measure Oversight

The implementation of this management measure will be monitored and enforced in a manner similar to the Marina Flushing Measure. For more information see that discussion.

Financial Needs

The CRMC will need funding to hire additional enforcement staff. In addition, the technical assistance required to assist marina owners with the development of their operation and maintenance programs will increase the workload. Finally, the RIDEM and the CRMC do not have adequate financial resources to expand their monitoring programs. Accordingly, any additional water quality monitoring related to Section 6217 will have to be financed with a commensurate level of financial resources.

Technical Needs

The CRMC has no identified technical needs associated with implementing this management measure. However, marina owners will need technical assistance when developing their operation and maintenance programs.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Fueling Station Design

Fueling Station Design
Design fueling stations to allow for ease in cleanup of spills.

Applicability

This management measure applies to all new and expanding marinas where fueling stations are to be added or moved. See Marina Flushing Management Measure for definition of a marina, marina expansion, and other marina facilities covered by this management measure.

Program Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The Fueling Station Design Management Measure will be implemented by the CRMC pursuant to the regulatory requirements of the RICRMP for all marinas. As defined by the CRMC, marinas are currently defined as any facility that contains five or more boats, or piers where five or more boats may tie up (RICRMP §300.4.A.2) Proposed RICRMP amendments will include marina mooring areas, and mooring areas managed by private organizations in this definition(Proposed RICRMP §300.4.A.5).

The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. Proposed RICRMP Section 300.4 Recreational Boating Facilities

All new and significantly expanding marina facilities must be consistent with the requirements of the proposed RICRMP §300.4. The proposed amendments contain standards for new and significantly expanding marinas which require, in part, that operators:

> (f) Design fueling stations to allow for ease in cleanup of spills. All marinas installing fueling stations shall submit a Spill Response Plan to be approved by the Council in accordance with the *Environmental Guide for Marinas.* (Proposed RICRMP, §300.4.E.1.f)

In addition, marina operation and maintenance programs for marinas with fueling stations will be required to include a Spill Response Plan in order to facilitate spill cleanup (Proposed RICRMP, §300.4.E.2.(b)(2)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which is being funded pursuant to Section 319 of the Clean Water Act (Appendix T). This manual specifies appropriate best management practices applicable to fueling stations and will be explicitly referenced in the CRMC's proposed marina regulations, thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. Accordingly, the implementation of this management measure will extend beyond the applicability criteria as specified above.

Management Measure Oversight
The implementation of this management measure will be monitored and enforced in a manner similar to the Marina Flushing Measure. For more information see that discussion.

Financial Needs
The CRMC will need to hire on additional enforcement staff. The operation and maintenance program requirements will increase the staff workload and require that the Council provide significant technical assistance to marina operators.

Technical Needs
The CRMC has no identified technical needs associated with implementing this management measure at this time. However, the CRMC will have to provide

technical assistance to the marina operators when they prepare their operation and maintenance programs.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Sewage Facility

Sewage facility
Install pumpout, dump station, and restroom facilities where needed at new and expanding marinas to reduce the release of sewage to surface waters. Design these facilities to allow ease of access and post signage to promote use by the boating public.

Applicability

This management measure applies to all new and expanding marinas in areas where adequate marine sewage facilities do not exist. See Marina Flushing Management Measure for definition of a marina, marina expansion, and other marina facilities covered by this management measure.

Program Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. RICRMP Section 300.4 Recreational Boating Facilities

Under the existing Section 300.4, all new and significantly expanding marinas are required to install pumpout facilities. The burden of proof is on applicants to demonstrate that these facilities are not necessary. The decision as to whether or not to require the installation of additional pumpout facitlities in an area will be based, in large part, on EPA's minimum boat-to-pumpout facilities ratios required to achieve and maintain a No Discharge Zone designation. The decision will also be based on the availability of pumpout facilities in the vicinity of a new or expanding marina, economic considerations and general equity. Based on these considerations, the Council may impose more or less stringent requirements when deemed appropriate or necessary.

Proposed amendments to this section more explicitly meet this measure's requirements by requiring all new or significantly expanding marina facility to meet the following standards:

"(g) All new marina facilities shall be required to install a marine pumpout facility and where appropriate, a dump station. Any expansion or alteration of an existing marina facility that results in greater than or equal to 50 new slips shall be required to install a marine pumpout facility and where appropriate, a dump station. Any expansion or alteration of an existing marina facility which proposes to increase the number of vessels accommodated at the in-water facilities beyond 25% of the capacity as defined in the original Council Assent shall be required to undertake mitigative measures. If 25% of the capacity as defined in the original Council Assent is greater than or equal to 50 slips, then a marine pumpout facility and where appropriate, a dump station shall be required. If 25% of the capacity as defined in the original Council Assent is less than 50 slips, then the Council shall require either the installation of a marine pumpout facility or other suitable mitigation measures such as a dump station.

When the Council has determined that there are already enough marine pumpout facilities to serve all of the recreational boating facilities found in the region, then the Council may waive the requirement for a marine pumpout facility and/or a dump station and require alternative mitigative measures.

All marine pumpout facilities shall be designed in a manner that serves the boating public. In addition, all marine pumpout facilities that are required by the Council to mitigate the adverse impacts to water quality associated with recreational boating shall be open for the general public's use. However, marina operators may charge a fair and nondiscriminatory fee to cover the cost of constructing and operating these facilities. Signs shall be posted informing the public as to the location and availability of pump-out facilities.

(h) Sufficient restroom facilities shall be provided to service the patrons of the marina. (Proposed RICRMP, §300.4.E.1.g & h)"

In addition, all marinas, through required operation and maintenance programs, will be required to demonstrate:

(8) *When sewage pumpout facilities or dump stations are present on-site*: a) Sewage pumpout facilities are maintained in operational condition; b) Appropriate signs have been posted informing the public of the availability of pumpout facilities, dump stations, and sanitary facilities; and, c) the use of pumpout facilities, dump stations, and sanitary facilities is encouraged. (Proposed RICRMP, §300.4.E.2.b.8)

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures (as described above) will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which was funded pursuant to Section 319 of the Clean Water Act. This manual specifies appropriate best management practices applicable pumpout stations (e.g., the references to signage) and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline.

Management Measure Oversight
The implementation of this management measure will be monitored and enforced in a manner similar to the Marina Flushing Measure. For more information see that discussion.

Financial Needs
The CRMC will need to hire additional enforcement staff. The operation and maintenance program requirement will greatly increase the staff workload and require additional staff time to provide technical assistance.

Technical Needs
The CRMC has no identified technical needs at this time. Marina owners will require technical assistance during the development of operation and maintenance programs. Finally, the Narragansett Bay Project, administered by the Rhode Island Department of Environmental Management (RIDEM) is currently completing a

pumpout siting plan ..uch identifies the total number u. pumpout facilities need to ensure that Narragansett Bay is designated as a no discharge zone. The results of that report may identify additional technical needs.

RIDEM Division of Water Resources

As noted in the introduction to this chapter, Rhode Island is currently pursuing a "No Discharge Zone" designation through the use of federal Clean Vessel Act funds. Currently, 21 pumpout facilities have been installed using these funds. It is anticipated that a total of approximately 25 marine sewage pumpout facilities will be needed to meet the no discharge zone requirements within Narragansett Bay

Funds have been targeted to areas where a need has been determined to exist. As a requirement for receiving these funds, marina operators must agree to install and maintain pumpout facilities in accordance with federal requirements which meet the requirements of this measure. Among the conditions for receiving these funds, pumpouts must be adequately signed, available to the general public, available for use during appropriate hours. For all new installations, an operation and maintenance plan is a condition of the required RIDEM Order of Approval, which permits operation of the sewage facility.

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Solid Waste

Solid Waste
Properly dispose of solid wastes produced by the operation, cleaning, maintenance, and repair of boats to limit entry of solid wastes to surface waters.

Applicability

See Marina Flushing Management Measure.

Programs Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the monitoring and enforcement of this measure and the program's overall effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. **Proposed RICRMP Section 300.4 Recreational Boating Facilities**

This measure will be implemented through proposed operation and maintenance program requirements (Proposed RICRMP §300.4.E.2). Accordingly, marinas will be required to develop and implement comprehensive marina operation and maintenance programs which will address a series of potential nonpoint sources, as well as other management concerns. This approach will allow the CRMC to better

manage marinas as a whole by incorporating the management of land and water activities into a unified marina operation and maintenance program.

Section 300.4.E.2.b proposes that each marina will be required to submit an operation and maintenance plan by January 1, 1999 which demonstrates the following:

> "(3) Solid wastes produced by the operation, cleaning, maintenance, and repair of boats are properly disposed of in order to limit entry of solid wastes to surface waters. (Proposed RICRMP §300.4.E.2.b)"

It should be noted that if either a new marina or a significant expansion of a marina was proposed, an operation and maintenance program would be required. All necessary best management practices to satisfy the Council's operation and maintenance program requirements would have to be fully implemented at the time of the Council's full approval.

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's *Marina Best Management Practices Manual*

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which was funded pursuant to Section 319 of the Clean Water Act (Appendix T). This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. The manual also contains worksheets designed to assist the marina owners in developing their operation and maintenance programs. It is envision that the CRMC's technical staff will meet on-site with the marina owner and help him to fill out the worksheet and identifying all necessary best management practices. It will also help the CRMC staff to verify that the current best management practices utilized by the marina owners are adequate to meet the new operation and maintenance requirements.

Management Measure Oversight
The implementation of this management measure will be monitored by the CRMC.

Financial Needs

The implementation of the operation and maintenance plan requirements will significantly increase the work load of the CRMC's permit staff. It will require a significant amount of staff time associated with providing technical assistance to marina owners during the preparation of operation and maintenance plans. It will also require a significant increase in staff time required to review and approve marina operation and maintenance plans. The CRMC will also require additional staff to enforce the new requirements.

Technical Needs

There are no clearly identified technical needs associated with the CRMC's implementation of the proposed operation and maintenance program requirements. However, the CRMC believes that marina owners will need technical assistance during the preparation of the operation and maintenance plans. Primarily this will occur through CRMC permit staff meeting with marina owners during the preparation of a marina's operation and maintenance program and assisting them in filling out the questionnaires contained in the CRMC's marina best management practices manual. This will require additional staff resources as described above.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Fish Waste

Fish Waste
Promote sound fish waste management through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste.

Applicability

This management measure applies to marinas (see marina flushing management measure for definitions) where fish waste is determined to be a source of water pollution.

Program Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the program's overall effectiveness, see the Marina Flushing Management Measure. For more information on the measure's oversight, see the Solid Waste Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. **Proposed RICRMP Section 300.4 Recreational Boating Facilities**

Proposed marina operation and maintenance program requirements will implement this measure. This program is discussed in more detail in the section addressing the Solid Waste Management Measure.

Section 300.4.E.2.b will require each marina owner to develop and implement a marina operation and maintenance program by January 1, 1999 which demonstrates the following:

> "(4) *When the disposal of fish waste is determined by the CRMC and the RIDEM to be a source of water pollution*: Sound fish waste management shall be promoted through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste. (Proposed RICRMP §300.4.E.2.b.4)"

All necessary Best management practices must be implemented prior to the Council's full approval.

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which is being funded pursuant to Section 319 of the Clean Water Act (Appendix T). This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. For more information on the use of this manual in the CRMC's regulatory process see the discussion contained in the Solid Waste Management Measure section.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Liquid Material

Liquid Material
Provide and maintain appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, and encourage the recycling of these materials.

Applicability

This management measure applies to marinas (see marina flushing management measure for definitions) where liquid materials used in the maintenance, repair, or operation of boats are stored.

Program Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the program's overall effectiveness, see the Marina Flushing Management Measure. For more information on the measure's oversight, see the Solid Waste Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. Proposed RICRMP Section 300.4 Recreational Boating Facilities

Proposed marina operation and maintenance program requirements will implement this measure. This program is discussed in more detail in the section addressing the Solid Waste Management Measure.

Section 300.4.E.2.b. will require that all marina operation and maintenance programs must, at a minimum, demonstrate the following:

> "(5) When liquid materials used in the maintenance, repair, or operation of boats are stored on-site: Appropriate storage, transfer, containment, and disposal facilities for liquid material , such as oil, harmful solvents, antifreeze, and paints, is provided and maintained and the recycling of these materials is encouraged (Proposed RICRMP §300.4.E.2.b)."

Marinas must submit the operation and maintenance program which implements all necessary best management practices to implement the measure approved by the CRMC prior to January 1, 1999.

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which was funded pursuant to Section 319 of the Clean Water Act (Appendix T). This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. For more information on the use of this manual in the CRMC's regulatory process see the discussion in the Solid Waste Management Measure Section.

RIDEM Office of Environmental Coordination

To ensure proper disposal of wastes, Rhode Island also maintains a recycling program that runs through RIDEM's Office of Environmental Coordination. This recycling program includes the collection of household hazardous wastes - such as solvents, used oil, antifreeze and paints that may have been generated by private recreational boater activities - at a centralized facility called the Eco-Depot. This

$400,000 facility is open to Rhode Island residents, two Saturdays a month, by appointment. The Eco-Depot is located at Fields Point in Providence, central to residents of both Greater Providence and outlying Rhode Island municipalities. A hazardous waste transporter/contractor, contracted by RIDEM, is responsible for facility operations that include removing wastes from vehicle recycling; identification, classification, consolidation, containerization and transportation; treatment and disposal of wastes through approved facilities; required documentation and reports; and staff training. A RIDEM staff member is presenton each collection day for supervision and oversight, and for informational and educational purposes.

Also in an effort to prevent adverse impacts from marina liquid materials, RIDEM's Nonpoint Source Management Program has developed for the revised Nonpoint Source Pollution Management Plan (Appendix W), a policy to "minimize adverse water quality impacts resulting from the operation and maintenance of boats and boating facilities by ensuring that proper operation and maintenance practices are followed" (Policy 11.2). Recommendations pursuant to this policy include the development and implementation of operation and maintenance programs through Municipal Harbor Management Programs; the use of public education, outreach and training to address the discharge of harmful cleaners and solvents, the use of environmentally friendly products, discharge of hull paints, and proper dry land waste disposal practices; and the monitoring and evaluation of management practice success.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Petroleum Control

Petroleum Control
Reduce the amount of fuel and oil from boat bilges and tank air vents entering marina and surface waters.

Applicability

This management measure must be applied to boats that have inboard fuel tanks.

Program Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the program's overall effectiveness, see the Marina Flushing Management Measure. For more information on the measure's oversight, see the Solid Waste Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. **Proposed RICRMP Section 300.4 Recreational Boating Facilities**

Proposed marina operation and maintenance program requirements will implement this measure. This program is discussed in more detail in the section addressing the Solid Waste Management Measure.

Section 300.4.E.2.b will require that each marina operation and maintenance program must, at a minimum, demonstrate the following:

"(6) Reduce the amount of fuel and oil from boat bilges and tank air vents entering marina and surface waters using appropriate practices (Proposed RICRMP Section 300.4.E.2.b.6)."

The CRMC will require marina operators to address this measure to the extent practicable in their operations and maintenance plans. Marina operators will be required to specify how the practices required by this measure will be implemented. To assist in this effort, the CRMC will, if necessary, develop a marina petroleum product handling fact sheet. Operations and Maintenance plans will be reviewed by CRMC staff to ensure consistency with the measure through implementation of the recommended practice(s) applicable for site-specific conditions.

As previously described, once approved by the CRMC, marina operations and maintenance plans become conditions of the CRMC marina assent. No operations and maintenance plan will be approved that does not include provisions for the effective implementation of the Petroleum Control management measure. These plans will be enforced in the same manner as are the conditions of any other CRMC Assent (see description contained in Chapter 2 and under the Marina Flushing management measure).

The operation and maintenance program must be approved by the CRMC prior to January 1, 1999. All necessary best management practices necessary to implement this requirement must be implemented at the time of the CRMC's full approval. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which was funded pursuant to Section 319 of the Clean Water Act. This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. For more information on the use of this manual in the CRMC's regulatory process see the Solid Waste Management Measure section.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Boat Cleaning

Boat Cleaning
For boats that are in the water, perform cleaning operations to minimize, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) paint from in-water hull cleaning.

Applicability

This management measure applies to marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems.

Programs Implementing the Measure

This management measure will be implemented by two programs administered by the Rhode Island Coastal Resources Management Council (CRMC): The Rhode Island Coastal Resources Management Program (CRMC's permit process); the CRMC's Municipal Harbor Management Program (MHMP); and, the RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the program's overall effectiveness, see the Marina Flushing Management Measure. For more information on the measure's oversight, see the Solid Waste Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. Proposed RICRMP Section 300.4 Recreational Boating Facilities

Proposed marina operation and maintenance program requirements will implement this measure. This program is discussed in more detail in the section addressing the Solid Waste Management Measure.

Section 300.4.E.2.b. will require that each marina operation and maintenance program must, at a minimum, demonstrate the following:

> "(7) Marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems: Cleaning operations are performed in a manner which minimizes, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) anti-fouling paint from in-water hull cleaning (Proposed RICRMP §300.4.E.2.b.7)."

All necessary best management practices necessary to implement this measure must be in place at the time of the Council's full approval. The operation and maintenance plan must be approved by the Council prior to January 1, 1999.

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which is being funded pursuant to Section 319 of the Clean Water Act. This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. For more information on the use of this manual in the CRMC's regulatory process see the Solid Waste Management Measure Section.

CRMC's Harbor Management Program

The CRMC will also rely on its Municipal Harbor Management Program (MHMP) to implement this measure for public mooring areas. Public mooring areas are defined as those mooring areas managed by municipal or state agencies (Proposed RICRMP

§300.4.A.5 in Appendix A). For more information on the program, its oversight of the measure and its overall program effectiveness, see the Marina Flushing Management Measure.

Implementation of the Measure

The CRMC's Municipal Harbor Management Program (MHMP) will be used to implement the Boat Cleaning Management Measure with respect to public mooring areas. Since no municipality can implement a harbor ordinance or charge mooring fees unless the CRMC has approved its HMP and ordinance, the CRMC enforces the implementation of this measure with its approval of the harbor management plans and ordinances. Each Harbor Ordinance must also be consistent with R.I.G.L. 46-4-2. The CRMC will address the measure in three ways.

1. **Requirements of Section 300.15.**

All public mooring must be consistent with the requirements outlined in the proposed RICRMP §300.15. The proposed amendments to this section will require:

> "4. All municipal harbor management plans and ordinances shall ensure that:
> (d) all in-water boat cleaning operations are performed in a manner which minimizes, to the extent practicable, the release to surface waters of (i) harmful cleaners and solvents and (ii) anti-fouling paint from in-water hull cleaning; . . . (Proposed RICRMP §300.15.C.4.d)"

Therefore the Council's approval of HMPs and harbor ordinances will be reviewed in accordance with this requirement, ensuring the implementation of the measure.

2. Revised *Guidelines for the Development of Municipal Harbor Management Plans*

The CRMC is currently involved in several projects intended to strengthen the CRMC's MHMP pursuant to the Section 309 Enhancement Grants Program (See CRMC's Section 309 Strategy for more detail). One of these tasks is the development of revised *Guidelines for the Development of Municipal Harbor Management Plans*. The revised *Guidelines* will include all of the requirements continued in Proposed RICRMP §300.15 as well as additional policies and requirements associated with developing municipal HMPs. One of the goals of this task and the revised *Guidelines* is to expand the scope of HMPs beyond moorings and to provide better guidance on other issues such as water quality, public access, and shoreline development.

3. **Implementation of municipal harbor management plans and harbor ordinances.**

The CRMC requires that the municipality develop and approve a harbor ordinance that implements relevant portions of a municipal harbor management plan (See Appendix J for a sample harbor management plan and ordinance). Once the requirements of Proposed RICRMP 300.15.C.4 are adopted, all new harbor management plans and harbor ordinances must be consistent with these requirements. Accordingly, this measure will be implemented by municipal harbor masters pursuant to their existing statutory authorities.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Public Education

Public Education

Public education/outreach/training programs should be instituted for boaters, as well as marina owners and operators, to prevent improper disposal of polluting material.

**This management measure does not have to be implemented with enforceable policies.*

Applicability

This management measure applies to all environmental control authorities in areas where marinas are located.

Programs Implementing the Measure

There are a wide variety of public outreach/education/training programs in Rhode Island that target boat owners and marina owners and operators. Some of the more important distribution channels include:

- RIDEM's Division of Boating Safety;
- Narragansett Bay Project;
- Rhode Island Sea Grant;
- Municipal Harbor Management Programs;
- Public Libraries;
- CRMC's Harbor Management Program; and,
- Save-the-Bay

While many programs play important roles in educating boat owners and marina operators, it is necessary to have one program responsible for ultimately ensuring that the measure is implemented. This responsibility will fall on the CRMC's Harbor Management Program.

CRMC's Harbor Management Program

This management measure will be implemented through the CRMC's Harbor Management Program with the assistance of other pre-existing programs which can

help to deliver the public outreach/education/training materials or opportunities necessary to implement the management measure.

Iplementation of the Measure
The CRMC's Harbor Management Program would work on an on-going basis to ensure that adequate opportunities exist with respect to public outreach/education/training to boat owners and marina operators. This would require working with existing programs to ensure that adequate public outreach materials exist. If they do not, the CRMC's Harbor Management Program would have the responsibility for either developing these materials or ensuring that some other agency or organization developed the materials.

The CRMC would also have the responsibility for ensuring that public outreach materials were distributed to the target audiences identified in the management measure. With respect to delivering public education materials to boat owners, the RIDEM Boating Safety Program has already developed an effective distribution system for public outreach and education materials. Other effective mechanisms include the Rhode Island Sea Grant, municipal harbor masters and the Rhode Island Marine Trades Association. The CRMC through both its existing marina certification program and the proposed operation and maintenance program requirements provides an important distribution channel for marina owners. Other distribution mechanisms could include the harbor master training programs developed by the URI Coastal Resources Center and Sea Grant. It is possible that another training program could be developed for marina operators.

Management Measure Oversight
The CRMC will have the responsibility for oversight on this nonenforceable management measure's implementation.

Monitoring
There is no water quality monitoring envisioned with respect to this measure. The management measure's implementation will however be monitored by coordinating the efforts of the various programs involved in the provision of public education/outreach/training activities. If additional materials or training programs need to be developed, the CRMC will coordinate their development with appropriate programs. This would probably be accomplished by creating some type of coordinating or steering committee to periodically review the existing outreach/education/training efforts and determine if addition activities were warranted or possible given fiscal conditions. In all likelihood these efforts would be linked with the public outreach and education efforts necessary to implement the Pollution Prevention Management Measure in the Urban Section to ensure that there was no unnecessary duplication of efforts and that all possible distribution channels for outreach/education/training are utilized.

Financial Needs

There are clear financial needs associated with developing the necessary outreach/education/training programs. These financial needs would include staff time at the CRMC as well as having funds available to contract out the development of necessary materials. There are also substantial yearly printing costs associated with large scale public outreach and education initiatives.

Technical Needs

It is unclear what technical needs would exist outside of the development of new outreach and education materials and training programs.

Additonal Implementation Mechanisms

Nonprofit organizations, such as Save-the-Bay, serve as a valuable vehicle for desseminating pollution control information to the boating public. As an example, Save-the-Bay, in cooperation with RIDEM and the U.S. Fish and Wildlife Service, published and has distributed an excellent pumpout facilities handout (see introduction to this chapter). This handout shows on a map the location of existing and planned pumpout facilities and provides the address, telephone number, hours of operation and cost per pumpout. This information has been provided in a particularly useful way for the boating public; the handout is waterproof.

The recently formed Marina Assistance Collaborative also will have an important role to play in dessimination of information to the marina industry. This organization, composed of industry and regulatory representatives, serves as a clearinghouse for marina pollution prevention information. The Collaborative has hosted one pollution prevention informational workshop for marina operators and plans more in the future. The Marina Assistance Collaborative is a particularly well-suited vehicle for outreach efforts since it has successfully brought together and enjoys the support of a wide range of agency, nongovernmental and industry representatives.

Maintenance of Sewage Facilities

Maintenance of Sewage Facilities
Ensure that sewage pumpout facilities are maintained in operational condition and encourage their use.

Applicability

This management measure applies to marinas where marine sewage disposal facilities exist.

Programs Implementing the Measure

This management measure will be implemented by the Rhode Island Coastal Resources Management Program (CRMC's permit process) and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and the Water Quality Certification Program. These programs are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented through the CRMC's permit process in accordance with the requirements contained in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the CRMC's permit process and the nature of the program, see Chapter 2 of this document. For more information on the program's overall effectiveness, see the Marina Flushing Management Measure. For more information on the measure's oversight, see the Solid Waste Management Measure.

Implementation of the Measure
The provisions in the RICRMP which implement, or will implement, this management measure are described below.

1. **Proposed RICRMP Section 300.4 Recreational Boating Facilities**

Proposed marina operation and maintenance program requirements will implement this measure. This program is discussed in more detail in the section addressing the Solid Waste Management Measure.

Section 300.4.E.2.b will require that each marina operation and maintenance program must, at a minimum, demonstrate the following:

> (8) *When sewage pumpout facilities or dump stations are present on-site*: a) Sewage pumpout facilities are maintained in operational condition; b) appropriate signs have been posted informing the public of the availability of pumpout facilities, dump stations, and sanitary facilities, ; and, c) the use of pumpout facilities, dump stations, and sanitary facilities is encouraged (Proposed RICRMP §300.4.E.2.b.8)."

Operations and Maintenance plans will be administered as conditions of a CRMC Assent. All enforcement procedures will apply. Marina operators will be required to update operations and maintenance plans every five years or in the event of a modification to the facility which requires a change in the approved operations and maintenance plan (proposed RICRMP Section 300.4.E.2(a)).

The operation and maintenance program must be approved by the CRMC prior to January 1, 1999. It must implement all necessary best management practices necessary to implement this requirement prior to the Council's full approval.

2. CRC's Marina Best Management Practices Manual

The University of Rhode Island Coastal Resources Center (CRC) has developed a best management practices manual for operation and maintenance activities which was funded pursuant to Section 319 of the Clean Water Act. This manual specifies appropriate best management practices applicable to all existing and new marina facilities and will be explicitly referenced in the CRMC's revised marina regulations thus having the affect of requiring the prescribed practices to be implemented at all existing marina facilities by the January 1999 deadline. For more information on the use of this manual in the CRMC's regulatory process see the Solid Waste Management Measure Section.

RIDEM Division of Water Resources, Water Quality Certification Program

Every marine sewage pump-out facility must be reviewed and approved by the RIDEM Division of Water Resources and receive an RIDEM Order of Approval. Accordingly, the marina must operate and maintain the sewage pump-out facility in strict conformance with the conditions contained in the Order of Approval. Implementation of this measure will also be required through marina operations and maintenance plans. RIDEM will be conducting routine inspections of approved marine sewage pumpout facilities for which federal Clean Vessel Act funds were provided.

As described in the Solid Waste management measure and the Sewage Facilities management measure, once approved by the CRMC, marina operations and maintenance plans become conditions of the CRMC marina assent. No operations and maintenance plan will be approved that does not adequately address the proper maintenance of sewage facilities. These plans will be enforced in the same manner as are the conditions of any other CRMC Assent (see description contained in Chapter 2 and under the Marina Flushing management measure, as well as the response to general comment 1).

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

Boat Operation

Boat Operation
Restrict boating activities where necessary to decrease turbidity and physical destruction of shallow-water habitat.

Applicability

This management measure applies to non-marina surface waters where evidence indicates that boating activities are impacting shallow-water habitat.

Program Implementing the Measure

Rhode Island will rely on the implementation of municipal harbor management plans and ordinances along with the RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program to implement this measure. In addition, the measure is indirectly addressed by the CRMC's regulatory program. For example, the CRMC's Type 1 Waters prohibition on new docks helps to reduce boating activities in these areas. In addition, when the Council reviews dock applications, impacts of boating activities on the surrounding habitats is considered. Likewise, when the Council reviews the location of a proposed marina or mooring field, the Council evaluates the potential impacts on surrounding shallow water habitats during its review. For more information on these requirements see RICRMP Section 200.1, 200.2, and 300.4.

CRMC's Harbor Management Program

This management measure will primarily be implemented through requirements of the CRMC's Municipal Harbor Management Program (MHMP). For a more detailed discussion of the MHMP see Chapter 2 and for more information on the overall effectiveness of the program see the discussion contained in the Marina Flushing Management Measure section.

Implementation of the Measure
The CRMC's Municipal Harbor Management Program (MHMP) will be used to implement the Boat Operation Management Measure. The CRMC will address the measure in three ways.

1. Requirements of Section 300.15.

All new public mooring areas and significant expansions of public mooring areas must be consistent with the requirements outlined in the Proposed RICRMP §300.15. The proposed amendments to this section will require the following:

> "3. All new and significantly expanded public mooring areas shall be sited in a manner which ensures that: . . . (c) there are no significant adverse effects on fish and shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas; . . . (Proposed RICRMP §300.15.C.3)."
>
> 4. All municipal harbor management plans and ordinances shall ensure that: . . . (c) boating activities are restricted where necessary to decrease turbidity and physical destruction of shallow-water habitat; . . . (Proposed RICRMP §300.15.C.4)."

Therefore the Council's approval of municipal HMPs and harbor ordinances will be reviewed in accordance with these requirements and ensure the implementation of the measure.

2. Revised *Guidelines for the Development of Municipal Harbor Management Plans*

The CRMC is currently involved in several projects intended to strengthen the CRMC's MHMP pursuant to the Section 309 Enhancement Grants Program (See CRMC's Section 309 Strategy for more detail). One of these tasks is the development of revised *Guidelines for the Development of Municipal Harbor Management Plans*. The revised *Guidelines* will include all of the requirements continued in Proposed RICRMP §300.15 as well as additional policies and requirements associated with developing municipal HMPs.

As a requirement of the current CRMC Harbor Management Guidelines, the municipalities must identify all fish and shellfish resources and associated habitat(s) when submitting municipal harbor management proposals. No plan will be approved that does not: 1) identify the location of "fish and shellfish resources, wetlands, and submerged aquatic vegetation", and 2) protect these resources from adverse impacts. The location of these resources is also taken into consideration in the review for a Water Quality Certification by the RIDEM, Division of Water Resources. This certification is required for applicable elements (i.e., the siting of mooring fields) of a municipality's harbor management plan.

3. Implementation of municipal harbor management plans and harbor ordinances.

In order to approve a harbor management plan, the CRMC requires that the municipality develop and approve a harbor ordinance that implements relevant portions of a municipal harbor management plan (See Appendix J for a sample harbor management plan and ordinance). Of particular interest are the fact that: the location of all mooring fields must be identified in the ordinance; vessel speed limits must be identified; and all setbacks from the shoreline must be identified. In the future, all harbor ordinances will be required to be consistent with the proposed requirements specified in number 1 above. Accordingly, the review of future harbor management plans and ordinances will ensure that municipalities have the appropriate vessel speed limits and restrictions necessary to implement the measure.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Marina Flushing Management Measure.

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Appendix 7A
Proposed Changes to the RICRMP: Marinas

1. Delete Section 300.4 in its entirety and replace with the following:

"300.4. Recreational Boating Facilities

A. DEFINITIONS

1. Recreational boating facilities include marinas, launching ramps, residential boating facilities, recreational wharves, piers and slips, floats or floating docks, and recreational mooring areas.

2. Marina: any facility that contains five or more boats, or piers where five or more boats may tie up.

3. Launching ramp: a manmade or natural facility used for the launching and retrieval of boats.

4. Residential boating facility: a dock, pier, wharf, or float, or combination of such facilities, contiguous to a private residence, condominium, cooperative or other home owners association properties that may accommodate up to four (4) boats.

5. Mooring area: any designated area managed by a commercial enterprise, a club, city, or town where five or more recreational craft are kept at moorings. Public mooring areas are defined as those mooring areas managed by municipal or state agencies. Public Mooring areas shall be delineated in approved municipal harbor management plans and are subject to the requirements contained in Section 300.15. Marina mooring areas are defined as those mooring areas managed by a private organization (e.g., marinas, yacht clubs, etc.). Marina mooring areas shall be considered as marina facilities and are subject to the standards contained in the section governing marina activities.

6. Significant Marina Expansion: Any expansion or alteration of an existing marina facility that results in: a) Alterations which propose to increase the numbers of vessels accommodated at the in-water facilities beyond 25% of the capacity as defined in the original Council Assent, and/or extend the facility beyond the defined perimeters, or alter the purpose of the facility; b) an expansion of upland facilities which increases impervious areas by 25%; or, c) an expansion of upland facilities which requires a change to a marina's operation and maintenance plan (e.g., the addition of a fueling station, addition of hull maintenance areas, etc.).

7. Significant expansion of a Marina Mooring Area: Any expansion of the mooring field beyond the previously authorized perimeter limit. Previously authorized perimeter limits for mooring fields shall include all perimeters authorized by the Army Corps of Engineers or the CRMC in accordance with Assents or the approval of municipal harbor management plans or ordinances.

8. Marina Perimeter: A marina perimeter shall relate to, but not necessarily coincide with the placement of existing in-water facilities that defines that portion of tidal waters in which a marina may conduct its operations and undertake minor repairs. Marina perimeters shall be defined on the basis of in-water facilities in place as of March 1972 or subsequently assented.

9. Marine Pumpout Facilities: For the purposes of this section, marine pumpout facilities shall be defined as either fixed point collection systems or portable/mobile systems.

B. POLICIES

1. The Council encourages marinas to utilize techniques that make the most efficient use of space and increased demands for moorage, dockage, and storage space by considering dry stack storage, innovative slip and mooring configurations, and the like.

2. In order to limit the cumulative impacts of many individual residential boating facilities, the Council encourages the construction of facilities that service a number of users. It is the policy of the Council to manage the siting and construction of recreational boating facilities within the public tidal waters of the state to prevent congestion, and with due regard for the capability of coastal areas to support boating, and the degree of compatibility with other uses and ecological considerations. The Council shall require that a residential structure be contiguous to any shoreline site for a proposed residential boating facility.

3. The Council recognizes that the United States Coast Guard has primary authority over navigational aids and marine boating safety, and that these responsibilities are complemented by the Department of Environmental Management, local harbormasters, and public boating service organizations such as the Coast Guard Auxiliary.

4. The Council requires municipalities preparing to implement harbor management rules, regulations and/or programs relating to activities and structures in tidal waters to apply for a determination of consistency with the Coastal Resources Management Program to assure conformance between such rules, regulations and/or programs and the Coastal Resources Management Program, the Guidelines for the Development of Municipal Harbor Management Plans and the General Laws of the State of Rhode Island (see Section 300.15).

5. All persons propos...g condominium, dockominium, or other forms of ownership or operation of recreational boating facilities involving multiple, cooperative, condominium or fee simple interests in ownership or operation shall submit a prospectus of such proposals to the CRMC for review of consistency with the state of Rhode Island's public trust responsibilities, Chapter 46-23 of the General Laws of Rhode Island, and the Rhode Island Coastal Resources Management Program.

6. Repair or reconstruction of all structures that are physically destroyed 50% or more by wind, storm surge, waves or other coastal processes shall require a new Council Assent. Such activities requiring a new Council Assent shall be reviewed according to the most current applicable programmatic requirements of the Coastal Resources Management Program, its Special Area Management Plans, and/or any other appropriate CRMC-approved management plan.

7. All residential boating facilities are required to be registered by and with the Council and have posted on them a registration plate and number issued by the Council. Applicants for residential boating facilities are referred to the Council's Dock Registration Program for additional detailed standards of this policy and program.

8. The Council shall require persons proposing to construct new marina facilities or proposing to significantly expand existing marina facilities meet the siting and design standards and prepare and implement an operation and maintenance program in accordance with the standards of this section in order to mitigate the adverse impacts to water quality associated with marina activities.

9. All recreational boating facilities shall be designed and constructed to adequately withstand appropriate environmental conditions present at the site.

10. All recreational boating facilities shall be designed and constructed in a manner which does not impede or detract from and whenever practicable promotes public access along and to the shore.

11. The construction of marinas, docks, piers, floats and other recreational boating facilities located on tidal lands or waters constitutes a use of Rhode Island's public trust resources. Due to the CRMC's legislative mandate to manage Rhode Island's public trust resources for this and subsequent generations, the Council must assess all proposed uses of public trust lands or waters on a case by case basis, examine reasonable alternatives to the proposed activity, and ensure that public's interests in the public trust resources are protected. In assessing a proposed recreational boating facility, the Council shall evaluate the following: a) the appropriateness of the structure given the activity's potential to impact Rhode Island's coastal resources (e.g., impacts to coastal wetlands and impacts associated with point and nonpoint sources of pollution); b) the appropriateness

of the structure given geologic site conditions; c) the potential impacts of the structure and use of the structure on public trust resources (e.g., fin fish, shellfish, submerged aquatic vegetation, etc.); d) the potential navigation impacts of the structure and associated use of the structure; e) the potential aesthetic and scenic impacts associated with the structure; and f) the cumulative impacts associated with the increased density of existing recreational boating facilities in the vicinity of the proposed project. In considering these factors, the Council shall weigh the benefits of the proposed activity against its potential impacts while ensuring that it does not cause an adverse impact on other existing uses of Rhode Island's public trust resources.

12. All marina facilities shall have an operation and maintenance program approved by the Council in accordance with the requirements of this section by January 1, 1999. Each operation and maintenance program shall be consistent with the most recent version of the *Environmental Guide for Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island.*

C. PREREQUISITES

1. Persons proposing to establish a new marina must obtain permits concurrently from the Army Corps of Engineers and the CRMC. Council and Army Corps requirements are designed to complement one another; applicants should consider the requirements of both agencies when preparing to begin the permit process. In some cases, the Council may require an applicant to obtain applicable Army Corps of Engineers permits prior to applying to the Council. A CRMC Assent is not valid unless the applicant has received all required Army Corps of Engineers approvals.

2. An application for a Council Assent for a new or significantly expanding marina will include a map prepared and stamped by a professional engineer, land surveyor, or architect that designates the area of tidal water that will be incorporated within the marina as well as appropriate upland facilities.

3. (a) All applications for recreational boating facilities shall be initially reviewed by the Executive Director or his designee. The Executive Director may refer any such application to the Council for a hearing if based upon the application on its face a determination is made that the proposed activity warrants a Council hearing.

   (b) All such applications not referred to the Council for hearing under (a) above shall be referred to the subcommittee on recreational boating facilities which shall consist of at least three (3) Council members appointed by the Chairman. The Chairman shall also appoint a Chairman of the subcommittee.

   (c) The subcommittee on recreational boating facilities shall, based upon the

application and staff reports, make a determination that the application meets all the criteria as set out in Section 300.4.E.4 and any other applicable Council policy or procedures. If a determination is made that all the above criteria are met within thirty (30) days of the submission of the file by the staff to the subcommittee chairman that the file is complete, the application shall be processed as a Category A application.

(d) If a determination is made by the subcommittee that all of the above criteria are not met then the subcommittee shall refer the matter to staff as a Category B application.

(e) The subcommittee shall have the authority to consider and act upon variance requests to certain standards of this section pertaining to residential boating facilities. The subcommittee shall utilize the criteria and requirements of Section 120 of this program in its evaluation of variance requests. Variances may be granted by the subcommittee to the standards listed in subsection (f) below only; variance requests to other standards of this section, or to other appropriate and relevant sections of the CRMP must be made to the full Council. Variances shall not be considered by the subcommittee if there is a substantive objection, in accordance with Section 130, to the application.

(f) Variances may be granted to all of the standards contained in Section 300.4.E.4 and Section 200.2.C.3 provided engineering, biological and other appropriate concerns have been addressed except for the following: i) the subcommittee may not grant a variance to Section 300.4.E.4.j; ii) the subcommittee may only grant a variance to within 18 inches of the marsh grade standard (Section 300.4.E.4.f) provided engineering, biological, and other appropriate concerns are met; and iii) the subcommittee may only grant a variance for the extension of a recreational boating facility out to 75 feet beyond MLW or up to a 50% increase beyond the 50 foot standard (Section 300.4.E.4.k) provided engineering, biological, and other appropriate concerns are met.

D. PROHIBITIONS

1. The building of new marinas in Type 1 and 2 waters is prohibited.

2. The building of new residential docks, piers, and wharves in Type 1 waters is prohibited. This prohibition shall not apply to structures previously assented by the Rhode Island Department of Harbors and Rivers, the Army Corps of Engineers, or the CRMC. Additionally, in those instances where an applicant can not produce a previous assent but can demonstrate by clear and convincing evidence that a residential dock in Type 1 Waters pre-existed the formation of the Council, the Council may grant a Temporary Dock Permit issued in accordance with the CRMC's Dock Registration Program, which permit shall

expire at the end of the useful life of the structure, or ten (10) years, whichever occurs first, and at which time said structure must then be removed. Any assent granted pursuant to this section shall be recorded in the land evidence records and is transferable to a subsequent owner or purchaser of the subject property, provided however, that all assent conditions are adhered to and the dock is removed at the termination of assent.

3. The unloading of catches by commercial fishing vessels at residential boating facilities is prohibited.

4. The building of structures that are integral to or ancillary to a residential boating facility, including but not limited to gazebos, boat lifts, launching ramps, boat houses, and storage sheds is prohibited. However, the construction of boat lifts and launching ramps may be allowed in Type 3, 5, and 6 waters.

5. The discharge of sanitary wastes into tidal waters from devices other than those approved by the United States Coast Guard is prohibited.

E. STANDARDS

1. Siting and Design Standards for New Marinas and Significant Expansions of Marina Facilities:

   (a) Site and design marinas and ancillary structures such that tides and/or currents will aid in flushing of the site or renew its water regularly. Turning basins and navigation channels shall be designed to prevent long-term degradation of water quality. In areas where there is poor water quality circulation, the depth of boat basins and access channels should not exceed that of the navigable channel.

   (b) Demonstrate that the proposed activity does not create significant adverse effects on water quality during and following construction of the marina facility.

   (c) Site and design marinas to protect against adverse effects on fish and shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas during and following marina construction.

   (d) Where shoreline erosion is a nonpoint source pollution problem, shorelines should be stabilized in accordance with the policies and standards contained in Section 300.7.

   (e) Implement effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas. Reduce the average annual loadings of TSS in runoff from hull

maintenance are... by 80% in accordance with the policies and standards contained in Section 300.6.

(f) Design fueling stations to allow for ease in cleanup of spills. All marinas installing fueling stations shall submit a Spill Response Plan to be approved by the Council in accordance with the *Environmental Guide for Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island.*

(g) All new marina facilities shall be required to install a marine pumpout facility and where appropriate, a dump station. Any expansion or alteration of an existing marina facility that results in greater than or equal to 50 new slips shall be required to install a marine pumpout facility and where appropriate, a dump station. Any expansion or alteration of an existing marina facility which proposes to increase the number of vessels accommodated at the in-water facilities beyond 25% of the capacity as defined in the original Council Assent shall be required to undertake mitigative measures. If 25% of the capacity as defined in the original Council Assent is greater than or equal to 50 slips, then a marine pumpout facility and where appropriate, a dump station shall be required. If 25% of the capacity as defined in the original Council Assent is less than 50 slips, then the Council shall require either the installation of a marine pumpout facility or other suitable mitigation measures such as a dump station.

When the Council has determined that there are already enough marine pumpout facilities to serve all of the recreational boating facilities found in the region, then the Council may waive the requirement for a marine pumpout facility and/or a dump station and require alternative mitigative measures.

All marine pumpout facilities shall be designed in a manner that serves the boating public. In addition, all marine pumpout facilities that are required by the Council to mitigate the adverse impacts to water quality associated with recreational boating shall be open for the general public's use. However, marina operators may charge a fair and nondiscriminatory fee to cover the cost of constructing and operating these facilities. Signs shall be posted informing the public as to the location and availability of pump-out facilities.

(h) Sufficient restroom facilities shall be provided to service the patrons of the marina.

(i) Sufficient parking shall be provided for the patrons of the marina. A standard of 300 square feet is required for each parking space; the minimum requirements for the total number of parking spaces provided is one space for each 1.5 boats and one space for each 1.2 employees.

(j) Discharge of sanitary wastes to tidal waters from boats using the facility by devices other than those approved by the United States Coast Guard is prohibited.

(k) All new marina facilities shall meet the setback policies and standards contained in municipal harbor management plans and/or harbor ordinances approved by the Council. However, in all cases marina facilities shall be setback at least 50 feet from approved mooring fields and three times the authorized project depth from federal navigation projects (e.g. navigation channels and anchorage areas).

(l) All new marinas and significant expansions of marinas are required to prepare and implement an operation and maintenance program in accordance with the most recent edition of the *Environmental Guide for Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island.* and the standards contained in Section 300.4.E.2.

(m) All new marinas and significantly expanded marinas shall prepare and implement an erosion and sediment control plan in accordance with the requirements of Section 300.2. and the most recent edition of the *Rhode Island Soil Erosion and Sediment Control Manual.*

(n) All new marinas and significantly expanded marinas shall prepare and implement a stormwater management plan in accordance with the requirements of Section 300.6 and the most recent edition of the *Rhode Island Stormwater Design and Installation Standards Manual.*

(o) All marina mooring areas shall meet the setback policies and standards contained in municipal harbor management plans and/or harbor ordinances approved by the Council. However, in all cases marina mooring area shall be setback at least 50 feet from approved marina facilities and all marinas shall be set back three times the authorized project depth from federal navigation projects (e.g. navigation channels and anchorage areas).

2. Marina Operation and Maintenance:

(a) All marina facilities shall prepare and implement an operation and maintenance program consistent with the most recent edition of the *Environmental Guide for Marinas: Controlling Nonpoint Source and Storm Water Pollution in Rhode Island.* and the requirements of this section by January 1, 1999. Marina owners may apply to the Council for approval of an operation and maintenance program at any time prior to January 1, 1999. Each operation and maintenance program shall include all appropriate best management practices necessary to satisfy the requirements of this section. It must also contain a site plan which clearly shows the marina perimeter limit

and the location of all upland facilities and property boundaries. Marina owners shall be required to update marina operation and maintenance programs every five (5) years or in the event of a modification to the facility which requires a change to the approved operation and maintenance program. An approved operation and maintenance program permits a marina facility to conduct maintenance and repair activities in accordance with the requirements of 300.4.E.2.c and 300.4.E.2.e.

(b) Each marina operation and maintenance program must, at a minimum, demonstrate the following:

(1) *When hull maintenance areas are present*: Effective runoff control strategies which include the use of pollution prevention activities and the proper design of hull maintenance areas are implemented such that the average annual loadings of Total Suspended Solids (TSS) is reduced by 80% in accordance with the requirements of Section 300.6.
(2) *When fueling stations are present on-site*: a Spill Response Plan shall be prepared and implemented which meets appropriate state and local requirements for fuel dispensation or storage areas.
(3) Solid wastes produced by the operation, cleaning, maintenance, and repair of boats are properly disposed of in order to limit entry of solid wastes to surface waters.
(4) *When the disposal of fish waste is determined by the CRMC and the RIDEM to be a source of water pollution*: Sound fish waste management shall be promoted through a combination of fish-cleaning restrictions, public education, and proper disposal of fish waste;
(5) *When liquid materials used in the maintenance, repair, or operation of boats are stored on-site*: Appropriate storage, transfer, containment, and disposal facilities for liquid material, such as oil, harmful solvents, antifreeze, and paints, is provided and maintained and the recycling of these materials is encouraged;
(6) Reduce the amount of fuel and oil from boat bilges and tank air vents entering marina and surface waters using appropriate practices.
(7) *Marinas where boat topsides are cleaned and marinas where hull scrubbing in the water has been shown to result in water or sediment quality problems*: Cleaning operations are performed in a manner which minimizes, to the extent practicable, the release to surface waters of (a) harmful cleaners and solvents and (b) anti-fouling paint from in-water hull cleaning; and,
(8) *When sewage pumpout facilities or dump stations are present on-site*: a) Sewage pumpout facilities are maintained in operational condition; b) Appropriate signs have been posted informing the public of the availability of pumpout facilities, dump stations, and sanitary facilities; and, c) the use of pumpout facilities, dump stations, and sanitary facilities is encouraged.

(c) An approved operation and maintenance program permits the marina operator to undertake minor repairs and alterations of approved in-water facilities without further review, where such repairs or activities will not alter the assented design, capacity, purpose or use of the marina. For the purposes of this section, the assented design, capacity, purpose or use of the marina shall be those characteristics associated with the physical configuration or construction, numbers of vessels accommodated at in-water facilities, and nature of operation as defined in the original Council Assent, respectively. Minor repairs and alterations shall include repair or replacement of dock decking or planks, replacing pilings, extensions of slips and/or finger piers and other activities of a similar and non-substantial nature. Minor repairs and alterations shall not be construed to include maintenance dredging, alterations, repairs or expansion of shoreline protection facilities, bulkheads, or breakwaters, or other activities subject to review under other relevant sections of this program.

Prior to January 1, 1999, marina owners without approved operation and maintenance program are authorized to conduct the aforementioned minor repairs and alterations to approved in-water facilities without further review, where such repairs or activities will not alter the previously assented design, capacity, purpose or use of the marina provided that an approved Council Assent or marina perimeter exists.

(d) Proposals for the alteration or reconfiguration of in-water facilities such as docks, piers, and/or mooring areas shall be reviewed as follows:

(1) Alterations to the layout or configuration of in-water facilities which do not increase the number of boats accommodated shall obtain a Certification of Maintenance in accordance with the requirements of Section 300.14;

(2) Alterations which propose to increase the number of boats that may be accommodated at the in-water facilities of the marina within 25% of the capacity of the marina as defined in the original Council Assent, and do not propose to extend the facility beyond the defined perimeters shall be reviewed as Category A applications. The Council's review shall establish that the alterations and/or expansion meet the 25% standard, and that the Council's standards for parking and sanitary facilities are met.

(3) Alterations which propose to increase the numbers of vessels accommodated at the in-water facilities beyond 25% of the capacity as defined in the original Council Assent, and/or extend the facility beyond the defined perimeters, or alter the purpose of the facility shall be reviewed as a Category B application.

(e) An approved operation and maintenance program permits the marina owner

to undertake minor repair and maintenance of approved upland facilities without further review, provided that such repairs or activities will not result in any of the following:

(1) an increase in impervious surfaces;
(2) filling removing, or grading activities as defined in Section 300.2;
(3) addition or expansion of hull maintenance or repair areas;
(4) increase in the footprint of any building or additional floors of the structure; or,
(5) a change in the purpose or use of the marina.

For the purposes of this section, the approved upland facilities shall be those identified on the site plan approved as part of an operation and maintenance program.

(f) When minor repair and maintenance to in-water or upland facilities requires the use of heavy machinery (such as a pile driver), the Council shall be notified in writing at least 10 working days prior to undertaking the work. Notice of repair activities requiring the use of heavy machinery shall include the following:

(1) A statement that the notice is given pursuant to Section 300.4;
(2) A description of the proposed repair or alteration to be performed including a statement as to the size and type of materials to be used;
(3) A copy of the original Council Assent, Division of Harbors and Rivers permit, or operation and maintenance plan under which the proposed repair or alteration is to be performed;
(4) A copy of the site plan (e.g., site plan from the operation and maintenance plan) showing the location of the proposed repair or alteration;
(5) The name of the person on-site responsible for supervising the proposed repair or alteration;
(6) The anticipated dates on which the proposed repair or alteration shall commence and be completed.

3. Launching ramps:

(a) Ramps shall be constructed at an angle no greater than 15 percent from the horizontal. Where upland modification is necessary, the slope will be created, where possible, by cutting back into the upland, rather than by placing fill on a shoreline feature. Ramps shall be approximately even with beach grade.

(b) Ramps shall extend a sufficient distance inland to prevent washout at the inland edge and shall extend a minimum of 3 feet beyond extreme low water. Single-lane ramp width shall not be less than 15 feet.

(c) Where a form of pavement is necessary in areas of unconsolidated sediment, ramps will be constructed using 6 inch by 6 inch or equivalent by a maximum of 15 feet reinforced concrete ties, connected with galvanized steel rods placed perpendicular to the slope of the ramp, and packed within the underlain by 6 inches of crushed stone. Concrete ties shall utilize an air-entraining, Type II or Type V Portland cement, or an equivalent sulfate-resistant substitute.

(d) Side slopes of the ramp (above water line) shall be constructed of sloped riprap or, if the slope permits, vegetated.

(e) See Section 300.2, "Filling, Removing, or Grading of Shoreline Features," and Section 300.7, "Construction of Shoreline Protection Facilities."

4. Residential docks, piers, and floats:

(a) Applications for all residential recreational boating facilities shall indicate all work associated with access to these structures; a bottom survey showing water-depth contour lines and sediment types along the length of the proposed structure shall also be provided and certified by a registered professional engineer. All pathways, boardwalks, and cutting or filling of coastal features shall be specified. All such work shall be in accordance with applicable standards for "Filling, Removing, or Grading" (Section 300.2) and "Residential, Commercial, Industrial, and Public Recreational Structures" (Section 300.3).

(b) Fixed structures which are for pedestrian access only shall be capable of supporting 40 pounds per square foot live load as well as their own dead weight; floating structures shall be capable of supporting a uniform 20 pounds per square foot live load, or a concentrated load of 400 pounds. A written certification by the designer that the structure is designed to support the above design loads shall be included with the application.

(c) No creosote shall be applied to any portion of the structure.

(d) A dock, floating dock or pier width shall be a maximum of 4 feet; terminal float size shall not exceed 150 square feet per recreational boating facility.

(e) Flotation devices shall be securely contained.

(f) Where possible, piers shall span coastal wetlands; when pilings are placed within coastal wetlands, only the immediate area of piling penetration may be disturbed. The stringers shall be located at least 3 1/2 feet above the grade of the coastal wetland. Construction in a coastal wetland shall be accomplished by working out from completed sections. No construction

equipment shall traverse the wetland while the facility is being built.

(g) Owners are required to maintain their facilities in good working condition. Facilities may not be abandoned. The owner shall remove from tidal waters and coastal features any structure or portions of structures which are destroyed in any natural or man-induced manner.

(h) Float ramps and other marine appurtenances or equipment shall not be stored on a coastal wetland, shoreline embankment, or in any area designated as a buffer zone.

(i) The use of cribs for structural support shall be avoided. The use of cribs as support in tidal waters may be permitted given certain environmental design considerations, however, in these instances the size and square footage shall be minimized and the structure can not pose a hazard to navigation. When cribs are permitted for structural support, they must be removed when the useful life of the structure has ceased (e.g. the structure is no longer used as a means of accessing tidal waters).

(j) Residential boating facilities shall not intrude into the area within 25 feet of an extension of abutting property lines unless (1) it is to be common structure for two or more adjoining owners, concurrently applying or (2) a letter or letters of no objection from the affected owner or owners are forwarded to the CRMC with the application.

(k) Residential boating facilities shall not extend beyond that point which is (1) 25 percent of the distance to the opposite shore (measured from mean low water), or (2) 50 feet seaward of mean low water, whichever is the lesser.

(l) All residential docks, piers, and floats shall meet the setback policies and standards contained in municipal harbor management plans and/or harbor ordinances approved by the Council. However, in all cases residential docks, piers, and floats shall be setback at least 50 feet from approved mooring fields and three times the U.S. Army Corps or Engineer's authorized project depth from federal navigation projects (e.g. navigation channels and anchorage areas).

(m) No sewage, refuse, or waste of any kind may be discharged from the facility or from any vessel utilizing it.

(n) Routine maintenance of an existing private recreational boating facility previously authorized by a Council Assent shall require a Certification of Maintenance in accordance with the requirements of Section 300.14 of this program.

(o) Materials used [illegible] the construction of residential boating facilities shall be limited to timber. This requirement does not apply to float restraint piles or ramps used in the construction of floating docks. This requirement also does not pertain to timber connection hardware. Alternate materials may be utilized in the construction of floating docks.

(p) The surface of the dock, pier and float shall be designed in a manner which provides safe traction and allows for the appropriate drainage of water.

(q) Geologic site conditions shall exist which are appropriate for structural support."

2. Delete Section 300.15 in its entirety and replace with the following:

"300.15. Municipal Harbor Regulations

A. DEFINITIONS

1. Municipal harbor rules, regulations and programs include all rules, regulations, programs or management functions exercised by a municipality that apply to the use of tidal waters adjacent to a municipality.

2. Mooring area: any designated area managed by a commercial enterprise, a club, city, or town where five or more recreational craft are kept at moorings. Public mooring areas are defined as those mooring areas managed by municipalities. Public Mooring areas shall be delineated in approved municipal harbor management plans and are subject to the requirements of this section. Marina mooring areas are defined as those mooring areas managed by a private organization (e.g., marinas, yacht clubs, etc.). Marina mooring areas shall be considered as marina facilities and are subject to the standards contained in Section 300.4.

3. Significant expansion of a Public Mooring Area: Any expansion of the mooring field beyond the previously authorized perimeter limit. Previously authorized perimeter limits for mooring fields shall include all perimeters authorized by the Army Corps of Engineers or the CRMC in accordance with Assents or the CRMC's approval of municipal harbor management plans or ordinances.

B. POLICIES

1. All municipalities proposing to adopt harbor rules, regulations, or programs shall apply to the Council for a determination of consistency with the Coastal

Resources Management Program. Municipalities are referred to the *Guidelines for the Development of Municipal Harbor Management Plans* for additional detailed standards in establishing harbor rules, regulations or programs.

2. When a city or town enacts a ordinance under Rhode Island General Laws 46-4-2, it shall not be required to request a determination of consistency with the Coastal Resources Management Program unless such by-law or ordinance affects the planning, regulation, or coordinating functions of the Council.

3. All public mooring areas shall be sited, designed, operated, and maintained in accordance with the requirements of this section, the most recent edition of the CRMC's *Guidelines for the Development of Municipal Harbor Management Plans*, approved municipal harbor management plans, and approved municipal harbor ordinances.

4. The Council recognizes that the United States Coast Guard has primary authority over navigational aids and marine boating safety, and that these responsibilities are complemented by the Department of Environmental Management, local harbormasters, and public boating service organizations such as the Coast Guard Auxiliary.

5. The Council requires municipalities preparing to implement harbor management rules, regulations and/or programs relating to activities and structures in tidal waters to apply for a determination of consistency with the Coastal Resources Management Program to assure conformance between such rules, regulations and/or programs and the Coastal Resources Management Program, the *Guidelines for the Development of Municipal Harbor Management Plans* ,and the General Laws of the State of Rhode Island.

o. Discharge of sanitary wastes to tidal waters from boats by devices other than those approved by the United States Coast Guard is prohibited.

C. MUNICIPAL HARBOR MANAGEMENT PLAN AND ORDINANCE APPROVAL REQUIREMENTS

1. All municipal harbor management plans shall be consistent with all policies, standards, and requirements specified in the Rhode Island Coastal Resources Management Program, the most recent edition of the Council's *Guidelines for the Approval of Municipal Harbor Management Plans*, and Rhode Island General Laws 46-4-2.

2. The Executive Director is authorized to approve, administratively, municipal harbor regulations and ordinances for an interim period of one year, provided:

(a) The municipality submits an application for review and approval by the

Executive Director such that present conditions of the harbor and the uses made of it can be examined;

(b) In the meantime, the municipality undertakes and prepares a comprehensive harbor management plan, in conformance with the policies and requirements of the CRMP, as amended;

(c) Until such time as a comprehensive harbor plan is prepared, all activities regulated throughout the CRMP, or which take place below the mean high water mark, must come before the CRMC for review and approval, in accordance with established procedures.

3. All new and significantly expanded public mooring areas shall be sited in a manner which ensures that:

(a) the tides and/or currents will aid in flushing of the site or renew its water regularly;
(b) the proposed mooring area does not cause significant adverse effects on water quality;
(c) there are no significant adverse effects on fish and shellfish resources, wetlands, submerged aquatic vegetation, or other important riparian and aquatic habitat areas;
(d) mooring fields are setback at least 50 feet from approved marina facilities and three times the authorized project depth from federal navigation projects (e.g. navigation channels and anchorage areas).

4. All municipal harbor management plans and ordinances shall ensure that:

(a) the mooring fields are serviced by adequate and accessible marine pumpout facilities and dump stations which are maintained in operational condition;
(b) the use of marine pumpout facilities is encouraged;
(c) boating activities are restricted where necessary to decrease turbidity and physical destruction of shallow-water habitat;
(d) all in-water boat cleaning operations are performed in a manner which minimizes, to the extent practicable, the release to surface waters of (i) harmful cleaners and solvents and (ii) anti-fouling paint from in-water hull cleaning;

5. All Harbor Management Plans shall identify public mooring areas with a well defined perimeter which shall describe and limit that area in which moorings may be placed. The perimeter of the mooring field shall be identified on a site plan at a scale of 1" = 40' or larger which bears the signed stamp of a Rhode Island registered land surveyor or professional engineer

6. Proposals for the alteration of the perimeter limit for a public mooring area shall be reviewed as amendments to approved municipal harbor management plans and ordinances. The Council's approval shall be its approval of amendments to

the municipality's harbor management plan and ordinance. All alterations to mooring areas shall be consistent with any CRMC approved municipal harbor management rules, regulations or programs, as defined in this section and the most recent edition of the Council's *Guidelines for the Development of Municipal Harbor Management Plans.*"

Chapter 8
Hydromodifications

Introduction

This section of the threshold review addresses six management measures which address hydromodifications. The *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA 1993) classifies Hydromodification activities into three categories:

- Channelization and Channel Modification;
- Dams; and,
- Shoreline Erosion.

This chapter provides a brief overview of these three subcategories of nonpoint pollution in Rhode Island. It also discusses how Rhode Island already implements, or will implement these six management measures.

Channelization and Channel Modification

Channelization and channel modification are defined in the (g) Guidance as river and stream channel engineering undertaken for the purposes of flood control, navigation, drainage improvement, and reduction of channel migration potential. These terms also refer to the excavation of borrow pits, canals, underwater mining or other practices that change the depth, width, or location of waterways or embayments in coastal areas. With the exception of channel engineering undertaken for the purposes of navigation, e.g., dredging, none of the aforementioned activities takes place in Rhode Island. Further, the level of dredging activity is low, discreet rather than ongoing, and limited to tidal waters. Therefore, descriptions of implementation of the channelization management measures focus on dredging activities.

Many of Rhode Island's tidally influenced submerged lands have been subjected to dredging activities since colonial times. These activities have been due, in part, to the increase in the size and draft of commercial and recreational vessels, and the ongoing problem of siltation within navigable waters. An estimated 25 million cubic yards of material has been dredged from Narragansett Bay, and its adjacent waters, to improve navigation during the past two centuries (CRC 1981). This includes both improvement dredging undertaken to increase the depth or extent of channels, and maintenance dredging to remove material which settled back into previously dredged

channels and basins (CRMC 1990). However, in recent history, this trend has been reversed. Currently there are no significant improvement dredging activities ongoing in Rhode Island coastal waters. Over the past few years, most dredging activities have been limited in scope and are best defined as maintenance dredging. However, that could change if the Providence Harbor Channel is dredged.

In the past several decades the biggest dredging projects have involved the dredging of about 20 miles of 35 to 40 foot channels in Narragansett Bay to the port of Providence and to Fall River Massachusetts. The first of these projects occurred in 1950 when 2,710,000 cubic yards of dredge material was removed from the entrances to Fall River. Another large projected occurred seven years later when 1,500,000 cubic yards of dredge material was removed from the Fall River harbor channels in 1957. The most massive dredging project ever undertaken in the State of Rhode Island, to date, occurred between the years of 1967 and 1971 when 9,800,000 cubic yards of dredge material was

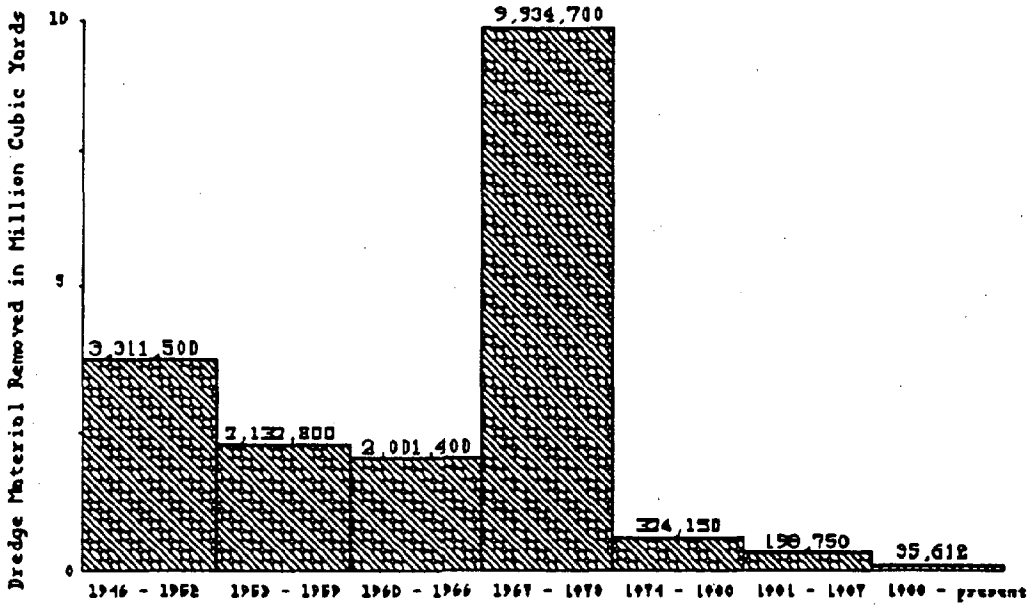
Table 8.1 Completed Dredging Projects in Rhode Island Since 1988

Location	Project	Volume (cubic yards)
Newport	Lees Wharf Realty	150
	U.S. Coast Guard	200
	Bowens Wharf	100
South Kingstown	Theodore Farrel	60
	Silver Spring Cove	1333
Warren	Blount Realty	10
North Kingston	RIDOT	1854
New Shoreham	COE	20,000
Westerly	Watch Hill Fire District	2300
	Weekapaug Fire District	950
Portsmouth	Coggeshall Development	7,800
	Hood Enterprises	730
Warwick	Edward Ventura	125
Total		**35,612**

removed from the Providence River channel and harbor (Metcalf and Eddy 1987). Smaller-scale projects have involved the dredging of many small harbors and coves such as Little Narragansett Bay in Westerly, Great Salt Pond on Block Island, Newport and Wickford Harbors, and Point Judith Pond in Narragansett (CRC 1979). These smaller projects usually involved the removal of less then 80,000 cubic yards of dredge material per project (Metcalf and Eddy 1987).

More recent dredging activities in Rhode Island coastal waters have been minimal. According to permitting records from the Coastal Resource Management Council (CRMC), only 13 applications involving dredging activities within Rhode Island waters were approved and completed between 1988 and 1994. The total dredge material resulting from these 13 projects have totaled only 35,612 cubic yards. This figure is relatively low considering that 20,000 cubic yards, or 56 percent, of the six year total came from one project (Table 8.1). Material dredged from 1946 to 1987 totaled 17.9 million cubic yards. When calculated, an average of 2.9 million cubic yards have been removed every six years from 1946 to 1987. However, during the last six years 35,612 cubic yards, or 1.2 percent of the six-year 2.9 million average has been removed (Table 8.2). Accordingly, there has been a significant decrease in dredging activities within Rhode Island waters during the past six years. It should be noted, however, that the Army Corps of Engineers (COE) is currently in the process of developing plans to dredge the Providence Harbor. It is estimated that this project will remove upwards of 3 million cubic yards of material and will include the dredging of the berths at the Port of Providence.

Table 8.2 Total Dredge Material Removed from 1946 to Present



Source: Metcalf & Eddy 1987 and CRMC 1994.

Magnitude of Nonpoint Source Problems from Dredging Activities

Potential nonpoint source pollution impacts associated with dredging activities involve the physical and chemical alteration of bottom sediment and surface water. These alterations are associated with environmental problems such as increased siltation, hydrological changes, and thermal fluctuations (RIDEM 1989). Examples of these environmental problems associated with dredging activities include:

- Resuspension of sediments, increasing turbidity, which degrades water quality and primary production;
- Resuspension of sediment-bound pollutants which again degrade water quality, posing a severe biological threat;
- Reintroduction of nutrients, increasing productivity and triggering eutrophic conditions, resulting in blooms and associated hazards;
- Resuspension of low oxygen sediments, depleting the ambient oxygen supply available to other organisms; and,
- Hydrological changes altering the salinity, dissolved oxygen level, temperature, sediment and erosion patterns, disturb habitats, wipe

out non-motile species and force motile species to move to other regions.

In addition, the removal of bottom substrate can facilitate the leaching of saltwater into the freshwater ground-lens, causing significant freshwater quality problems in localized areas.

With a decreasing number of dredging activities occurring within Rhode Island's waters, nonpoint source pollution stemming from these dredging activities has also decreased. However, due to potential future dredging activities, the need for these management measures is apparent. For this reason and to meet federal requirements, the two management measures addressing channelization and channel modification will be implemented through amendments to the Rhode Island Coastal Management Program (RICRMP), the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act*, and the RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

Dams

In the State of Rhode Island there are 16,749 acres of lakes and ponds, and 725 miles of rivers and streams (EPA 1994) According to Rhode Island's Department of Environmental Management (RIDEM), 506 dams are currently situated within these waters. Out of these 506 dams, 157 meet the following definition contained in the Section 6217 (g) Guidance:

- Constructed impoundments 25 feet or more in height and greater than 15 acre-feet in capacity, or;
- Constructed impoundments 6 feet or more in height and greater than 50 acre-feet in capacity (EPA 1993).

Approximately 19 of the 157 dams are 25 feet or more in height and possess storages greater than 15 acre-feet. The average height and storage of these 19 dams is 37 feet in height with an average storage of 8294 acre-feet.

All of the 157 dams meet the definition of, 6 feet or more in height and possess storages greater than 50 acre-feet. The average height and storage of all 157 dams is 14.5 feet in height with an average storage of 1373.7 acre-feet. The largest of these dams is the Gainer Memorial Dam in Scituate, which is 109 feet in height and holds 114,000 acre-feet under normal conditions. The smallest of these dams is the Moscow Pond Dam in Hopkinton, which is 6 feet in height and holds 50 acre-feet under normal conditions (Hauck 1994).

The functions of the 157 dams are minimal and mainly consist of a few small-scale hydroelectric generation facilities. According to the RIDEM, 16 of these dams have hydroelectric capabilities, but only 6 are in operation. The other dams throughout the State have no uses, or purposes, and are simply permanent fixtures leftover from the industrial revolution (Hauck 1994).

Management Practices

Section 46-19 of Rhode Island's General Laws stipulates that the jurisdiction over all dams within Rhode Island, both public and private, lies with the Rhode Island Department of Environmental Management (RIDEM). The RIDEM, through provisions set forth in Rhode Island General Laws Section 42-17.1-2, has delegated the management of all 506 existing dams, ongoing dam projects, and future dam projects to the RIDEM's Division of Freshwater Wetlands Dam Safety Program. The Fresh Water Wetlands Act stipulates that the administration and enforcement of the Act lie within the Division of Freshwater Wetlands of the RIDEM. In order to more specifically manage dams throughout the State, the Division of Freshwater Wetlands administers and enforces the Dam Safety Program. Under the Program, permitting , the

planning and specification evaluation, and the inspection process of the State's dams are carried out.

According to the *Rules and Regulations of the Governing the Administration and Enforcement of the Fresh Water Wetlands Act(Rules)*, the construction of any new dam, significant modifications or alterations to any existing dam, and significant maintenance and/or superficial repair of an existing dam requires a permit from the Director of the RIDEM, pursuant to Rule 4.03. Prior to issuance of a Permit, an applicant may file a Request for Preliminary Determination and/or if necessary an Application to Alter. The Request for Preliminary Determination (Rule 9.03) determines whether or not a project appears to represent a significant alteration to freshwater wetlands. If it is determined that a significant alteration will occur, an Application to Alter is required, pursuant to Rule 9.05. The Director of the RIDEM then approves or denies the proposed action based on Rule 9.05 and review criteria set forth in Rule 11.02 of the *Rules and Regulations*.

It should also be noted that the construction of a dam within the jurisdiction of the Coastal Resources Management Council (CRMC) also requires a permit. This would include all dams located in coastal waters as well as any dam which would result in a freshwater diversion that impacts coastal resources.

Of the 157 dams which meet the applicability criteria contained in the (g) Guidance, eight fall within the geographic jurisdiction of the CRMC. In these cases, the dams themselves are the coastal feature determining CRMC jurisdiction. As a result, activities on, or within 200 feet of, these structures are subject to all the policies and standards of the RICRMP as well as RIDEM regulations. None of these eight dams have been identified as causing nonpoint source impacts to coastal waters.

Magnitude of Nonpoint Source Problems from Dams

Dams impact the environment in three basic ways. First, their initial construction adversely effects water quality and vegetation. Second, the actual situation of the dams disrupts the natural hydraulics of the stream or river. Third, the operation of the dams generate significant amounts of nonpoint source pollution in surface waters (EPA 1993).

Construction activities associated in building a dam can cause increased turbidity and sedimentation in the waterway resulting from vegetation removal, disturbance of soils, and soil rutting. Also, the presence of construction equipment can lead to the introduction of fuels and chemicals into adjacent waters (EPA 1993). If there is ongoing or proposed dam construction within the State, it would have to be carried out in accordance

with Chapter 46-19 of the Rhode Island General Laws, Inspection of Dams and Reservoirs. This statute is implemented through the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands by the Dam Safety Program.

The physical siting of the dam deprives downstream wetlands and riparian areas of much needed flood waters, while the upstream wetlands, riparian areas, and fastland are inundated by the presence of the dam. Also, dams can block or impede migration routes of fish and other biological species (EPA 1993). Little, if anything, can be done, or needs to be done, to correct the siting of dams already in existence. Most of the dams, as mentioned before, are permanent fixtures left over from the Industrial Revolution. They are low dams, with small hydraulic heads, limited storage areas, short detention times, and no positive control over lake storage. However, the siting of future dam projects within the State, must be carried out in accordance with Rhode Island General Law 46-19.1-8.

The general operation of dams can, if unregulated, generate significant amounts of nonpoint source pollution in the surface waters of the impounded waterway. First, the controlled releases from dams can influence the amount of freshwater introduced into coastal waters. Second, the reduced downstream flushing can lead to increased loads of biological oxygen demands (BOD), phosphorus, and nitrogen; changes in pH; and the potential for increased algal growth. These increases and changes can facilitate the occurrence of eutrophication. Third, the changes in downstream hydraulics can disrupt sediment patterns, thus affecting the spawning and general habitat for fish, and the ability of many aquatic plants to anchor themselves to the substrate. Finally, the controlled releases can alter water temperatures and lower the dissolved oxygen levels in downstream waters (EPA 1993; and, RIDEM 1989).

The general operation of all 506 dams within the State is regulated by the provisions of R.I.G.L. 46-19, Inspection of Dams and Reservoirs, and the Fresh Water Wetlands Act (R.I.G.L. 21-18, et seq.). Any proposed significant release of water, any prolonged small release of water, and any significant physical alteration requires a Permit pursuant to Rule 9.01 of the Freshwater Wetlands Regulations. The provisions of the Inspection of Dams and Reservoirs Act also require a periodic general inspection of all 506 dams throughout the State pursuant to General Law 46-19.1-8. The criteria for these inspections are based on United States Army Corps of Engineers' classifications. The premise of these classifications rests on the potential for a dam to breach, and the amount of property damage and the number of lives lost that would ensue. These classifications group all of the State's dams into three categories; High Hazard, Moderate Hazard, and Low Hazard. A High Hazard dam has the

ability, if breached, to cause high amounts of property damage and a substantial loss of life. Because of the potential severity of an accidental breech, these dams are inspected once a year. A Moderate Hazard dam has the ability, if breached, to cause moderate amounts of property damage and a minor loss of life. Because of this low threat of damage, these dams are inspected every other year. A Low Hazard dam, if breached, will cause minimal amounts of property damage and no lives would be lost. Based on the minimal threat of life and property damage these dams are inspected every three to four years.

To meet federal requirements, the three management measures for dams will be implemented through amendments to the Rhode Island Coastal Management Program (RICRMP), the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands *Rules and Regulations Governing the Administration of the Freshwater Wetlands Act,* and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

Streambank and Shoreline Erosion

Rhode Island's shoreline has a diverse range of geologic features ranging from rocky shores, cliffs, and bluffs, to sandy beaches and wetlands. The State's 401 miles of shoreline abutting coastal waters also consists of manmade shorelines in many of the older, urbanized communities. Many of the manmade shorelines were constructed to prevent continued erosion or to serve as storm protection.

In Rhode Island, most of the significant shoreline erosion takes place as a result severe storm events or the natural erosional processes which impact barrier beaches. The critical erosion areas for all of the State's coastal waters have been mapped. These maps are contained in the Rhode Island Coastal Resources Management Program (RICRMP). In the critical erosion areas, greater setback limits apply.

Human alterations can also impact the natural erosional processes. For example, the construction of structural shoreline protection facilities can often increase the natural erosional process by making the shoreline more reflective. Accordingly, the Coastal Resources Management Council (CRMC) maintains strict regulations which govern alterations to shorelines and the installation of structural shoreline protection facilities. It should be noted that the Council favors the installation of nonstructural methods to structural methods. In addition there are strict prohibitions on where

structural shoreline protection facilities may be placed. For example, the CRMC prohibits the installation of shoreline protection facilities on all shorelines adjacent to Type 1 waters.

The Rhode Island Department of Environmental Management, Division of Freshwater Wetlands also has strict Rules and Regulations governing the alterations to streambanks and shoreline areas abutting freshwater.

Magnitude of Streambank and Shoreline Erosion Problems

The erosion of shorelines and streambanks is a natural process that can have either beneficial or adverse impacts on the creation and maintenance of riparian habitat. Nonpoint pollution problems which can result in excessively high sediment loads can smother submerged aquatic vegetation, cover shellfish beds and tidal flats, fill in riffle pools, and contribute to increased levels of turbidity and nutrients. However, there are few research results which can be used to identify the levels below which streambank and shoreline erosion is beneficial and above which it is a nonpoint related problem.

To safe-guard against potential nonpoint problems, and to meet federal requirements, the management measure addressing streambank and shoreline erosion will be implemented through amendments to the Rhode Island Coastal Management Program (RICRMP), the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands *Rules and Regulations Governing the Administration of the Fresh Water Wetlands Act*, and the Rhode Island Department of Environmental Management, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

Regulation of Hydromodifications in Rhode Island

In Rhode Island there are three regulatory programs which currently implement the six hydromodifications management measures throughout the state. The Freshwater Wetlands Program is administered by the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands and regulates all alterations to freshwater wetlands statewide under the authority of the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.), and in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). This program already implements the hydromodifications management measures inland of the Coastal Resources Management Council's (CRMC's) jurisdiction. The CRMC implements the hydromodifications measures

within its permit jurisdiction in accordance with the Rhode Island Coastal Resources Management Program (RICRMP) (Appendix E). The RIDEM Division of Water Resources Water Quality Certification Program evaluates hydromodification projects to determine compliance with the Rhode Island Water Quality Regulations and therefore the Rhode Island water quality standards.

These programs are described more fully in Chapter 2. Background information relevant to the implementation of these management measures is provided in Chapter 2.

Unresolved Issues

Several issues remain unresolved between the Rhode Island Department of Environmental Management (RIDEM) and the Coastal Resources Management Council (CRMC). These issues primarily revolve around the inconsistencies between the CRMC's programs and the RIDEM's Water Quality Regulations. In most cases, these inconsistencies do not prevent full implementation of the 6217 management measures. Nonetheless, the State would be best served by resolution of inconsistencies. To that end, both agencies are working toward the resolution of these issues evident by meetings between the two agencies, including the CRMC/RIDEM Water Quality Work Group formed in February 1994. This group was formed to work out problems that have risen between the CRMC's programs and the RIDEM Water Quality Certification Program.

To further this effort, the Narragansett Bay Project has devoted considerable effort to identifying regulatory inconsistencies between the two agencies. These efforts have included identifying specific areas where CRMC water types conflict with RIDEM water classifications; identification of inconsistencies in regulatory definitions; and identification of inconsistencies in policies and regulations. In particular, efforts on the part of the Narragansett Bay Project have allowed the CRMC and Division of Water Resources to focus on actual, rather than merely perceived, inconsistencies.

In a related effort to resolve past programmatic inconsistencies, the CRMC has been working with the Division of Water Resources as the existing water quality regulations are revised and has supported the adoption of an independent regulatory "Water Quality Permit". The CRMC will continue to work with the Division of Water Resources to ensure that revised regulations successfully address programmatic inconsistencies to the maximum extent possible. Where inconsistencies cannot be resolved through the revised regulations due to conflicting agency mandates, the CRMC and the Division of Water Resources will continue to work together to minimize conflicts.

Physical and Chemical Characteristics of Surface Waters

Physical and chemical characteristics of surface waters

1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters in coastal areas;
2) Plan and design channelization and channel modification to reduce undesirable impacts; and,
3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

Applicability

This management measure applies to all public and private channelization and channel modification activities in order to prevent the degradation of physical and chemical characteristics of surface waters from such activities.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the Rhode Island Coastal Resources Management Program (RICRMP). For more information on the nature of the program and the permit process see the discussion contained in Chapter 2.

Implementation of the Measure
The Physical and Chemical Characteristics of Surface Waters Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements of this section apply to all public and private channelization projects within CRMC jurisdiction. There are several important ways that this measure will be implemented.

1. Proposed amendments to Section 300.9 Dredging

Dredging activities are classified as either maintenance or improvement dredging. Improvement dredging is prohibited in Type 1 and 2 waters. Maintenance dredging is permitted in Type 2 waters. These activities must be conducted in accordance with the standards contained in Section 300.9.F. While the existing requirements implement the management measure, the Council is proposing the following amendments to further strengthen the implementation of the measure. The amendments include the following new policy:

> "5. Channelization and channel modification activities shall be planned and designed in a manner which does not cause significant adverse impacts to the physical and chemical characteristics of surface waters in coastal areas (Proposed RICRMP Section 300.9.B.5)."

The Council also proposes to add the following additional Category "B" requirement to Section 300.9:

> "7. Proposed channelization and channel modification activities shall develop an operation and maintenance program that includes the identification and implementation of opportunities to improve the physical and chemical characteristics of surface waters in those channels (Proposed RICRMP Section 300.9.E.7)."

Finally, the CRMC proposes to add the following new standard:

> "(e) Applicants shall demonstrate that the proposed dredging or channelization activity is planned and designed in a manner that does not lead to significant adverse impacts to the physical and chemical characteristics of surface waters in coastal areas (Proposed RICRMP Section 300.9.F.1.e)."

2. Additional Category "B" Requirements contained in Section 300.1

All improvement dredging is reviewed as a Category "B" activity. Accordingly, these activities must satisfy the requirements specified in RICRMP Section 300.1. Requirements relevant to these activities include:

> "(4) Demonstrate the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters;
>
> (5) Demonstrate the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life; . . .
>
> (7) Demonstrate the alteration or activity will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation;
>
> (8) Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM; . . . (RICRMP Section 300.1)"

Management Measure Oversight
Oversight with respect to this program lies with the Rhode Island Coastal Resources Management Council (CRMC) which monitors and enforces the policies and requirements as specified in the Rhode Island Coastal Resources Management Program (RICRMP). These issues are described in more detail below.

<u>Enforcement</u>
The CRMC will enforce the measure's implementation using its existing enforcement and permit staff. Each permitting team (engineer and biologist) has distinct towns where he/she is responsible for reviewing applications. Accordingly, they perform routine field inspections and do enforcement while they perform site visits in conjunction with other applications.

The enforcement staff both patrols and responds to reported violations. In addition to on-land enforcement activities, the CRMC also has boats which it

uses to patrol areas on the water. In addition, RIDEM Conservation Officers often report violations as do local officials, the general public, and environmental groups such as Save-the-Bay. For a more detailed description of the CRMC's enforcement program, see Chapter 2.

The "trigger" for a CRMC enforcement action is the detection of any violation of a CRMC Assent or of the Rhode Island Coastal Resources Management Program (RICRMP), and is therefore not dependent upon the detection of a water quality violation. CRMC permit staff are in the field (in assigned coastal towns) daily. Enforcement staff is dedicated full-time to identifying and following up on reported violations statewide. When unauthorized activity is detected, any CRMC staff member, including Council members, may immediately issue a cease and desist order.

While registering violations on the property title has proven to be a very effective mechanism for ensuring the resolution of violations, including the failure to implement required permit conditions (e.g., management measures), the same remedies for addressing violations apply to all detected violations of the RICRMP. These mechanisms are particularly important since not all violations are associated with private property and enforcement based on property transfer is not effective in cases where there is no transfer of property. The Council may issue cease and desist orders and fines when violations are detected. The violator is afforded an administrative hearing where most violations are resolved through the signing of a consent order. This document obligates the violator to rectify the violation in accordance with conditions contained in the consent order. Frequently, an administrative fee is assessed for the violation. Where a consent order cannot be reached or is not adhered to, the CRMC can pursue adjudicatory remedy through state superior court. CRMC prosecutes violators in accordance with R.I.G.L. (46-23-7.3 and the Administrative Procedures Act) when all administrative remedies have been exhausted.

Monitoring

The CRMC will monitor the implementation of the management measures when it monitors the implementation of the CRMC Assent. The CRMC's permit staff routinely conduct field checks while a project is being constructed to ensure that the applicant adheres to all stipulations of the Assent. In addition, all major stipulations of the Assent are registered in the land evidence record and transfer with title.

It is possible that monitoring of a specific project could be included as a stipulation of a Council Assent. At this time, there is no additional water quality monitoring being proposed.

Financial Needs

Implementation of this measure creates two financial needs. First, the new requirements may increase the review time associated with some projects. This in turn translates into increased staff costs which requires additional financial resources. Second, effective enforcement of this measure requires the availability of additional enforcement staff. The CRMC currently has only two enforcement staff. While the Council's recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the Hydromodifications measures more effectively.

Technical Needs

The state already has an excellent Soil Erosion and Sediment Control Manual (Appendix L) and recently adopted the *Rhode Island Stormwater Design and Installation Standards Manual* (Appendix K). Based on the results of the threshold review, it is possible that minor changes or additions to these manuals may be needed. It is also possible that additional periodic staff training would be of benefit.

Overall Program Effectiveness

The CRMC's implementation of its federal program has been successful. The findings of the most recent Section 312 Evaluation concluded that the CRMC was implementing all of the provisions of its federally approved program (OCRM, 1993) including the *State Guide Plan* policies. It also noted a wide range of improvements that have been made including its improved enforcement capabilities. In addition, the CRMC has adopted some innovative programs to ensure compliance with its regulations such as the Council's dock registration program.

There is little evidence to suggest that any significant unauthorized construction of or alterations to channels have gone undetected since 1986-1987 when the Council hired on its own technical staff. Accordingly, the CRMC's existing regulatory requirements and enforcement authorities are more than adequate to ensure the measure's effective implementation within the CRMC's jurisdiction. The addition of financial resources to address the technical and financial needs associated with this measure would further enhance the effectiveness of the measure's implementation.

RIDEM Division of Freshwater Wetlands Rules and Regulations

This management measure will also be implemented by the Rhode Island Department of Environmental Management's (RIDEM), Division of Freshwater Wetlands pursuant to R.I.G.L. 2-1-18 et. seq., 42-17.1-1 et. seq., 42-17.6-1 et. seq., and 42-35-1 et. seq., (Appendix A), in accordance with the requirements specified in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B) The Rhode Island Freshwater Wetlands Program is a regulatory permitting program authorized by the Freshwater Wetlands Act. For more information on the nature of that program and its permit process and requirements, see the discussion contained in Chapter 2, and the discussions addressing the Wetlands Management Measures.

Implementation of the Measure

The Physical and Chemical Characteristics of Surface Waters Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.)) and the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (Appendix B). It regulates all projects that may alter freshwater wetlands. It also regulates any project outside of, but in close proximity to a freshwater wetland, if it:

1. Changes the flow of surface runoff into or away from a freshwater wetland.
2. Diverts groundwater into or away from a freshwater wetland.
3. Modifies water quality in a way that could change the natural character of a freshwater wetland.

The *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (effective April 7, 1994) apply statewide to any activities that could alter the character of a freshwater wetland and contiguous areas (R.I.G.L. 2-1-21 and SD 4.03). Freshwater Wetlands include, but are not limited to, swamps, marshes, bogs, streams, flood plains, river and stream flood plains and banks, ponds, emergent and submergent plant communities in any fresh water, and the area of land within 50 feet of any marsh, bog, swamp or pond (R.I.G.L. 2-1-20(d)).

The Freshwater Wetlands Regulations pertain to any projects that may alter freshwater wetlands. An alteration includes any activity that impacts the natural charater, functions and/or values of freshwater wetlands. There is no threshold placed on geographic proximity. Additionally, the definition of a freshwater wetland is broad enough to encompass created wetlands, such as those created during a channelization project, provided that such wetlands were created after July 16, 1971. This is further described in the definition of freshwater wetlands contained in Rule 5.39 of the Regulations.

In cases where an alteration to a freshwater wetland may have impacts downstream in coastal waters, both the CRMC and RIDEM can exert jurisdiction. Again, the Division of Freshwater Wetlands regulates any project that may alter freshwater wetlands. In additon, the CRMC has the authority to regulate any activity that has the potential to impact coastal resources.

1. Requirements contained in the Fresh Water Wetlands Act (R.I.G.L. 2-1-19)

The Freshwater Wetlands Act establishes the statutory authority for the enforcement of Rhode Island's freshwater wetland policies. The Act defines freshwater wetlands broadly to include: marshes; swamps; bogs; ponds; rivers; river and stream flood plains and banks; areas subject to flooding or stormwater flowage; emergent and submergent plant communities in any body of fresh water including rivers and streams and that area of land within fifty feet of the edge of any bog, marsh, swamp, or pond. The Act authorizes the Director of the Rhode Island Department of Environmental Management to:

1. Adopt, modify, repeal or promulgate rules and regulations in accordance with the Freshwater Wetlands Act (R.I.G.L. 2-1-20.1).
2. Designate which areas of Rhode Island are to be known as freshwater wetlands (R.I.G.L. 2-1-20.2).
3. Inspect by entering, examining or surveying places as considered necessary to enforce the Act without warrant; any person willfully impeding such action shall upon conviction be liable for a fine of up to $100 or 30 days imprisonment or both (R.I.G.L. 2-1-20.3).

The Act also necessitates a permit process. Section 2-1-21 requires that any alteration to a freshwater wetland receive prior approval from the Director of the Rhode Island Department of Environmental Management. Upholding the Freshwater Wetlands Act, the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands has promulgated the *Rules and Regulations Governing the Enforcement and Administration of the Freshwater Wetlands Act*, which establish a permit process. This process complies fully with the management measure.

2. *Rules and Regulations Governing the Enforcement and Administration of the Freshwater Wetlands Act*

In accordance with Section 2-1-21 of the Freshwater Wetlands Act, a permit will be denied if the proposed project would result in a random, unnecessary

or undesirable alteration of a freshwater wetland. These terms are defined in the *Rules* as the following:

Random Alteration means any alteration for which the applicant does not specify in writing through design plans and drawings, the final developed use of the property upon which an application is predicated; or any alteration proposed which is arbitrary or without justification (SD 5.65).

Undesirable Alteration means any proposed activity or alteration which is likely to reduce or degrade any freshwater wetland functions and values as set forth herein. Any activity, alteration or proposed project will be considered "undesirable" unless the applicant shows that she or he has, to the maximum extent possible, mitigated for any damaging effects of the proposed project upon the functions and values provided by any freshwater wetlands (SD 5.88).

Unnecessary Alteration means any proposed alteration which is not essential, vital, or indispensable to the proposed project and which can be achieved without altering or disturbing freshwater wetlands. Any activity, alteration, or project will be considered "unnecessary", unless the applicant shows that:

A. Alterations of freshwater wetlands and the functions and values they provide have been avoided by exhausting all other non-wetland alternatives; and

B. The alterations planned for the wetland have been reduced to the maximum extent possible to prevent any damaging or detrimental effects upon wetland functions and values from activities which could otherwise be avoided (SD 5.89).

In order for the Director to determine whether a proposed alteration is random, unnecessary or undesirable applicants must demonstrate in a written evaluation that all probable impacts have been avoided to the maximum extent possible. Appendix 3(A) of the *Rules* contains a series of issues applicants are required to consider in the written evaluation of impact avoidance. If impacts can not be avoided, applicants must demonstrate that there are no alternatives to the proposed alteration and that any probable impacts to wetland functions and values have been reduced to the maximum extent possible. Appendix 3(B) of the *Rules* contains a series of issues applicants are required to consider in the written evaluation of impact minimization (SD 10.01).

The written evaluation must include an assessment of impacts to freshwater wetlands in terms of specific wetland functions and values. These include:

wildlife and wildlife habitat; recreation and aesthetics; flood protection; groundwater and surface water supplies; water quality; and, soil erosion and sediment control. Of particular importance for this management measure, is the water quality category of wetland functions and values, since it identifies nonpoint source abatement as an important wetland function. The written evaluation for Applications to Alter must also include an identification and description of proposed measures to reduce unavoidable impacts associated with these wetland function and values, and with soil erosion. With particular reference to this measure, the evaluation must identify and describe:

- The physical, chemical and biological impacts, both short- and long-term, to the wildlife habitat associated with the wetland from the proposed project. (SD 10.03.C.4)
- All project components that may decrease the wetland's flood storage capacity, decrease the wetland's ability to meter out flood waters, and/or decrease the wetland's ability to maintain surface flows and natural drainage characteristics. Such project components include, but are not limited to: changes in topography from filling or excavation; changes in vegetative characteristics; additions of buildings or structures; and piping, culverting, bridging excavating, channelization, relocation, filling, damming or diking (SD 10.03.E.3).
- Identify and describe the wetland's functions and values related to water quality (SD 10.03.G.2).
- Identify and describe all proposed project components and activities that may result in any degradation of water quality associated with freshwater wetlands by increasing pollutant sources; nutrient loading; increasing turbidity; decreasing oxygen; altering temperature regimes; reducing stream or river flows; altering a wetlands ability to retain or remove nutrients; or by withdrawing water from or near any wetlands (SD 10.03.G.4).

It is important to keep in mind that applicants must also identify and describe proposed measures for reducing any probable impacts to the maximum extent possible. These measures, methods and best management practices must protect wetlands functions and values, and minimize unavoidable impacts.

The written evaluation of wetland functions, values and impacts is reviewed in accordance with 26 specific criteria contained in Rule 11.02. With reference to the implementation of this management measure, the Director must be satisfied that the proposed project will not result in:

1. Significant reduction in the overall wildlife production and/or diversity of a wetland.

12. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values.
25. Non-compliance with the Rhode Island Department of Environmental Management Water Quality Regulations for Water Pollution Control.
26. Any detrimental modification of the wetland's ability to retain and/or remove nutrients or act as a natural pollution filter.

Management Measure Oversight
Oversight of this regulatory program is the responsibility of the RIDEM, Division of Freshwater Wetlands.

Enforcement
The Freshwater Wetlands Regulations are enforced pursuant to the statutory authority granted in the Fresh Water Wetlands Act (R.I.G.L. 2-1-20.1). To ensure that all Fresh Water Wetlands Act and Regulations policies are adhered to, the Director has the power to undertake enforcement actions. Section 2-1-23 of the Rhode Island General Laws states that, in the event of a violation of Section 2-1-21 (Approval of the director), the Director of the Department of Environmental Management may order restoration. If the violator does not restore the wetland within a reasonable period of time, the Director may effect restoration and the violator shall be held liable for the incurred costs. Such a violator shall be liable for fines of $1,000 per violation (R.I.G.L. 2-1-23). The Director may also issue an order cease and desist any operation that violates Section 2-1-21 of the general laws or any part of the Freshwater Wetlands Regulations. Any person who violates an order of the Director shall be punished by a fine of up to $500 or 30 days imprisonment or both. Every person shall be deemed guilty of a separate offense for each day during which the violation continues (R.I.G.L. 2-1-24). Other enforcement actions authorized by the Freshwater Wetlands Act and Regulations include: warnings, revocation or suspension of permit, and notice of intent to enforce. Those enforcement actions are discussed in Rule 15.00 of the Regulations.

Monitoring
The RIDEM monitors the measure's implementation in two ways. First, the RIDEM monitors the implementation of its permit requirements. For example, the RIDEM's permit staff may conduct a site inspection while a project is being constructed to ensure that the applicant adheres to all stipulations of a permit. The RIDEM also investigates when it receives a

complaint that a violation is occurring. The RIDEM may also require monitoring to be conducted during the construction phase. The RIDEM also has conservation officers which patrol the state for violations of its rules and regulations.

It is possible that monitoring of a specific project could be included as a stipulation of a RIDEM permit. At this time, there is no additional water quality monitoring being proposed.

Financial Needs

Implementation of this measure creates possible financial needs. Enforcement of the measure may require additional enforcement staff. The RIDEM Division of Freshwater Wetlands currently has only 7 enforcement staff. Accordingly, the RIDEM may need some additional financial resources to enforce the Hydromodification measures more effectively.

At this time, the RIDEM does not have adequate financial resources to expand their Section 305 (b) monitoring program. Accordingly, any additional water quality monitoring related to Section 6217 will have to be financed with a commensurate level of financial resources.

Technical Needs

The state already has an excellent Soil Erosion and Sediment Control Manual (Appendix L) and recently adopted the *Rhode Island Stormwater Design and Installation Standards Manual* (Appendix K). Based on the results of the threshold review, it is possible that minor changes or additions to these manuals may be needed. It is also possible that additional periodic staff training would be of benefit.

Overall Program Effectiveness

The Freshwater Wetlands Program is fully implemented as defined in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (SD 1.00-19.00). The original *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* became effective in 1972. The most recent amendments to the *Rules and Regulations* became effective as of April 7, 1994.

RIDEM Division of Water Resources, Water Quality Certification Program

This management measure will also be implemented by the Rhode Island Department of Environmental Management's (RIDEM), Division of Water Resources pursuant to R.I.G.L. 46-12, 42-17.1, 42-17.6 and 42-35, in accordance with the Rhode Island Water Quality Regulations for Water Pollution

Control. The Rhode Island Water Quality Certification Program evaluates proposed projects to determine compliance with Rhode Island's water quality standards implemented under the Federal Clean Water Act.

Implementation of the Measure

Proposed projects requiring federal permits or licenses which may result in the discharge of pollutants to waters of the State must obtain water quality certification prior to issuance of the federal permit or license. In addition, proposed projects requiring state approvals are afforded review and certification initiated by the state agency issuing the approval. Water quality certification review assesses all aspects of the proposed project and their impacts to water quality. Certification of the project is granted when a determination has been made that under conditions specified in the certification the project is in compliance with the Rhode Island Water Quality Regulation for Water Pollution Control specifically:

-Discharges shall not violate water quality standards
-Discharges shall not further degrade low quality waters
-Discharges shall not degrade high quality waters
-Any existing instream water uses being achieved, and the water quality necessary to protect those existing uses shall be maintained and protected.

The Water Quality Regulations set specific criteria for all surface waters of the state. These criteria are numeric and narrative in nature. For example all waters must meet the EPA aquatic life criteria, human health criteria as well as state criteria for dissolved oxygen, color, turbidity, aesthetics, total and fecal coliform and nutrients. A water quality certification review assesses all the potential impacts on water quality in terms of these criteria.

Management Measure Oversight

Oversight of this program is the responsibility of the permitting agency as well as the RIDEM, Division of Water Resources.

Enforcement

In accordance with Section 401 of the Clean Water Act, a federal agency cannot issue a final license or permit prior to the applicant receiving a state water quality certification. Any conditions contained in a water quality certification must become part of the federal permit or license. Violation of those conditions can be enforced by the federal permitting agency or by the State pursuant to R.I.G.L. 42-17.1, 42-17.6 and 46-12. Fines may be levied by the federal agency in accordance with their statutory ability and by the RIDEM Division of Water Resources in accordance with R.I.G.L. 46-12 of up to $25,000 per day. State agencies have the ability to require water quality certification as

a condition of permit issuance. Conditions of a water quality certification incorporated into the issuing agency permit is enforceable by the issuing agency and the RIDEM Division of Water Resources pursuant to R.I.G.L. 42-17.1, 42-17.6 and 46-12. Fines may be levied by the State permitting agency in accordance with their statutory authority and by the RIDEM Division of Water Resources in accordance with R.I.G.L. 46-12 of up to $25,000 per day.

Monitoring

Monitoring of conditions of the water quality certification can be conducted by the permitting agency or by RIDEM, Division of Water Resources during construction and/or after construction to assure implementation of the management measure.

Financial Needs

Implementation and enforcement of this management measure may require additional staff. Accordingly, the RIDEM may need additional financial resources to implement this measure.

Technical Needs

The RIDEM, Division of Water Resources may require additional technical needs in the development of addition materials to aid in decision making in terms of impacts to existing uses.

Overall Program Effectiveness

Rhode Island had a water quality program prior to delegation by USEPA of implementation of the provision of the Clean Water Act in 1984. The Rhode Island Water Quality Regulations were most recently updated in 1988. As required per Section 303 of the Clean Water Act, the regulations are currently being updated. The proposed changes allow for more efficient implementation of the management measure.

Instream and Riparian Habitat Restoration

Instream and Riparian Habitat Restoration

1) Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat in coastal areas;
2) Plan and design channelization and channel modification to reduce undesirable impacts; and,
3) Develop an operation and maintenance program with specific timetables for existing modified channels that includes identification of opportunities to restore instream and riparian habitat in those channels.

Applicability

This management measure applies to surface waters where channelization and channel modification have altered or have the potential to alter instream riparian habitat such that historically present fish or wildlife are adversely affected.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will also be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the *Rhode Island Coastal Resources Management Program (RICRMP).* For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. For more information on the management measure's oversight and the program's overall effectiveness see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measures

The Instream and Riparian Habitat Restoration Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements of this section apply to all public and private channelization projects within CRMC jurisdiction. There are several important ways that this measure will be implemented.

1. Proposed amendments to Section 300.9 Dredging

All dredging projects within CRMC jurisdiction are subject to the existing and proposed requirements contained in Section 300.9; there is no minimum threshold for project size which causes this section to be invoked. Dredging activities are classified as either maintenance or improvement dredging. Improvement dredging is prohibited in Type 1 and 2 waters. Maintenance dredging is permitted in Type 2 waters. These activities must be conducted in accordance with the standards contained in Section 300.9.F. While the existing requirements implement the management measure, the Council is proposing the following amendments to further strengthen its implementation. The amendments include adding the following new policies:

> "6. Channelization and channel modification activities shall be planned and designed in a manner which does not cause significant adverse impacts to instream and riparian habitats in coastal areas (Proposed RICRMP Section 300.9.B.6)."
>
> "7. All channelization and channel modification activities shall identify appropriate best management practices which will be used to protect significant instream and riparian habitats and mitigate adverse impacts on surface water quality (Proposed RICRMP Section 300.9.B.7)."

Furthermore, the Council proposes to add the following additional Category "B" requirement to Section 300.9:

"8. Proposed channelization and channel modification activities shall develop an operation and maintenance program with specific timetables for modified channels that includes the identification of opportunities to restore instream and riparian habitat in those channels (Proposed RICRMP Section 300.9.E.8)."

Finally, the CRMC proposes to add the following new standards:

"(f) Applicants shall demonstrate that the proposed dredging or channelization activity is planned and designed in a manner that does not lead to significant adverse impacts to the instream and riparian habitats in coastal areas (Proposed RICRMP Section 300.9.F.1.f)."

"(g) All appropriate best management practices shall be employed to mitigate significant impacts to surface water quality and protect significant instream and riparian habitats (Proposed RICRMP Section 300.9.F.1.g)."

As decribed in the introduction to this chapter, dredging activity has been minimal in Rhode Island over the past six years. Further, according to RIDEM's 1992 305(b) report, hydromodification activities did not impair or threaten any of Rhode Island's coastal waters. To ensure continued protection from nonpoint source impacts associated with any hydromodification activities, the CRMC has proposed to adopt the requirements of the "Instream and Riparian Habitat Restoration" management measure. These requirements would apply to any new channelization or channel modification project, regardless of its size. In addition, should the situation arise where water quality problems could be related to existing channelization projects, the RIDEM, Division of Water Resources could enforce a violation of state water quality standards.

2. Additional Category "B" Requirements

All improvement dredging is reviewed as a Category "B" activity and must satisfy all applicable additional Category "B" requirements contained in RICRMP Section 300.1. Requirements relevant to channelization and channel modification activities include:

"(4) Demonstrate the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters;

(5) Demonstrate the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life; . . .

(7) Demonstrate the alteration or activity will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation;

(8) Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM; . . . "(RICRMP Section 300.1).

RIDEM Division of Freshwater Wetlands Rules and Regulations

This management measure will also be implemented by the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands pursuant to R.I.G.L. 2-1 et. seq., 42-17.1-1 et. seq., 42-17.6-1 et. seq., and 42-35-1 et. seq. (Appendix A) in accordance with the requirements specified in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). For more information on the nature of that program and its permit process and requirements, see the discussion contained in Chapter 2, and the discussions addressing the Wetlands Management Measures. For more information on this management measure's oversight and overall effectiveness of the program see the discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measure

The Instream and Riparian Habitat Restoration Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.) and the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). The *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (effective April 7, 1994) applies statewide to any activities that could alter the character of freshwater wetlands (R.I.G.L. 2-1-21 and SD 4.03). Freshwater wetlands include, but are not limited to, swamps, marshes, bogs, streams, flood plains, riparian areas, ponds, emergent and submergent plant communities in any fresh water, and the area of land within 50 feet of any marsh, bog, swamp or pond (R.I.G.L. 2-1-20(d)).

1. **Requirements contained in the Freshwater Wetlands Act (R.I.G.L. 2-1-19)**

Refer to the discussion addressing the Physical and Chemical Characteristics of Surface Waters Management Measure.

2. *Rules and Regulations Governing the Enforcement and Administration of the Freshwater Wetlands Act*

In accordance with Section 2-1-21 of the Fresh Water Wetlands Act, a permit will be denied if the proposed project would result in a random, unnecessary or undesirable alteration of a freshwater wetland. In order for the Director to determine whether a proposed alteration is random, unnecessary or undesirable, applicants must demonstrate in a written evaluation that all probable impacts to the functions and values of a wetland have been avoided to the maximum extent possible. Appendix 3(A) of the *Rules* contains a series of issues applicants are required to consider in the written evaluation of impact avoidance. If impacts can not be avoided, applicants must demonstrate that there are no alternatives to the proposed alteration and that any probable impacts to wetland functions and values have been reduced to the maximum extent possible. Appendix 3(B) of the *Rules* contains a series of issues applicants are required to consider in the written evaluation of impact minimization (SD 10.01).

The written evaluation for an Application to Alter must include an assessment of impacts to freshwater wetlands in terms of specific wetland functions and values (Rule 10.03). Specific to the implementation of this management measure applicants must address:

- physical, chemical and biological impacts, both short- and long-term, to the wildlife habitat associated with the wetland resulting from the proposed project (Rule 10.03.C.4).

The written evaluation of wetland functions, values and impacts is reviewed in accordance with 26 specific criteria contained in Rule 11.02. With reference to the implementation of this management measure, the Director must be satisfied that the proposed project will not result in:

1. Significant reduction in the overall wildlife production and/or diversity of a wetland.

12. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values.

25. Non-compliance with the Rhode Island Department of Environmental Management Water Quality Regulations for Water Pollution Control.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Erosion and Sediment Control

Erosion and Sediment Control

1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction, and
2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

Applicability

This management measure applies to the construction of new dams, as well as to construction activities associated with dams. Dams are defined as constructed impoundments which are either:

(a) 25 feet or more in height *and* greater than 15 acre feet in capacity; or,
(b) 6 feet or more in height *and* greater than 50 acre feet in capacity.

This management measure does not apply to projects that fall under NPDES jurisdiction.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will also be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the *Rhode Island Coastal Resources Management Program (RICRMP).* For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. For more information on the management measure's oversight and the program's overall effectiveness see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measures
The Erosion and Sediment Control Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements of this section apply to all new dams and construction activities associated with dams within CRMC jurisdiction. In order to be consistent with the applicability criteria, the CRMC proposes to add the following definition of "dam" to the RICRMP:

> "3. For the purposes of this section, dams are defined as constructed impoundments which are either: (a) twenty-five feet or more in height and greater than fifteen acre feet in capacity; or, (b) six feet or more in height and greater than fifty acre feet in capacity (Proposed RICRMP Section 310.A.3)."

There are several important ways that this measure will be implemented.

1. Proposed amendments to Section 310

This section of the RICRMP applies to all activities which propose to alter the freshwater flow to tidal waters. While it is doubtful that many new dams will be proposed for placement within the CRMC's jurisdiction, there currently are several existing dams. In order to ensure that this measure is fully implemented within the CRMC's jurisdiction, the following changes to Section 310 of the RICRMP are proposed. The CRMC proposes to add the following new policy:

> "3. Applicants proposing construction activities associated with dams shall submit an erosion and sediment control plan in accordance with the standards contained in Section 300.2 which demonstrates that erosion shall be reduced and, to the extent practicable, sediment retained onsite during and after construction. All erosion and sediment control plans shall: (a) limit the application, generation,

and migration of toxic substances; (b) ensure the proper storage and disposal of toxic materials; and, (c) demonstrate that nutrients will be applied at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters (Proposed RICRMP Section 310.B.3)."

This new policy would require applicants proposing any construction activity associated with dams to submit a soil erosion and sediment control plan in accordance with the standards contained in the proposed amendments to Section 300.2. This would result in full implementation of the "Erosion and Sediment Control" management measure for any dam construction activity within CRMC jurisdiction.

In addition, all of the erosion and sediment control standards contained in Section 300.2 apply pursuant to RICRMP Section 310.D.1. as well as those amendments to RICRMP Section 300.2 to implement the Urban Management Measures. These amendments are contained in Appendix 6A.

2. Requirements contained in RICRMP Section 300.2

Section 300.2 of the RICRMP contains specific standards that apply in all cases where filling, removing, or grading is undertaken. In cases where the Council determines that additional measures are warranted in order to protect the environment of the coastal region, upland and shoreline earthwork standards are required and are listed on Assents as stipulations. Additional measures that apply for upland earthwork relevant to this management measure include:

(b) For upland earthwork, measures shall be taken to minimize erosion:
(1) A line of staked hay bales or other erosion-preventing devices (including diversion ditches, check dams, holding ponds, filter barrier fabric, jute or straw mulch) shall be placed at the downslope perimeter of the proposed area of construction prior to any grading, filling, construction, or other earthwork. Hay bales shall be toed in to a depth of 3 to 4 inches, and maintained by replacing bales where necessary until permanent re-vegetation of the site is completed. No soils or other materials should pass beyond the bale line.
(2) All slopes shall be returned to the original grade unless otherwise specified.
(3) Where natural or manmade slopes are or have become susceptible to erosion, the slopes shall be graded to a suitable slope and re-vegetated with a thick rooting brush vegetation. Mulch shall be applied as necessary to provide protection against erosion until the vegetation is established (RICRMP Section 300.2.C.2.b).

For further information on the standards associated with filling, removing, and grading activities, consult RICRMP Section 300.2.

3. Proposed amendments to RICRMP Section 300.2

Amendments to Section 300.2 will further and more explicitly implement the management measure. The proposed amendments include the following policies:

1. All filling, removing, or grading activities shall be done in accordance with the policies and standards of this section and the standards and specifications set forth in the most recent edition of the *Rhode Island Soil Erosion and Sediment Control Handbook.*

2. All new activities subject to section 300.3 (residential, commercial, and industrial structures), Section 300.13, Section 320, or those activities which disturb more than 5,000 square feet of land on a site shall prepare and implement an erosion and sediment control plan approved by the Council which references all necessary practices for erosion and sediment control. All erosion and sediment control plans shall be consistent with applicable policies and standards contained in the Rhode Island Coastal Resources Management Program and the standards and specifications set forth in the most recent edition of the *Rhode Island Soil Erosion and Sediment Control Handbook.* All erosion and sediment control plans shall be strictly adhered to.

3. The Council recognizes the most recent version of the *Rhode Island Soil and Erosion and Sediment Control Handbook,* and its amendments, published jointly by the Rhode Island Department of Environmental Management and the United States Department of Agriculture (USDA), Soil Conservation Service (SCS) as containing appropriate "Best Management Practices" (BMP) for use within the CRMC's jurisdiction. All erosion and sediment control plans shall be consistent with this manual. Applicants are also encouraged to consult the most recent version of the *Rhode Island Stormwater Design and Installation Standards Manual* during the preparation of their erosion and sediment control plan in order to ensure consistency with the Council's stormwater management requirements (Section 300.6).

It is also important to mention that the important stipulations of a Council Assent are registered in the land evidence records and the conditions

imposed on an assent may include requirements other than those specifically mentioned in the regulations (i.e., specific maintenance requirements for a particular project).

4. *Rhode Island Soil Erosion and Sediment Control Manual*

The *Rhode Island Soil Erosion and Sediment Control Manual* (Appendix L) which will be incorporated into the RICRMP's requirements by reference in Section 300.2 (Proposed RICRMP Section 300.2), contains more detailed descriptions of the Council's standards and requirements as they pertain to soil erosion and sediment control practices. Many of these practices directly relate to site development.

5. *Rhode Island Stormwater Design and Installation Standards Manual*

The *Rhode Island Stormwater Design and Installation Standards Manual* (Appendix K), which has been incorporated into the CRMC's RICRMP requirements by reference, contains more detailed descriptions of the Council's standards and requirements. The document is intended to guide applicants in designing projects consistent with the Council's regulations. This manual should be viewed as supplemental requirements which must be incorporated, as needed, into all stormwater management plans.

6. Other RICRMP requirements related to site development

There are other RICRMP requirements which also address this management measure. Some of these policies and prohibitions are linked to the policies governing water types (Section 200) and coastal features (Section 210). Examples include:

- Matrices Contained in RICRMP Table 1 as they pertain to specified activities, water types, and coastal features;
- Additional Category B requirements specified in Section 300.1 and other sections of the RICRMP;
- CRMC's buffer zone policies and standards contained in Section 150 which recognize the erosion and control value of buffer zones and require that riparian areas remain in an undisturbed state.

These supplemental requirements help ensure that the measure is implemented and are best viewed as additional management measures.

RIDEM Division of Freshwater Wetlands Rules and Regulations

This management measure will also be implemented by the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands pursuant to R.I.G.L. 2-1 et. seq., 42-17.1-1 et. seq., 42-17.6-1 et. seq., and 42-35-1 et. seq. (Appendix A) in accordance with the requirements specified in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). It is also implemented by a subsection of the Division of Freshwater Wetlands, the Dam Safety Program, pursuant to R.I.G.L. 46-19. For more information on the nature of that program and its permit process and requirements, see the discussion contained in Chapter 2, and the discussions addressing the Wetlands Management Measures. For more information on this management measure's oversight and overall effectiveness of the program see the discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measure

1. Inspection of Dams and Reservoirs Act

The Inspection of Dams and Reservoirs Act delegates authority over the construction of new dams, and alterations and maintenance of existing dams to the Department of Environmental Management (R.I.G.L. 46-19). No dam may be constructed or substantially altered until plans and specifications of the proposed work have been file and approved by the director (R.I.G.L. 46-19-3). In addition, if any maintenance activity impacts the natural character, functions and/or values (as defined in Rule 10.02 or evaluated in Rule 10.03) of a freshwater wetland, then a permit for the activity must be obtained. Accordingly, dams are subject to the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B)

2. *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act*

The Erosion and Sediment Control Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* . The *Rules* (effective April 7, 1994) apply statewide to any activities that could alter the character of a freshwater wetland and contiguous areas (R.I.G.L. 2-1-21 and SD 4.03).

In accordance with Section 2-1-21 of the Fresh Water Wetlands Act, a permit to alter a freshwater wetland will be denied if the proposed project would result in a random, unnecessary or undesirable alteration of a freshwater wetland. To determine if a proposed alteration is random, unnecessary or undesirable the Director considers:

1. Whether the applicant has demonstrated that the impacts to freshwater wetlands have been avoided to the maximum extent possible, and whether those impacts which are unavoidable have been reduced to the maximum extent possible in accordance with the review criteria (SD 11.02).

For Applications to Alter, applicants must submit a written evaluation which includes the identification and description of wetland functions, values and impacts (SD 10.03). The evaluation must include a description of all measures to eliminate, avoid and/or reduce impacts to freshwater wetlands to the maximum extent possible. This evaluation must include a Soil Erosion and Sediment Control element which requires applicants to:

"identify and describe all proposed land disturbance activities; existing site conditions, including soil conditions, and topography; drainage characteristics of the proposed project site; any critical erosion areas; and all proposed non-structural and structural temporary and permanent erosion and sediment control methods. Further, describe how and why such erosion and sediment control measures will protect wetland functions and values and meet the review criteria as set forth in Rule 11.02."(SD 20.03.H).

In addition to the identification and description of the wetland functions values and impacts associated with the proposed project, as required by Section 10.03, the written evaluation must address specific elements contained in Appendix 6 of the *Rules* . Applicants are required to identify and describe proposed measures to reduce unavoidable impacts. Such measures, methods, or best management practices include:

6) Using best management practices for the stabilization of disturbed areas and the selection, use, and maintenance of temporary and/or permanent and sediment controls in accordance with or equivalent to the latest version of the *Rhode Island Soil Erosion and Sediment Control Handbook*.

7) Using best management practice selection and design criteria in accordance with or equivalent to the *Rhode Island Stormwater Design and Installation Manual.*

3. *Rhode Island Soil Erosion and Sediment Control Manual*

The *Rhode Island Soil Erosion and Sediment Control Manual* (Appendix L) contains more detailed descriptions of standards and requirements as they pertain to soil erosion and sediment control practices. Many of these practices directly relate to site development.

4. *Rhode Island Stormwater Design and Installation Standards Manual*

The *Rhode Island Stormwater Design and Installation Standards Manual* (Appendix K), contains more detailed descriptions of best management practices. The document is intended to guide applicants in designing projects which avoid, eliminate and minimize stormwater impacts on the functions and values of wetlands. This manual should be viewed as supplemental requirements which should be incorporated, as needed, into all stormwater management plans.

RIDEM Division of Water Resources, Water Quality Certification Program

According to the State's 1992 305(b) report, impacts from dams do not impair or threaten any of Rhode Island's waters. However, should the situation arise where water quality problems could be related to existing dams, the RIDEM, Division of Water Resources could enforce a violation of state water quality standards.

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Chemical and Pollutant Control

Chemical and Pollutant Control

1) Limit application, generation, and migration of toxic substances;
2) Ensure the proper storage and disposal of toxic materials; and,
3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

Applicability

This management measure applies to the construction of new dams, as well as to construction activities associated with dams. Dams are defined as constructed impoundments which are either:

(a) 25 feet or more in height *and* greater than 15 acre feet in capacity; or,
(b) 6 feet or more in height *and* greater than 50 acre feet in capacity.

This management measure does not apply to projects that fall under NPDES jurisdiction.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will also be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the *Rhode Island Coastal Resources Management Program (RICRMP).* For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. For more information on the management measure's oversight and the program's overall effectiveness see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measures

The Chemical and Pollutant Control Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements of this section apply to all new dams and construction activities associated with dams within CRMC jurisdiction. In order to be consistent with the applicability criteria, the CRMC proposes to add the following definition of "dam" to the RICRMP:

> "3. For the purposes of this section, dams are defined as constructed impoundments which are either: (a) twenty-five feet or more in height and greater than fifteen acre feet in capacity; or, (b) six feet or more in height and greater than fifty acre feet in capacity (Proposed RICRMP Section 310.A.3)."

There are several important ways that this measure will be implemented.

1. Proposed Amendments to Section 310

Refer to discussion of CRMC implementation of this measure contained in the Erosion and Sediment Control Management Measure for Dams.

2. Proposed amendments to RICRMP Section 300.2

Proposed amendments to RICRMP Section 300.2 would apply to all filling, removing and grading activities at construction sites subject to the applicability requirements of this measure. The proposed amendments include the following additional standards:

> Disturbed uplands adjacent to a construction site shall be graded and re-vegetated or otherwise stabilized to prevent erosion during or immediately after construction. Nutrients shall be applied at rates necessary to establish and maintain vegetation without causing

significant nutrient runoff to surface waters (Proposed RICRMP Section 300.2.D.1(c)).

Limit the application, generation, and migration of toxic substances and ensure that toxic substances are properly stored and disposed of onsite in accordance with all applicable federal, state, and local requirements. (Proposed RICRMP Section 300.2.D.1(m)).

It is also important to note that the important stipulations of a Council Assent are registered in the land evidence records and the conditions imposed on an Assent may include requirements other than those specifically mentioned in the regulations (i.e., specific maintenance requirements for a particular project).

3. *Rhode Island Soil Erosion and Sediment Control Manual*

Refer to discussion of CRMC implementation contained in the Erosion and Sediment Control Management Measure for Dams.

4. *Rhode Island Stormwater Design and Installation Standards Manual*

Refer to discussion of CRMC implementation contained in the Erosion and Sediment Control Management Measure for Dams.

5. Other RICRMP requirements related to construction and chemical control

Refer to discussion of CRMC implementation contained in the Erosion and Sediment Control Management Measure for Dams.

RIDEM Division of Freshwater Wetlands Rules and Regulations

Implementation of the Measure
The Chemical and Pollutant Control Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). The *Rules* (effective April 7, 1994) apply statewide to any activities that could alter the character of freshwater wetlands (R.I.G.L. 2-1-21 and SD 4.03).

In accordance with Rule 10.03 applicants Submitting an Application to Alter a freshwater wetland must provide a written evaluation of wetland functions, values and impacts and describe all structural and/or nonstructural best

management practices, best available technologies, schedules and management plans which will be employed to eliminate, avoid and/or reduce impacts to freshwater wetlands to the maximum extent possible. The written evaluation, where applicable, must include and address a water quality analysis which calculates the pollutant concentrations or loadings from land uses or pollutant sources other than stormwater run-off (which must be addressed separately in the written evaluation). Applicants must also identify and describe any degradation of water quality associated with freshwater wetlands by increasing pollutant sources and nutrient loading and take steps to avoid and minimize those impacts. Specifically, applicants must provide a water quality analysis which:

- calculates the quantities of pollutants in stormwater runoff for both pre- and post-project conditions (Rule 10.03.G.3)

- calculates the pollutant concentrations or loadings from land uses or pollutant sources other than stormwater run-off, including but not limited to, fertilizers, herbicides, pesticides, or any other chemical or organic matter for both pre- and post-project conditions (Rule 10.03.G.3).

- identifies and describes all proposed potential impacts to water quality (Rule 10.03.G.4).

In addition to the requirements contained in Rule 10.03, the written evaluation must address a series of elements contained in Appendix 6 of the *Rules*. Specific to the implementation of this management measure, applicants must describe measures that will be implemented to minimize or eliminate the use of, or any increase of, any pollutant, fertilizers, pesticides, herbicides, or any other chemical or organic application which increases pollutant and nutrient loadings.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Surface Water Quality and Instream Riparian Habitat

Surface Water Quality and Instream Riparian Habitat

Develop and implement a program to manage the operation of dams in coastal areas that includes an assessment of:

1) Surface water quality and instream riparian habitat and potential for improvement; and,
2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

Applicability

This management measure applies to dam operations that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat. Dams are defined as constructed impoundments which are either:

(a) 25 feet or more in height *and* greater than 15 acre feet in capacity; or
(b) 6 feet or more in height *and* greater than 50 acre feet in capacity.

This management measure does not apply to projects that fall under NPDES jurisdiction.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below.

Rhode Island Coastal Resources Management Program

This management measure will be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the *Rhode Island Coastal Resources Management Program (RICRMP).* For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. For more information on the management measure's oversight and the program's overall effectiveness see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measures

The Surface Water Quality and Instream Riparian Habitat Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements of this section apply to all new dams and construction activities associated with dams within CRMC jurisdiction. In order to be consistent with the applicability criteria, the CRMC proposes to add the following definition of "dam" to the RICRMP:

> "3. For the purposes of this section, dams are defined as constructed impoundments which are either: (a) twenty-five feet or more in height and greater than fifteen acre feet in capacity; or, (b) six feet or more in height and greater than fifty acre feet in capacity (Proposed RICRMP Section 310.A.3)."

There are several important ways that this measure will be implemented.

1. Proposed amendments to RICRMP Section 310

This section of the RICRMP applies to all activities which propose to alter the freshwater flow to tidal waters. While it is doubtful that many new dams will be proposed for placement within the CRMC's jurisdiction, there currently are several existing dams. In order to ensure that this measure is fully implemented within the CRMC's jurisdiction, the following changes to Section 310 of the RICRMP are proposed. The CRMC proposes to add the following new policy:

> "1. The Council recognizes that alterations to the volume of fresh water discharged to estuarine water bodies can have a significant effect on the species and abundance of organisms present in the estuary and may also cause changes to sedimentation, erosion patterns, and flooding. Applicants proposing to alter the volume of

freshwater discharged to estuarine bodies shall evaluate the impacts of the proposed project and minimize any adverse impacts on surface water quality and instream habitats (Proposed RICRMP Section 310.B.1)."

The Council also proposes to add the following new standards:

"6. Applicants proposing to construct new dams or improve existing dams shall demonstrate that appropriate practices will be used to mitigate impacts associated with nonpoint source pollution problems resulting from excessive water withdrawals (Proposed RICRMP Section 310.D.7)."

"7. Applicants proposing to construct new dams or improve existing dams shall demonstrate that appropriate practices will be used to mitigate impacts to surface water quality and instream riparian habitat (Proposed RICRMP Section 310.D.7)."

2. Proposed Additional Category "B" Requirements

All new dams will be reviewed as a Category "B" activity and must meet all applicable additional Category "B" requirements specified in RICRMP Section 300.1. Requirements relevant to the construction of dams include:

"(4) Demonstrate the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters;

(5) Demonstrate the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life; . . .

(7) Demonstrate the alteration or activity will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation;

(8) Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM; . . . (RICRMP Section 300.1)"

RIDEM Division of Freshwater Wetlands Rules and Regulations

This management measure will also be implemented by the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands pursuant to R.I.G.L. 2-1 et. seq., 42-17.1-1 et. seq., 42-17.6-

1 et seq., and 42-35-1 et. seq. (Appendix A) in accordance with the requirements specified in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). For more information on the nature of that program and its permit process and requirements, see the discussion contained in Chapter 2, and the discussions addressing the Wetlands Management Measures. For more information on this management measure's oversight and overall effectiveness of the program see the discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measure

The Surface Water Quality and Instream Riparian Habitat Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.)) and the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (Appendix B).

1. Requirements contained in the Fresh Water Wetlands Act (R.I.G.L. 2-1-19)

See discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure

2. Rules and Regulations Governing the Enforcement and Administration of the Fresh Water Wetlands Act

For a general description of the *Rules and Regulations Governing the Enforcement and Administration of the Fresh Water Wetlands Act* and their implementation, see the discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure.

Rule 10.03 of the *Rules and Regulations* specifically requires applicants submitting an Application to Alter to:

- identify and describe all proposed project components that may directly or indirectly divert, reduce or contain surface and/or groundwater flow to, away from, or within any wetland and the impacts on the wetland's functions and values (Rule 10.03.F.3).
- identify and describe proposed water quality impacts associated with increasing pollutant sources; nutrient loading; increasing turbidity; decreasing oxygen; altering temperature regimes; reducing stream or river flows; altering the wetlands ability to retain or remove nutrients; or by withdrawing water from or near any wetland (Rule 10.03.G.4).

The written evaluation of wetland functions, values and impacts is reviewed in accordance with 26 specific criteria contained in Rule 11.02. Applicants must demonstrate that all identified impacts will be avoided and minimized to the maximum extent possible. With reference to the implementation of this management measure, the Director must be satisfied that the proposed project will not result in:

1. Significant reduction in the overall wildlife production and/or diversity of a wetland.
12. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values.
25. Non-compliance with the Rhode Island Department of Environmental Management Water Quality Regulations for Water Pollution Control.
26. Any detrimental modification of the wetland's ability to retain and/or remove nutrients or act as a natural pollution filter.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Eroding Streambanks and Shoreline Erosion

Eroding Streambanks and Shorelines

1) Where streambank or shoreline erosion is a nonpoint source pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more cost effective, considering the severity of wave and wind erosion, offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas.
2) Protect streambank and shoreline features with the potential to reduce NPS pollution.
3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Applicability

This management measure applies to eroding shorelines in coastal bays, and to eroding streambanks in coastal rivers and creeks.

Programs Implementing the Measure

This management measure is or will be implemented by three programs:

- Rhode Island Coastal Resources Management Program;
- RIDEM, Division of Freshwater Wetlands Rules and Regulations; and,
- RIDEM, Division of Water Resources Water Quality Regulations and Water Quality Certification Program.

These programs and how they implement or will implement the management measure are described in more detail below. In addition, it is important to note that natural erosion in coastal bays, rivers and creeks (i.e., erosion that is not associated with any land disturbance activity) has not been identified as a nonpoint problem in Rhode Island which generally has sandy

beaches and rocky shorelines. No clay soils exist in the State. Sand has never been determined to be a nonpoint pollution problem in coastal waters and in areas with rocky shores, clearly no nonpoint problems associated with eroding shorelines have been or are expected to be detected.

In spite of the fact that eroding shorelines do not present a nonpoint source problem in Rhode Island's coastal waters, the CRMC has taken steps to ensure erosion and its impacts due to land and water uses are minimized (see discussion in Chapter 6 and Chapter 7 related to requirements for erosion and sediment control). Policies which favor nonstructural methods of shoreline protection and which require the implementation of vegetative buffers ensure that eroding coastal areas and associated habitats are protected and, in some cases, restored. These measures are designed primarily to protect property while preventing further erosion.

Should erosion of a shoreline area be identified as a nonpoint pollution problem, the RIDEM could enforce the State's water quality standards and require remediation. Shorelines and streambanks contributing to nonpoint source pollution can be identified through the State's nonpoint source assessment program conducted in accordance with the requirements of Section 305(b) of the CWA. These efforts may be augmented by data generated by volunteer monitoring groups.

Rhode Island Coastal Resources Management Program

This management measure will be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 in accordance with the permit requirements as specified in the *Rhode Island Coastal Resources Management Program (RICRMP)*. For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. For more information on the management measure's oversight and the program's overall effectiveness see the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measures

The Eroding Streambanks and Shoreline Erosion Management Measure will be implemented by the CRMC pursuant to various requirements contained in the RICRMP (Appendix E) as well as proposed amendments to the RICRMP (Appendix 8A). The requirements described below apply to all shoreline areas adjacent to coastal waters (e.g., within CRMC jurisdiction). There are several important ways that this measure will be implemented.

1. Policies for Water Types and Coastal Features (See Table 1 Matrices)

The matrices contained in Table 1 of the RICRMP summarize where structural shoreline protection is and is not allowed. For example, structural shoreline protection is prohibited on all beaches and barrier beaches and on any coastal feature adjacent to Type 1 waters. Structural shoreline protection is also prohibited in Type 1 waters.

2. RICRMP Section 300.7 Construction of Structural Shoreline Protection Facilities

Section 300.7 of the RICRMP contains many of the Council's detailed policies and standards with respect to constructing structural shoreline protection facilities. The Council does favor non-structural methods for controlling erosion over structural forms (RICRMP Sections 300.7.B.1 and 300.7.E.1). In addition, applicants for structural shoreline protection facilities must:

> "(a) demonstrate that the proposed structure has a reasonable probability of controlling the erosion problem; (b) demonstrate that the proposed structure is not likely to increase erosion in adjacent areas; (c) demonstrate that the proposed structure is an appropriate solution to the erosion problem . . .; (d) describe the long-term maintenance program for the proposed facility . . .; and, (e) . . . be designed by a professional engineer (RICRMP Section 300.7.E.2)."

Accordingly, the Council's existing policies governing structural shoreline protection adequately implement the management measure. It should be noted that pursuant to a Project of Special Merit funded under Section 309 of the federal Coastal Zone Management Act, the Council is revising many of its barrier beach and structural shoreline protection policies. However, none of the regulation changes being developed will affect the regulations and requirements as described above.

3. Setback requirements contained in Section 140

Section 140 of the RICRMP requires that setbacks be applied in areas contiguous to shoreline features and must extend a minimum distance of either fifty (50) feet from the inland edge of a coastal feature or twenty-five (25) feet inland of the edge of a Coastal Buffer Zone, whichever is further. Setbacks apply to:

1) Filling, removal, or grading, except when part of an approved alteration involving a water-dependent activity or structure (Section 300.2);

2) Residential buildings and garages excluding associated structures (Section 110.4);
3) New individual sewage disposal systems, sewage treatment plants, and associated sewer facilities excluding outfalls (Section 300.6). Repairs and replacements of existing (permitted) individual sewage disposal systems shall be exempt from the Council's setback requirements;
4) Industrial structures, commercial structures, and public recreation structures that are not water-dependent (Section 300.3); and
5) Transportation facilities that are not water-dependent (Section 300.13).

In addition, the setbacks in critical erosion areas are greater and equal to 30 times the annual erosion rate for residential development and 60 times the calculated annual erosion rate. These values are contained in Table 2 and mapped on the Quad maps contained at the end of the RICRMP. It should be noted that the setbacks are measured from the inland edge of the most inland coastal feature.

4. Buffer zone policies contained in Section 150

The RICRMP also contains buffer zone requirements that are an effective mechanism for protecting wetlands and riparian areas. The Section 150 of the RICRMP recognizes the water quality benefits, and specific nonpoint source pollution control functions, associated with buffer zones. Buffer zone requirements apply to all new residential structures in accordance with Table 2a (RICRMP Section 150.D.2), existing residential structures when a significant alteration to the footprint or ISDS system is proposed (RICRMP Section 150.D.3), and to commercial and industrial development activities on a case-by-case basis (RICRMP Section 150.D.4).

5. Additional Category "B" requirements

All new structural shoreline protection facilities are reviewed as a Category "B" activity and must meet all applicable additional Category "B" requirements specified in the RICRMP (e.g., Section 300.1). Requirements relevant to streambank and shoreline stabilization activities, other than those contained in RICRMP Section 300.7, include:

"(4) Demonstrate the alteration or activity will not result in significant impacts on erosion and/or deposition processes along the shore and in tidal waters;

(5) Demonstrate the alteration or activity will not result in significant impacts on the abundance and diversity of plant and animal life; . . .

(7) Demonstrate the alteration or activity will not result in significant impacts to water circulation, flushing, turbidity, and sedimentation;

(8) Demonstrate that there will be no significant deterioration in the quality of the water in the immediate vicinity as defined by DEM;..."(RICRMP Section 300.1)

Enforcement

The following is a good example of how title and deed restrictions, as well as liens on property, have been effective in resolving RICRMP violations of shoreline protection policies. A CRMC applicant received a permit to perform minor maintenance work on an existing seawall. The applicant substantially exceeded the conditions of the CRMC permit, performing work well beyond the permitted conditions. In accordance with general CRMC enforcement procedures and the Administrative Procedures Act, a Cease and Desist Order was issued, a hearing was held, and a fine was levied. The CRMC then took steps to not only register the violation on the property's title, but also to place a lien on the property for the fine amount. This resulted in the applicant submitting an "As-Built" application to the Council for the seawall which was subsequently denied by the Council. The applicant appealled the denial decision in Superior Court, but the Court upheld the CRMC's denial decision. The applicant has now complied with the Council's order to restore the seawall to pre-existing conditions and meet the conditions of the original maintenance assent.

For more information on the monitoring and enforcement of this management measure, see the discussion contained in the Physical and Chemical Charateristics of Surface Waters management measure.

RIDEM Division of Freshwater Wetlands Rules and Regulations

This management measure will also be implemented by the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands pursuant to R.I.G.L. 2-1 et. seq., 42-17.1-1 et. seq., 42-17.6-1 et. seq., and 42-35-1 et. seq. (Appendix A) in accordance with the requirements specified in the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). For more information on the nature of that program and its permit process and requirements, see the discussion contained in Chapter 2, and the discussions addressing the Wetlands Management Measures. For more information on this management measure's oversight and overall

effectiveness of the program see the discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure.

Implementation of the Measure

The Eroding Streambanks and Shoreline Erosion Management Measure is currently implemented by the RIDEM, Division of Freshwater Wetlands pursuant to the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.) and the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B).

1. Requirements contained in the Fresh Water Wetlands Act (R.I.G.L. 2-1-19)

See discussion contained in the Physical and Chemical Characteristics of Surface Waters Management Measure

2. *Rules and Regulations Governing the Enforcement and Administration of the Fresh Water Wetlands Act*

In accordance with Section 2-1-21 of the Fresh Water Wetlands Act, a permit will be denied if the proposed project would result in a random, unnecessary or undesirable alteration of a freshwater wetland. Applicants must demonstrate in a written evaluation that all probable impacts have been avoided to the maximum extent possible. (For more information on the general requirements of this process, see the Physical and Chemical Characteristics of Surface Waters Management Measure)

Applicants submitting an Application to Alter must submit a written evaluation which includes the identification and description of wetland functions, values and impacts (SD 10.03). The evaluation must include a description of all measures to eliminate, avoid and/or reduce impacts to freshwater wetlands to the maximum extent possible. Specific to the implementation of this management measure, applicants must:

> "identify and describe all proposed land disturbance activities; existing site conditions, including soil conditions, and topography; drainage characteristics of the proposed project site; any critical erosion areas; and all proposed non-structural and structural temporary and permanent erosion and sediment control methods. Further, describe how and why such erosion and sediment control measures will protect wetland functions and values and meet the review criteria as set forth in Rule 11.02."(SD 20.03.H).

The written evaluation of wetland functions, values and impacts is reviewed in accordance with 26 specific criteria contained in Rule 11.02. With reference to the implementation of this management measure, the Director must be satisfied that the proposed project will not result in:

1. Significant reduction in the overall wildlife production and/or diversity of a wetland.
12. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, either in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values.
25. Non-compliance with the Rhode Island Department of Environmental Management Water Quality Regulations for Water Pollution Control.
26. Any detrimental modification of the wetland's ability to retain and/or remove nutrients or act as a natural pollution filter.

In addition to the identification and description of the wetland functions values and impacts associated with the proposed project, as required by Section 10.03, the written evaluation must address specific elements contained in Appendix 6 of the *Rules* . Applicants are required to identify and describe proposed measures to reduce unavoidable impacts. Such measures, methods, or best management practices include:

6) Using best management practices for the stabilization of disturbed areas and the selection, use, and maintenance of temporary and/or permanent and sediment controls in accordance with or equivalent to the latest version of the *Rhode Island Soil Erosion and Sediment Control Handbook*.

7) Using best management practice selection and design criteria in accordance with or equivalent to the *Rhode Island Stormwater Design and Installation Manual*.

3. *Rhode Island Soil Erosion and Sediment Control Manual*

The *Rhode Island Soil Erosion and Sediment Control Manual* (Appendix L) contains more detailed descriptions of standards and requirements as they pertain to soil erosion and sediment control practices. Many of these practices directly relate to site development.

4. *Rhode Island Stormwater Design and Installation Standards Manual*

The *Rhode Island Stormwater Design and Installation Standards Manual* (Appendix K), contains more detailed descriptions of best management practices. The document is intended to guide applicants in designing projects which avoid, eliminate and minimize stormwater impacts on the functions and values of wetlands. This manual should be viewed as supplemental requirements which should be incorporated, as needed, into all stormwater management plans.

RIDEM Division of Water Resources, Water Quality Certification Program

For more information on the RIDEM's Water Quality Regulations and Water Quality Certification Program see the program descriptions contained in Chapter 2. For a more detailed discussion of how these programs implement this management measure see the Physical and Chemical Characteristics of Surface Waters Management Measure.

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Appendix 8A
Proposed Changes to the RICRMP: Hydromodifications

300.9 Channelization, Dredging and Dredged Materials Disposal

A. DEFINITIONS

1. Dredging: the excavation of sediments from beneath tidal and coastal pond waters by mechanical, explosive, or hydraulic means. Dredging includes channelization or channel modification which is the excavation of borrow pits, canals, underwater mining, or other practices that change the depth, width, or location of waterways or embayments in coastal areas. These activities are typically undertaken for the purpose of flood control, navigation, and drainage improvement. All channelization activities are subject to the policies, standards, and requirements of this sections as well as other appropriate standards contained in this program.

   Dredging is divided into two categories: (a) improvement dredging includes new projects in previously un-dredged areas; and, (b) maintenance dredging includes projects whose purpose is to restore channels and basins to dimensions that support and maintain existing levels of use.

2. Dredged materials disposal: the process of discharging, depositing, dumping, or utilizing the sediments produced by a dredging operation.

B. POLICIES

1. The Council shall support necessary maintenance dredging activities in Type 2, 3, 4, 5, and 6 waters, provided environmentally sound disposal locations and procedures are identified.

2. The Council favors offshore open-water disposal for large volumes of dredged materials, providing that environmental impacts are minimized.

3. The Council encourages the use of innovative nearshore methods of dredged materials disposal, particularly when small volumes of material must be disposed. These options include creation of wetlands, shellfish habitat, and beach nourishment in suitable areas.

4. For disposal of dredged material resulting from maintenance dredging operations, provided the materials in question are predominantly clean sands, a Category A Review may be permitted provided the Executive Director determines that the disposal of the materials shall be for beach nourishment only, and the proposal meets the standards of Sections 110.1 and 300.9.F.5 of this

program.

5. Channelization and channel modification activities shall be planned and designed in a manner which does not cause significant adverse impacts to the physical and chemical characteristics of surface waters in coastal areas.

6. Channelization and channel modification activities shall be planned and designed in a manner which does not cause significant adverse impacts to instream and riparian habitats in coastal areas.

7. All channelization and channel modification activities shall identify appropriate best management practices which will be used to protect significant instream and riparian habitats and mitigate adverse impacts on surface water quality.

C. PREREQUISITES

1. Permits for maintenance and improvement dredging and disposal projects for navigational purposes must be obtained concurrently from the Army Corps of Engineers as well as the Council. Council and Army Corps requirements are designed to complement one another; applicants should consider the requirements of both agencies when preparing to begin the permit process ~~and may apply for CRMC and Army Corps permits concurrently~~. In some cases, the Council may require an applicant to obtain applicable Army Corps of Engineers permits prior to applying to the Council. A CRMC Assent is not valid unless the applicant has received all required Army Corps of Engineers approvals.

2. Except for federal consistency reviews, applicants proposing ~~for dredging~~ maintenance and improvement dredging of a volume greater than 25 cubic yards or open water disposal of dredged materials shall be required to obtain a Section 401 (Clean Water Act) Water Quality Certification or its waiver from the Department of Environmental Management (DEM) before the Council can ~~consider granting approval~~ issue an assent for the project. The application for the Section 401 Water Quality Certification will be forwarded to the DEM when all Council Application forms have been completed.

3. All materials to be dredged ~~for either open water disposal or upland disposal~~ must be classified by the Department of Environmental Management (DEM) based upon an approved analysis process prior to the Council acting on an application for ~~of either~~ dredging or dredged materials disposal.

4. Any application for open water disposal of dredged materials shall include ~~have~~ all requisite Army Corps of Engineers and Environmental Protection Agency (EPA) approvals.

5. All applicable requirements of the Freshwater Wetlands Act have or will have

been met.

6. Upland disposal of dredged materials must comply with all applicable local zoning ordinances.

D. PROHIBITIONS

1. The disposal of dredged materials on or adjacent to coastal wetlands in Type 1 and 2 waters is prohibited unless associated with a Council-approved program of wetland building or rehabilitation. The disposal of dredged materials is also prohibited on coastal wetlands designated for preservation in Type 3, 4, 5, and 6 waters (see Section 210.3).

2. No dredging for navigational purposes is permitted in Type 1 waters, and only maintenance dredging may be permitted in Type 2 waters.

E. ADDITIONAL CATEGORY B REQUIREMENTS

1. Applicants for all dredging projects shall provide accurate soundings in the area of the proposed dredging operation.

2. Applicants shall describe any temporary or permanent disturbance to a coastal feature which is required or anticipated ~~in order to gain access for heavy equipment to the dredging or disposal site~~.

3. When fine-grained sediments are to be removed, the applicant shall install siltation curtains to control the transport of materials placed in suspension by dredging unless the applicant demonstrates to the Council on the basis of competent professional analysis that such transport will not be significant or will be controlled by other measures.

4. The applicant shall limit dredging and disposal to specific times of the year in order to minimize odors and/or impacts on fish and shellfish unless the applicant demonstrates to the Council on the basis of competent professional analysis that such odors or impacts will not be significant or will be controlled by other measures.

5. Applicants for improvements dredging projects shall describe, on the basis of competent professional analysis, anticipated siltation rates, sediment sources, and anticipated maintenance dredging needs.

6. When dredged materials are removed from a marine to an upland environment for disposal, the applicant shall demonstrate that the release of pollutants present in the materials shall not cause significant threats to groundwater or cause other environmental degradation.

7. Proposed channelization and channel modification activities shall develop an operation and maintenance program that includes the identification and implementation of opportunities to improve the physical and chemical characteristics of surface waters in those channels.

8. Proposed channelization and channel modification activities shall develop an operation and maintenance program with specific timetables for modified channels that includes the identification of opportunities to restore instream and riparian habitat in those channels.

F. STANDARDS

1. For dredging:

   (a) Bottoms of dredged areas shall slope downward into the waterway so as to maximize tidal flushing.
   (b) Bottom slopes at the edges of dredged areas shall have a maximum slope of 50 percent.
   (c) Dredging shall be planned so as to avoid undermining adjacent shoreline protection facilities and/or coastal features.
   (d) Shellfish dredged from waters classified SB or lower shall not be made available for human consumption or bait.
   (e) Applicants shall demonstrate that the proposed dredging or channelization activity is planned and designed in a manner that does not lead to significant adverse impacts to the physical and chemical characteristics of surface waters in coastal areas.
   (f) Applicants shall demonstrate that the proposed dredging or channelization activity is planned and designed in a manner that does not lead to significant adverse impacts to the instream and riparian habitats in coastal areas.
   (g) All appropriate best management practices shall be employed to mitigate significant impacts to surface water quality and protect significant instream and riparian habitats.

2. For dredged materials disposal in open water:

   (a) Dredged materials may not be placed in areas determined by the CRMC to be prime fishing grounds.
   (b) Measures must be employed and described to ensure that all dredged materials will be dumped solely within the confines of an approved site.
   (c) Hydrographic conditions at the approved disposal site must be such that the disposed dredged materials will remain within the disposal area and that re-suspension of bottom sediments will be minimal.
   (d) Following disposal operations involving polluted materials, clean coarse-grained materials must be deposited to cap the spoil mound and

minimize the release of any potential contaminants to the water column. The cap shall have a minimum thickness of 6 inches.

(e) The applicant shall provide for an environmental monitoring program designed to detail physical conditions and biological activity at and near the site for a period of at least one year. The results of such programs shall be made public.

3. For dredged materials disposal in the creation of wetlands, aquatic habitat, or island:

   (a) Disposal sites must be in sheltered environments which are approved by the Council for such purposes and are not prone to extensive wave or current energies yet subject to sufficient tidal action to provide adequate flushing.
   (b) Dredged materials must be pumped or placed into a containment area that will permit sediment consolidation and prevent erosion.
   (c) The applicant must provide for an environmental monitoring program designed to detail physical conditions and biological activity at and near the site for a period of at lease one year. The results of such a program shall be made public.
   (d) All applicable requirements of Section 300.2 shall be met.

4. For upland disposal:

   (a) Dewatering of dredged materials shall occur behind a berm or bulkhead of sufficient height to contain the material.
   (b) After dewatering, dredged materials placed on uplands adjacent to tidal waters shall be vegetated or otherwise permanently stabilized. Surface slopes of the disposal area shall be graded so as to prevent surface ponding.
   (c) Where dredged materials are placed behind a wall or bulkhead: (1) the structure shall be suitably engineered to resist the pressures of the dredged material; (2) the material including fines shall be prevented from seeping through the wall or bulkhead by the placement of an adequate filtering device; and (3) all applicable standards listed for shoreline protection facilities (Section 300.7) shall be met.
   (d) All applicable requirements of Section 300.2 shall be met.

5. Disposal for beach nourishment:

   (a) The placement of dredged materials on a beach is a preferred disposal alternative, providing that the materials in question are predominantly clean sands possessing grain size and such other characteristics to make them compatible with the naturally occurring beach material.
   (b) In areas where the processes of littoral drift would result in significant re-entry of dredged sediments into a navigable waterway dredged materials must be placed on the downdrift side of the inlet.

(c) All applicable requirements of Section 300.2 shall be met.

Section 310. Alterations to Freshwater Flows to Tidal Waters and Water Bodies and Coastal Ponds

A. DEFINITIONS

1. Alterations to the flows of tributaries include the installation of dams or other devices that alter flows of tributaries to tidal waters and that significantly change the timing and/or volumes of fresh water to coastal waters. Such alterations have a reasonable probability to conflict with a Council plan or program for resources management or may significantly affect the environment of the coastal region.

2. Alterations to the circulation of tidal waters include all structures that alter the behavior of waters within tidal water bodies, including the removal of tidal waters for industrial cooling or other purposes and the installation of structures in embayments and salt ponds that alter the volumes and/or timing of exchange with outlying tidal waters.

3. For the purposes of this section, dams are defined as constructed impoundments which are either: (a) twenty-five feet or more in height and greater than fifteen acre feet in capacity; or, (b) six feet or more in height and greater than fifty acre feet in capacity.

B. POLICIES

1. The Council recognizes that alterations to the volume of fresh water discharged to estuarine water bodies can have a significant effect on the species and abundance of organisms present in the estuary and may also cause changes to sedimentation, erosion patterns, and flooding. Applicants proposing to alter the volume of freshwater discharged to estuarine bodies shall evaluate the impacts of the proposed project and minimize any adverse impacts on surface water quality and instream habitats.

2. It is the Council's policy to maintain and enhance anadromous fish runs and to consult with the Department of Environmental Management when considering proposals that may affect these features.

3. Applicants proposing construction activities associated with dams shall submit an erosion and sediment control plan in accordance with the standards contained in Section 300.2 which demonstrates that erosion shall be reduced and, to the extent practicable, sediment retained onsite during and after construction. All erosion and sediment control plans shall: (a) limit the application.

generation, and migration of toxic substances; (b) ensure the proper storage and disposal of toxic materials; and, (c) demonstrate that nutrients will be applied at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

C. PREREQUISITES

~~1. The construction of dams, tidal gates, and other structures affecting flows of tributaries and the circulation of tidal water bodies shall require an Army Corps of Engineers permit.~~

1. Permits for the construction of dams, tidal gates, and other structures affecting flows of tributaries and the circulation of tidal water bodies must be obtained concurrently from the Army Corps of Engineers as well as the Council. In some cases, the Council may require an applicant to obtain applicable Army Corps of Engineers permits prior to applying to the Council. A CRMC Assent is not valid unless the applicant has received all required Army Corps of Engineers approvals.

2. Except for federal consistency reviews, applicants for the construction of dams, tidal gates, and other structures affecting flows of tributaries and the circulation of tidal water bodies shall be required to obtain a Section 401 (Clean Water Act) Water Quality Certification or its waiver from the Department of Environmental Management (DEM) before the Council can issue an assent for the project. All maintenance dredging activities which propose to dredge more than 25 cubic yards of dredged material shall also be required to obtain a Section 401 Water Quality Certification or its waiver before the Council will issue an Assent. The application for the Section 401 Water Quality Certification will be forwarded to the DEM when all Council Application forms have been completed.

D. STANDARDS

1. See policies and standards ~~given~~ in "Filling, Removing, or Grading of Shoreline Features" (Section 300.2), as applicable.

2. See policies and standards ~~given~~ in "Construction of Shoreline Protection Facilities" (Section 300.7), as applicable.

3. See policies and standards ~~given~~ in "Treatment of Sewage and Stormwater ~~Sewage Treatment and Disposal~~" (Section 300.6), as applicable.

4. See policies and standards in "Filling in Tidal Waters" (section 300.10), as applicable.

5. See policies and standards in "Dredging and Dredged Materials Disposal" (section

300.9), as applicable.

6. Applicants proposing to construct new dams or improve existing dams shall demonstrate that appropriate paractices will be used to mitigate impacts associated with nonpoint source pollution problems resulting from excessive water withdrawls.

7. Applicants proposing to construct new dams or improve existing dams shall demonstrate that appropriate paractices will be used to mitigate impacts to surface water quality and instream riparian habitat.

Chapter 9
Wetlands And Riparian Areas

Introduction

Nonpoint pollution to wetlands originates from many different sources including spilled oil, animal wastes, eroded soil, garden and lawn chemicals, and litter. Rainfall or snowmelt moving over and through the ground is able to pick up and carry away these anthropogenic and natural pollutants. Eventually these pollutants are deposited in rivers, wetlands, coastal waters, and ground water where they degrade water quality. Nonpoint pollutants include: nutrients (nitrogen and phosphorous); hydrocarbons (oil and grease); pathogens (bacteria and viruses); pesticides; toxins; road salt; and sediment. Wetlands have the ability to perform a significant nonpoint pollution abatement function by acting as a buffer zone in where they filter and minimize the effects of pollutants into receiving waters.

Changes to hydrology, geochemistry, substrate, or species composition may impair the ability of a wetland or riparian area to function properly. Such alterations can affect the ability of a wetland or riparian area to act as a filter for excessive sedimentation and nutrients, which can then result in deteriorated surface water quality of the adjacent water body or of the receiving waters. Examples of typical activities that often cause such impairment include the drainage of wetlands for additional cropland, overgrazing, construction of highways, channelization of an adjoining waterway, deposition of dredged materials, and excavation for ports and marinas.

The *Guidance Specifying Management Measures for Sources of Nonpoint Pollution to Coastal Waters* (EPA, 1993) contains three wetlands management measures:

- Protection of Wetlands and Riparian Areas;
- Restoration of Wetlands and Riparian Areas; and
- Engineered Vegetated Treatment Systems.

Only the first management measure must be implemented using "enforceable policies."

This chapter discusses the history of wetlands alterations in Rhode Island, the programs which regulate wetlands and riparian areas, and how each of the management measures will be implemented.

History of Wetlands Alterations

Coastal Wetlands

Much of the original acreage of coastal wetlands in Rhode Island have been filled and altered along most of the urban waterfronts and port and harbor areas of the State. Millions of cubic yards of dredged materials were pumped on to salt marshes, low-lying shorelines, and dumped in deep water within Narragansett Bay prior to the 1950s, when convenience and expense were the primary considerations, (CRC, 1992: 5). Large sections of fringe marsh and shallows along the Providence River were filled with dredged materials from the shipping channel to create more pier and berthing areas for the port (CRC, 1992: 5). Downtown Providence, Newport, and many other low-lying coastal communities are built on what was once coastal wetlands (CRC, 1992: 5). The Navy facility at Quonset Point, which was constructed by the federal government during the 1930s and 1940s, also lies on filled marsh and subtidal lands (CRC, 1992: 5).

Since the 1970s, the trend of tidal wetland filling has virtually stopped. The Army Corps of Engineers' records indicate that the last dumping of dredged materials on a Rhode Island salt marsh took place in 1963. (CRC, 1992: 5) Since the adoption of the RICRMP in 1976, all tidal wetlands and contiguous wetlands are protected regardless of size, and any filling or alteration is strictly prohibited in approximately 90% of the State's remaining salt marshes (those abutting Types 1 and 2 waters, and Types 3,4,5 & 6 waters which have been designated for preservation) (RICRMP, Section 210.3).

According to the National Wetlands Inventory of 1989, Rhode Island contains approximately 7,949 acres of coastal wetlands (931 acres of marine wetlands and 7,018 acres of estuarine wetlands) which fall under CRMC jurisdiction. Marine wetlands in Rhode Island consist of 53% beaches/bars, 36% rocky shores, and 11% flats. Rhode Island's estuarine wetlands consist of 49% emergent wetlands, 41% flats, 8% beaches/bars, 1% rocky shores, and 1% scrub-shrub wetlands.

Freshwater Wetlands

Freshwater wetland loss over time is difficult to assess since no comprehensive analysis has ever been performed (DEM 305 (b) Report, 1992). Losses have probably been heaviest along the flood plains of the State's major river systems, as these areas served as the corridors of expansion from the coastal urban settlements (DEM 305 (b) Report, 1992).

The Fresh Water Wetlands Act is a state statute that was adopted as part of the Rhode Island General Laws in 1971 (R.I.G.L. 2-1-18, et seq.). The Act states:

> It is the public policy of the State of Rhode Island and Providence Plantations to preserve the purity and integrity of swamps, marshes, and other freshwater wetlands of the state. The health, welfare, and general well being of the

> populace and the protection of life and property require that the state restrict the uses of wetlands and, therefore, in the exercise of the police power those wetlands are to be regulated hereunder. (R.I.G.L. 2-1-19)

The most recent amendments to the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* became effective April 7, 1994.

According to the National Wetlands Inventory of 1989, Rhode Island contains approximately 57,106 acres of palustrine (freshwater) wetlands which fall under the jurisdiction of the Department of Environmental Management, Division of Freshwater Wetlands. Palustrine wetlands in Rhode Island consist of 77% broad-leaved deciduous forested wetland, 9% deciduous scrub-shrub wetland, 6% needle-leafed evergreen forested wetland, 4% open water wetland, 3% emergent wetland, and tiny areas (less than 1%) of aquatic bed wetland, evergreen scrub-shrub wetland, dead forested wetland, and farmed wetland.

Regulation of Wetlands in Rhode Island

In Rhode Island there are two regulatory programs which currently implement the three wetlands management measures throughout the state. The Freshwater Wetlands Program is administered by the Rhode Island Department of Environmental Management (RIDEM), Division of Freshwater Wetlands and regulates all alterations to freshwater wetlands statewide under the authority of the Fresh Water Wetlands Act (R.I.G.L. 2-1-18, et seq.), and in accordance with the *Rules and Regulations Governing the Administration and Enforcement of the Fresh Water Wetlands Act* (Appendix B). The Coastal Resources Management Council (CRMC) regulates all alterations to coastal wetlands statewide in accordance with the Rhode Island Coastal Resources Management Program (RICRMP) (Appendix E). Both regulatory programs are very strong, offer significant protection to freshwater and coastal wetlands, and even provide some enforcement of the two nonenforceable wetlands management measures. These programs are described more fully in Chapter 2. Background information relevant to the implementation of these management measures is provided below. It is important to note that in Rhode Island, all projects which have the potential to alter freshwater or coastal wetlands are subject to regulatory review. The State is currently achieving this management measure by equally protecting all wetlands and their respective functions. As noted during the Threshold Review meeting, Rhode Island has some of the most stringent wetland protection regulations in the nation.

Protection of Wetlands and Riparian Areas

Protection of Wetlands and Riparian Areas
Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas as measured by characteristics such as vegetative composition and cover, hydrology of surface water and ground water, geochemistry of the substrate, and species composition.

Applicability

This management measure shall be applied by States to protect wetlands and riparian areas from adverse NPS pollution impacts.

Programs Implementing the Measure

Rhode Island Coastal Resources Management Program

This management measure will also be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 and in accordance with the permit requirements as specified in the Rhode Island Coastal Resources Management Program (RICRMP). For more information on the nature of the program and the permit process see the discussion contained in Chapter 2.

Implementation of the Measures
The Protection of Wetlands and Riparian Areas Management Measure is currently implemented through the RICRMP Section 210.3, Coastal Wetlands, and Section 300.12, Coastal Wetland Mitigation (Appendix 9A). All proposed projects in or around coastal wetlands are subject to the policies and standards of these Sections. In addition, The Narrow River Special Area Management Plan (Appendix H) and the Salt Pond Special Area Management Plan (Appendix G) contains additional wetlands mitigation requirements. Setback and buffer zone requirements contained in the RICRMP further implement this measure. Relevant sections of these programs are discussed in more detail below.

1. **Policies contained in RICRMP Section 210.3**

According to the Rhode Island Coastal Resources Management Program (RICRMP Section 210.3), coastal wetlands include:

> Salt marshes and freshwater or brackish wetlands contiguous to salt marshes or physiographical features. Areas of open water within coastal wetlands are considered a part of the wetland. In addition, coastal wetlands also include freshwater and/or brackish wetlands that are directly associated with non-tidal coastal ponds and freshwater or brackish wetlands that occur on a barrier beach or are separated from tidal waters by a barrier beach.
>
> Salt marshes are areas regularly inundated by salt water through either natural or artificial water courses and where one or more of the following species predominate: smooth cordgrass (Spartina alterniflora), salt meadow grass (Spartina patens), spike grass (Distichlis spicata), black rush (Juncus gerardi), saltworts (Salicornia spp.), sea lavender (Limonium carolinianum), saltmarsh bulrush (Scirpus spp.), high tide bush (Iva frutescens).
>
> Contiguous freshwater wetlands are those wetlands which border directly on salt marshes or brackish wetlands or physiographical features and which, except for size limitations, meet the definition of a bog, marsh, swamp, or pond under the Rhode Island Freshwater Wetland Act (R.I.G.L., Section 2-1-18 et seq.). All contiguous freshwater wetlands are protected under this Program, regardless of their size.
>
> Contiguous brackish wetlands are those wetlands which border directly on salt marshes and where one or more of the following species predominate: tall reed (Phragmites communis), tall cordgrass (Spartina pectinata), broadleaf cattail (Typha angustifolia, spike rush (Eleocharis rostellata), chairmaker's rush (Scirpus americana), creeping bentgrass (Agrostis palustris), sweet grass (Hierochloe odorata), wild rye (Elymus virginicus).
>
> High salt marsh is defined as the that portion of the salt marsh that typically is flooded by the spring, moon, or other flooding tides but otherwise is not flooded on a daily basis. The vegetative composition of high salt marsh typically consists of one or more of the following: salt meadow grass (Spartina patens), spike grass (Distichlis spicata), black rush (Juncus gerardi), tall reed (Phragmites communis), Sea Lavender (Limonium carolinianum), tall cordgrass (Spartina pectinata), saltmarsh bulrushes (Scirpus spp.), and high tide bush (Iva frutescens).
>
> Low salt marsh is defined as that portion of the salt marsh that is flooded daily. The vegetative composition of the low salt marsh typically consists of smooth cordgrass (Spartina alterniflora).

It is the Council's goal to preserve, and where possible, restore coastal wetlands (RICRMP 210.3.C.1).

Projects requiring the alteration of coastal wetlands may be granted a Council Assent if: they involve only minor alterations associated with residential docks and shoreline protection facilities adjacent to Types 3, 4, 5 and 6 waters; the alteration is made to accommodate a priority use for the water area, and impacts have been avoided and minimized to the maximum extent; or they satisfy the Special Exception burdens of proof contained in Section 130 (RICRMP Section 210.3.C). It is important to note that 90% of the remaining coastal wetlands in Rhode Island abut Type 1 and Type 2 waters or have been designated for preservation. Alterations to those wetland areas, except for minor alterations associated with residential docks and structural shoreline protection facilities which abut Type 2 waters, are explicitly prohibited (RICRMP Section 210.3.B).

2. Proposed amendments to Section 210.3

Amendments to the RICRMP (Appendix 9A) are proposed to strengthen the Council's ability to protect, manage and regulate coastal wetlands serving a significant nonpoint source abatement function by explicitly recognizing this function in the Findings. These amendments add language which states that coastal wetlands "can serve as a valuable nonpoint source abatement function" and "the capacity of the wetland to serve as a natural drainage system".

The following addition to the Council's policies for coastal wetlands is also proposed:

8. It is the Council's policy to protect from adverse effects, and to maintain, wetlands that are serving a significant nonpoint source abatement function while protecting other existing functions of wetlands and riparian areas. In addition, the Council promotes the restoration of the preexisting functions in damaged and destroyed wetlands and riparian areas, and the use of vegetated filter strips, in areas where these systems can serve a nonpoint source abatement function.

3. RICRMP Section 300.12 Wetlands Mitigation Policies

Projects which require the alteration of coastal wetlands are granted a Council Assent only when they satisfy the Special Exception burdens of proof contained in Section 130. Essentially, this only permits alterations to coastal wetlands which are unavoidable, serve a public purpose and benefit the citizens of Rhode Island.

4. CRMC's Special Area Management Plans

Amendments to the Narrow River Special Area Management Plan made in 1993 address wetland alterations and mitigation requirements. In accordance with Section 420.1.C (Controls for Habitat Protection), filling, removing, or grading (as defined in Section 300.2 of the RICRMP) is prohibited on any wetland in the Narrow River watershed. For the purposes of this section, wetlands include coastal

wetlands, as defined in Section 210.3 of the RICRMP and all other wetlands subject to the Freshwater Wetlands Act, that are located in the Narrow River watershed. There are two exceptions to this prohibition: the fifty (50) foot wetland perimeter and river bank wetland areas outside the wetland edge are not considered part of the wetland under this section; and, applicants may be permitted to alter freshwater wetlands within the Narrow River Watershed "to access buildable land and when no other reasonable alternatives for access exist and when the applicant has satisfied the variance burdens of proof set forth in Section 140 of the RICRMP."

5. RICRMP Section 140. Setbacks

To further protect wetlands and riparian areas, the RICRMP requires that setbacks be maintained in areas contiguous to coastal wetlands. Setbacks extend a minimum distance of either fifty (50) feet from the inland edge of a coastal feature or twenty-five (25) feet inland of the edge of a Coastal Buffer Zone, whichever is further. Setbacks apply to:

1) Filling, removal, or grading, except when part of an approved alteration involving a water-dependent activity or structure (Section 300.2);
2) Residential buildings and garages excluding associated structures (Section 110.4);
3) New individual sewage disposal systems, sewage treatment plants, and associated sewer facilities excluding outfalls (Section 300.6). Repairs and replacements of existing (permitted) individual sewage disposal systems shall be exempt from the Council's setback requirements;
4) Industrial structures, commercial structures, and public recreation structures that are not water-dependent (Section 300.3); and
5) Transportation facilities that are not water-dependent (Section 300.13).

6. RICRMP Section 150 Coastal Buffer Zones

The RICRMP also contains buffer zone requirements that are an effective mechanism for protecting wetlands and riparian areas. The Section recognizes the water quality benefits, and specific nonpoint source pollution control functions, associated with buffer zones. Buffer zone requirements apply to new residential structures, existing residential structures when a significant alteration to the footprint or ISDS system is proposed, and to commercial and industrial development activities on a case-by-case basis.

Management Measure Oversight

Oversight with respect to this program lies with the Rhode Island Coastal Resources Management Council (CRMC) which monitors and enforces the policies and requirements as specified in the Rhode Island Coastal Resources Management Program (RICRMP). These issues are described in more detail below.

Enforcement

The CRMC has broad enforcement authority. The stipulations of a CRMC Assent are registered on title. The Council then issues cease and desist orders when violations are detected. Cease and Desist orders are registered as a lien on the title to the property. This is a very effective mechanism for ensuring long term enforcement of the program since it typically prevents title transfers and refinancing. The CRMC also has the authority to assess both administrative fees and fines. In addition, violators can be subject to criminal prosecution pursuant to R.I.G.L. 46-23-7.3. The CRMC will enforce the measure's implementation using its existing enforcement and permit staff. Each permitting team (engineer and biologist) has distinct towns where he/she is responsible for reviewing applications. Accordingly, they perform routine field inspections and do enforcement while they perform site visits in conjunction with other applications. The enforcement staff both patrols and responds to reported violations. In addition to on-land enforcement activities, the CRMC also has boats which it uses to patrol areas on the water. In addition, RIDEM Conservation Officers often report violations as do local officials, the general public, and environmental groups, such as Save-the-Bay.

Monitoring

A dataset is maintained that contains information on individual permit applications under the Army Corps of Engineers Section 10/404 program for construction activities and the discharge of fill in waterways and wetlands. Each permit application reviewed is logged as an individual record. Between 1982 and 1987, 168 applications were recorded. Of these, 54% were Section 10 permits only (dredging, pier construction, etc. - no wetland fill), 6% involved wetland fill, and 39% involved a combination of construction activities and wetland fill. Only 3.3 acres of wetland fill were proposed during these years and only 2.17 acres of wetland fill were approved by the Army Corps. of Engineers in Rhode Island. (305 (b) Report, 1992).

Financial Needs

Effective enforcement of this measure requires the availability of additional enforcement staff. The CRMC currently has only two enforcement staff. While the Council's recent Section 312 Evaluation Findings identified some significant improvements in enforcement, it also identified the addition of more dedicated enforcement personnel as a priority when the financial resources become available (OCRM 1993, 12). Accordingly, the CRMC will need some additional financial resources pursuant to Section 6217 to enforce the wetlands measures more effectively.

At this time, the CRMC does not have adequate financial resources to expand their Section 305 (b) monitoring program. Accordingly, any additional water quality monitoring related to Section 6217 will have to be financed with a commensurate level of financial resources.

Technical Needs

No additional technical needs associated with the effective implementation of this management measure have been identified at this time.

Overall Program Effectiveness

The CRMC's implementation of its federal program has been successful. The findings of the most recent Section 312 Evaluation concluded that the CRMC was implementing all of the provisions of its federally approved program (OCRM, 1993). It also noted a wide range of improvements that have been made including its improved enforcement capabilities. In addition, the CRMC has adopted some innovative programs to ensure compliance with its regulations such as the Council's dock registration program.

There is little evidence to suggest that any significant coastal wetland alterations have gone undetected since 1986-1987 when the Council hired on its own technical staff. Accordingly, the CRMC's existing regulatory requirements and enforcement authorities are more than adequate to ensure the measure's effective implementation within the CRMC's jurisdiction.

RIDEM Division of Freshwater Wetlands Program

Applicability:

This management measure is intended to protect wetlands and riparian areas, serving a significant nonpoint source pollution abatement function, from the adverse effects of nonpoint source pollution. The *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (effective as of April 7, 1994) apply statewide, to any activities that may alter a freshwater wetland[1] (RIGL §2-1-21 and SD[2] 4.03) including, but not limited, to those which serve a nonpoint source abatement function.

Agency Responsible:

The agency responsible for the enforcement of the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* is the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands.

[1] Freshwater Wetlands include, but are not limited to, swamps, marshes bogs, ponds, flood plains, rivers, river and stream flood plains and banks, areas subject to flooding or storm flowage, emergent plant communities in any freshwater, and the area of land within 50 feet of any marsh, bog, swamp or pond (RIGL §2-1-20.1).

[2] SD preceding a number indicates that number refers to a DEM regulatory section.

Statutory And Regulatory Authority:
Freshwater wetlands policies for Rhode Island are established in the Fresh Water Wetlands Act (RIGL §2-1-19). The Freshwater Wetlands Regulations[3] are promulgated to administer and enforce the Fresh Water Wetlands Act (RIGL §2-1-18 - 2-1-24) pursuant to Section 2-1-20.1 of the Act.

Nature of the program:
The Rhode Island Freshwater Wetlands Program is a regulatory permitting program. It includes a schedule of fees (SD 8.03 & 8.04) and a schedule of enforcement actions (SD 15.00-11) as authorized by the Fresh Water Wetlands Act (RIGL §2-1-20.1).

Enforcement

Enforceable Policies:
In compliance with the management measure, Rhode Island has enforceable policies for activities in, contiguous to, or otherwise affecting all freshwater wetlands. These policies exist in both the Fresh Water Wetlands Act and the *Rules and Regulations for the Administration and Enforcement of the Freshwater Wetlands Act.*

The Fresh Water Wetlands Act is a state statute that was adopted as part of the Rhode Island General Laws in 1971. This statute is enforced via the Freshwater Wetlands Regulations through the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands. The statute dictates statewide policy on swamps, marshes and freshwater wetlands. As stated in Section 2-1-19 of the Act:

> It is the public policy of the State of Rhode Island and Providence Plantations to preserve the purity and integrity of the swamps, marshes, and other fresh water wetlands of this state. The health, welfare, and general well being of the populace and the protection life and property require that the state restrict the uses of wetlands and, therefore, in the exercise of the police power those wetlands are to be regulated hereunder.

The Act goes on to:

> 1. Recognize, under Section 2-1-18, all freshwater wetlands as important for:
> A. Flood control.
> B. Groundwater recharge.
> C. Wildlife habitat.

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[3] The term "Freshwater Wetland Regulations" is interchangeable with the term "*Rules and Regulations Governing the Administration and Enforcement of the freshwater Wetland Act*" for the purposes of this management measure.

D. Recreational value.
E. Health, welfare and general well being of the populace.

2. Establish the protection of freshwater wetlands from random, unnecessary, and/or undesirable encroachment, disturbance, or destruction (RIGL §2-1-18).

3. Establish protocol for the exercise of police power to protect the purity and integrity of freshwater wetlands (RIGL §2-1-20.3, 2-1-23 and 2-1-24).

The Freshwater Wetlands Regulations are enforced pursuant to the statutory authority granted in the Fresh Water Wetlands Act (RIGL §2-1-20.1). The Freshwater Wetlands Regulations define and establish statewide policy on the:

1. Permit application process, site plan requirements and review criteria (SD 8.00-9.09, 11.00-02, 14.00 and Appendix 5).
2. Wetland functions, values and wetland impact minimization (SD 10.00-03).
3. Identification of freshwater wetlands (SD 13.00-01).
4. Enforcement of policy (SD 15.00-11).

Enforcement Mechanisms:
The Fresh Water Wetlands Act and the *Rules and Regulations for the Administration and Enforcement of the Freshwater Wetlands Act* establish and define the permit and enforcement action mechanisms that protect freshwater wetlands throughout Rhode Island.

Any project or activity that may alter freshwater wetlands requires a permit from the Director of the Rhode Island Department of Environmental Management (SD 7.01-A). In addition, any project in close proximity to a freshwater wetland will require a permit (SD 7.01-B), if it:

1. Changes the flow of surface runoff into or away from a freshwater wetland.
2. Diverts groundwater into or away from a freshwater wetland.
3. Modifies water quality in a way that could change the natural character of a freshwater wetland.

To ensure compliance with the Fresh Water Wetlands Act and the Freshwater Wetlands Regulations, the Rhode Island Department of Environmental Management's Director has the power to undertake enforcement actions, which may include a(n):

1. Warning (SD 15.02).

2. Immediate Compliance Order (SD 15.03).
3. Cease and Desist Order (SD 15.04).
4. Notice of Intent to Enforce (15.05).
5. Notice of Violation and Order (15.06).
6. Notice to Owner (15.07).
7. Notice of Intent to Revoke/Suspend a determination or permit (15.08).
8. Notice of Revocation/Suspension of a determination or permit (15.09).

Rule 15.02 describes the purpose and proper issuance of a Warning. Section A states that the purpose of a Warning is to inform the responsible party of the presence of a regulated freshwater wetland and that past or on-going site activities may or have resulted in a violation.

Rule 15.03 describes Immediate Compliance Orders. Section B notes that such an order must include one of the following:

1. The existence of a violation or problem.
2. The action deemed necessary to correct the problem.
3. A time-frame within which the alleged violation must be remedied.

Rule 15.04 describes Cease and Desist Orders. The purpose of such an order is to halt the activity resulting in the violation and prevent further damage to the wetland environment (15.04.C). A Cease and Desist Order is issued when a site inspection by an authorized agent of the Department reveals a violation. The Director or authorized agent may write an order to the responsible party to cease and desist any activities resulting in the violation (15.04.A).

Rule 15.05 describes the Notice of Intent to Enforce. Such a notice notifies the responsible party of the alleged violation; indicates the type of alteration, the activity undertaken and the extent of the activity; and advises the responsible party of the intent to undertake additional enforcement if the party should fail to satisfy the requirements of the notice. The Notice of Intent to Enforce also informs the responsible party of activities which must cease and of any corrective action or restoration that is necessary for compliance (SD 15.0.A).

The Notice of Violation and Order also informs the responsible party of an alleged violation and the intent of the Department to undertake further enforcement action if the activity in violation continues (15.06.A.1-2). Under the Notice of Violation and Order the Director may issue specific orders as determined to be necessary (15.06.A.3). These include but are not limited to:

1. An order to cease and desist.

2. An order to restore a freshwater wetland(s).
3. An order to pay an administrative penalty.
4. An order to immediately install protective measures to prevent further alteration.

Rule 15.07 discusses the Notice to Owner. The purpose of this enforcement action is to notify the current property owner of an alleged violation has occurred on the property and that the Department believes that others are responsible for the violation (SD 15.07.A-B).

Rule 15.08 describes the Notice of Intent to Revoke/Suspend a determination or permit. This notice informs the permittee or subsequent transferee that the Department intends to revoke or suspend a permit or determination. This is done to afford the recipient an opportunity to show cause as to why a revocation or suspension should not take place (SD 15.08.A).

As described in Rule 15.09, the Director may revoke or suspend a permit or determination under three conditions. These conditions are:

1. The information or data submitted by the applicant or permittee either on the form(s) required or in any other material in support of the application is found to be false, misleading or erroneous. (SD 15.09.A.1)
2. The project is not undertaken in strict compliance with the conditions or provisions of any determination or permit issued by the Department. (SD 15.09.A.2)
3. The Department is in receipt of reliable information that the project, without immediate action to suspend or revoke the determination or permit, may result in probable harm to the environment or pose a threat to the health, safety and/or welfare of the public. In such cases, the Department may issue a summary suspension. (SD 15.09.A.3)

A project or activity taking place in a coastal wetland or contiguous area, requires a permit from the Rhode Island Coastal Resources Management Council (RIGL §46-23-6).

Implementation of the Management Measure

The purpose of this management measure is to protect the existing nonpoint source pollution abatement functions of wetlands and riparian areas in the Section 6217 Management Area. In general, the management measure requires a two-sided approach:

1. Prevent nonpoint source pollution impacts to wetlands and riparian areas.

2. Maintain the existing functions of these wetlands and riparian areas.

Rhode Island complies with the requirements of this management measure through the Fresh Water Wetlands Act, and the *Rules and Regulations for the Administration and the Enforcement of the Freshwater Wetlands Act*, as enforced by the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands. The Fresh Water Wetlands Act and its pursuant Rules and Regulations establish enforceable policies that stringently protect all functions and values of freshwater wetlands, inclusive of nonpoint source abatement functions, and carefully prevent any impacts to freshwater wetlands, inclusive of impacts from nonpoint sources. More information on the enforcement of Rhode Island's Freshwater Wetlands policy can be found in previous sections of this management measure entitled "Enforceable Policies" and "Enforcement Mechanisms."

The Fresh Water Wetlands Act establishes the statutory authority for enforcement of freshwater wetland policy. The Act declares that in the interest of the health, welfare and general well being of the populace, it shall be the public policy of Rhode Island to "preserve the purity and integrity of the swamps, marshes and other fresh water wetlands of this state" (RIGL §2-1-19). The Act authorizes the Director of the Rhode Island Department of Environmental Management to:

1. Adopt, modify, repeal or promulgate rules and regulations in accordance with the Fresh Water Wetlands Act (RIGL §2-1-20.1).
2. Designate which areas of Rhode Island are to be known as freshwater wetlands (RIGL §2-1-20.2).
3. Inspect by entering, examining or surveying places as considered necessary to enforce the Act without a warrant; any person willfully impeding such action shall upon conviction be liable f or a fine of up to $100 or 30 days imprisonment or both (RIGL §2-1-20.3).

The Act thus necessitates a permit process, further discussed in Section 2-1-21, which requires that any alteration to a freshwater wetland must receive prior approval from the Director of the Rhode Island Department of Environmental Management:

> No person, firm, industry, company, corporation, city, town, municipal or state agency, fire district, club, nonprofit agency, or other individual or group, may excavate; drain; fill; place trash, garbage, sewage, highway runoff, drainage ditch effluents, earth, rock, borrow, gravel, sand, clay, peat, or other materials or effluents upon; divert water flows into or out of; dike; dam; divert; change; add to or take from or otherwise alter the character of any fresh water wetland as herein

> defined without first obtaining the approval of the director of the department of environmental management.

Upholding the Fresh Water Wetlands Act, the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands has promulgated the *Rules and Regulation Governing the Enforcement and Administration of the Freshwater Wetlands Act*, which establish and describe a freshwater wetlands permit process that complies fully with the management measure.

NOAA and EPA have noted in their threshold review comments, entitled *Rhode Island Threshold Review*:

> In many States, wetlands programs only address sources within the delineated wetland or wetland buffer area. It is important that upland sources that impair the nonpoint source abatement function of wetlands be addressed by a state's wetland protection program. (p. 29)

In Rhode Island, all projects are subject to review if they may alter freshwater wetlands. The permit application process requires that any project or activity that may alter freshwater wetlands receive a permit from the Director of the Rhode Island Department of Environmental Management (SD 7.01-A). Any project outside of a freshwater wetland requires a permit (SD 7.01-B), if it:

1. Changes the flow of surface runoff into or away from a freshwater wetland.
2. Diverts groundwater into or away from a freshwater wetland.
3. Modifies water quality in a way that could change the natural character of a freshwater wetland.

In accordance with Section 2-1-21 of the Fresh Water Wetlands Act, a permit will be denied if the proposed project would result in a random, unnecessary or undesirable alteration of a freshwater wetland. Such alterations are defined in the freshwater Wetlands Regulations:

> 1. Random Alteration means any alteration for which the applicant does not specify in writing through design plans and drawings, the final developed use of the property upon which an application is predicated; or any alteration proposed which is arbitrary or without justification. (SD 5.65)
>
> 2. Undesirable Alteration means any proposed activity or alteration which is likely to reduce or degrade any freshwater wetland functions and values as set forth herein. Any applicant shows that she or he has, to the maximum extent possible, mitigated for any damaging

effects of the proposed project upon the functions and values provided by any freshwater wetlands. (SD 5.88)

3. Unnecessary Alterations means any proposed alteration which is not essential, vital, or indispensable to the proposed project and which can be achieved without altering or disturbing freshwater wetlands. Any activity, alteration, or project will be considered "unnecessary",[sic] unless the applicant shows that:

A. Alterations of freshwater wetlands and the functions and values they provide have been avoided by exhausting all other non-wetland alternatives; and
B. The alterations planned for the wetland have been reduced to the maximum extent possible to prevent any damaging or detrimental effects upon wetland functions and values from activities which could otherwise be avoided.(SD 5.89)

To demonstrate to the Director that alterations are not random, unnecessary or undesirable and that they comply with the Freshwater Wetlands Regulations, applicants must make a written evaluation that describes what steps were taken to avoid or minimize impacts. When an applicant is writing a report that describes how impacts are to be avoided, the applicant must address the considerations listed in Appendix 3A. These include:

1. Primary purpose of the project;
2. Whether the primary purpose is water-dependent or necessitates access to freshwater wetlands;
3. Whether there are any areas that could be used to achieve the same project purpose without altering the natural character of any freshwater wetlands;
4. Whether there are any other properties not currently owned or controlled by the applicant but which are reasonably available to the applicant that would not involve wetland alterations and could be used to achieve the same project purpose;
5. Whether there are alternative designs, layouts, or technologies that could be used to avoid impacts on wetland functions and values which would achieve the same project purpose, and whether these design alternatives are feasible;
6. Description of all attempts applicant has made to overcome or remove such constraints in order to avoid wetland alterations.
7. Whether the available alternatives would result in significant adverse consequences to the public health and safety, or the environment.

When an applicant is writing a report that describes how impacts are to be minimized, the applicant must address the considerations listed in Appendix 3B. These include:

1. Whether scale of the alteration could be reduced and still achieve the same primary project purpose.
2. Whether moving the project to another site location could achieve the same primary purpose while resulting in less impact to the freshwater wetland.
3. Whether there are feasible alternatives designs, layouts, densities, or technologies which would result in less impact to the wetland while still achieving the same purpose.
4. Whether reduction in scale or project relocation would result in significant adverse consequences to public health, safety or the environment.

When reviewing the project plan for impacts, the Director reviews it in terms of the following "General Requirements.

> All proposed projects which may alter the natural character o freshwater wetlands and their functions and values are subject to the review criteria contained herein. If the Department determines that a project submitted as a Request for Preliminary Determination does not comply with the impact avoidance and minimization requirements set forth in Rule 10.01 and/or does not comply with the review criteria contained herein, the Department may determine that the project represents a significant alteration to freshwater wetlands. If the Department determines that a project submitted as an Application to Alter does not comply with the impact avoidance and minimization requirements set forth in Rule 10.01 and/or does not comply with the review criteria contained herein, the Department may deny approval for the project.
>
> All projects proposing activities which may alter the natural character of freshwater wetlands shall not adversely affect the ability of any wetland to provide and/or maintain those freshwater wetland functions and values as identified in Rule 10.02. All applicants proposing such projects must incorporate those best management practices, best available technologies and any maintenance and/or inspection schedules necessary to comply with the review criteria contained herein. (SD 11.01(A))

In addition, the Director evaluates the project in terms of the 26 review criteria as stated in Rule 11.02 of the Freshwater Wetlands Regulations. Rule 11.02 indicates that the Director must be satisfied that a proposed project will not result in:

1. Significant reduction in the overall wildlife production and/or diversity of a wetland;
2. Significant reduction in the ability of a wetland to satisfy the needs of a particular wildlife species;
3. Significant displacement or extirpation of any wildlife species from a wetland or surrounding areas due to the alteration of the wetland;
4. Any reduction in the ability of the wetland to ensure the long-term viability of any rare animal or rare plant species;
5. Any degradation in the natural characteristic(s) of any rare wetland type;
6. Significant reduction in the suitability of any wetland for use by any resident, migratory, seasonal, transient, facultative, or obligate wildlife species, in either the short- or long-term as a travel corridor; feeding site; resting site; nesting site; escape cover; seasonal breeding and/or spawning area;
7. Any more than minimal intrusion or , or increase in, less valuable, invasive and/or exotic plant or animal species in a wetland;
8. Significant reduction in the wildlife habitat functions and values of any wetland which could disrupt the management program for any game or non-game wildlife species carried out by state or federal fish, game, or wildlife agencies;
9. Significant reduction in overall existing or potential ability of wetland to provide active or passive recreational activities to the public;
10. Significant disruption of any on-going scientific studies or observations;
11. Elimination of , or severe limitation to traditional human access to, along the bank of, up and/or down, or through any rivers, streams, ponds, or other freshwater wetlands;
12. Any reduction in water quality functions and values or negative impacts to natural water quality characteristics, ether in the short- or long-term, by modifying or changing: water elevations, temperature regimes, volumes, velocity of flow regimes of water; increasing turbidity; decreasing oxygen; causing any form of pollution; or modifying the amount of flow of nutrients so as to negatively impact wetland functions and values;
13. Any placement of any matter or material beneath surface water elevations or erection of any barriers within any ponds or flowing bodies of water which could cause any hazards to safety;
14. Significant modification to the natural characteristics of any wetland area of unusually high visual quality;
16. Any decrease in the flood storage capacity of any freshwater wetland which could impair the wetland's ability to protect life and/or property from flooding and/or flood flows;

17. Significant reduction of the rate at which flood water is stored by any freshwater wetland during any flood event;
18. Restriction or significant modification of the path and/or velocities of flood flows for the 2-year, 10-year, 25-year, or 100-year frequency, 24-hour, Type III storm events so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;
19. Placement of any structure or obstruction within a floodway so as to cause harm to life, property, or other functions and values provided by freshwater wetlands;
20. Any increase in run-off rates over pre-project levels or any increase in receiving water/wetlands peak flood elevations for the 2-year, 10-year, 25-year, or 100-year frequency , 24-hour, Type III storm events which could impair the wetland's ability to protect life and/or property from flooding and/or flood flows;
21. Any increase in fun-off volumes and discharge rates which could, in any way, exacerbate flooding conditions in flood-prone areas;
22. Significant changes in the quantities and discharge rates of surface and/or groundwater to or from isolated wetlands (e.g., those wetlands without inlets or outlets);
23. Placement of any structural best management practices within wetlands, or proposal to utilize wetlands as a detention or retention facility;
24. Any more than a short-term decrease in surface water and/or groundwater elevations within any wetland;
25. Non-compliance with the Rhode Island Department of Environmental Management Water Quality Regulations for Water Pollution Control; and/or
26. Any detrimental modification of the wetland's ability to retain and/or remove nutrients or act as natural pollution filter.

This management measure specifically requires that each State with an approved Coastal Zone Management Program "protect from adverse effects wetlands and riparian areas that serve a significant nonpoint source pollution abatement function." Page 7-8 of the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* defines nonpoint source abatement functions to be:

> The ability of a wetland or riparian area to remove NPS pollutants from runoff passing through the wetland or riparian area. Acting as a sink for phosphorus and converting nitrate to nitrogen gas through denitrification are two examples of the important NPS pollution abatement functions performed by wetland s and riparian areas. (p. 7-8)

The Freshwater Wetlands Regulations prevent these impacts in that all projects must avoid or minimize adverse impacts to the functions and values

of freshwater wetlands. To receive a permit, a project must substantiate either impact avoidance or impact minimization in the following manner:

Impact Avoidance
All applicants submitting an Application to Alter, or seeking a permit through a Request for Preliminary Determination must demonstrate to the Department in writing that all probable impacts to freshwater wetlands have been avoided to the maximum extent possible. If impacts cannot be avoided, the applicant must satisfactorily demonstrate in writing that there are no alternatives to the proposed alterations which would not alter the natural character of any freshwater wetlands. The written evaluation must describe what steps were taken to avoid impacts to freshwater wetlands. At a minimum, applicants must consider and address those issues set forth in Appendix 3(A). (SD 10.01(A))

Impact Minimization
If all impacts to freshwater wetlands cannot be avoided, an applicant submitting an Application to Alter, or seeking a permit through a Request for Preliminary Determination must demonstrate to the Department in writing that any probable impacts to wetland functions and values have been reduced to the maximum extent possible. The applicant must, at minimum, consider and address those issues set forth in Appendix 3(B); and, where required by Rule 10.03, describe and assess the probable impacts of the proposed project on wetland functions and values, and demonstrate to the Department that the proposed project meets and/or exceeds the review criteria as set forth in Rule 11.02. (SD 10.01(B))

Rule 10.00 explains how wetland functions and values are to be determined and protected. The Freshwater Wetlands Regulations define functions and values to include:

1. Wildlife and wildlife habitat;
2. Recreation and aesthetics;
3. Flood protection;
4. Groundwater and surface water supplies; and
5. Water quality.

Wildlife and wildlife habitat; and Recreation and aesthetics are defined to include the following functions and values:

Wildlife and Wildlife Habitat
Freshwater wetlands are important areas for the production and diversity of wildlife. Wetlands provide habitat for individual species and communities of animals and plants. Animals include both game

and non-game species, which may be either obligate or facultative, and which may be permanent residents, seasonal or transient in nature. Wetlands serve as travel corridors, nesting sites, feeding sites, resting sites, nursery and/or brood rearing sites, escape cover, and seasonal breeding, migration, and overwintering habitat for wildlife. Wetlands provide critical habitat for some plant and animal species, and provide habitat for rare animal and rare plant species. (SD 10.02(B)(1))

Recreation and Aesthetics

Freshwater wetlands provide and potentially provide a variety of important active and passive recreational and aesthetic values to the general populace. Such active and passive recreational values include, but are not limited to activities such as; hunting, fishing, trapping, cross-country skiing, ice skating, boating, waterskiing, canoeing, camping, swimming, bicycling, hiking/walking, horseback riding, harvesting of natural foods or plant materials, bird watching, education and nature studies or other animal observations and photography. Aesthetic values include, but are not limited to, the wetland's visual, aural and cultural qualities such as its prominence as a distinct feature in the local area, including its prominence as open space; whether the wetland is rare wetland type; whether the wetland actually maintains or provides suitable habitat for any rare animal or rare plant species; whether the wetland has any outstanding or uncommon geomophological features; and whether the wetland contains archaeological evidence or historic significance.(SD 10.02(B)(2))

Of particular importance for this management measure, the Freshwater Wetlands Regulations specifies the function-and-value definitions of flood protection, surface water and groundwater, and water quality. Such functions and values include and exceed the nonpoint source abatement functions described on page 7-8 of the (g) Guidance. As defined in the Freshwater Wetlands Regulations, these functions and values are:

Flood Protection

Freshwater wetlands protect life and/or property form flooding and flood flows by storing, retaining, metering out, and otherwise controlling flood waters from storm events. Further, wetlands control the damaging effects of flood flows by dissipation erosive forces, providing frictional resistance to flood flows, and providing shoreline anchoring values. (SD 10.02(B)(3))

Surface Water and Groundwater

Freshwater wetlands provide and/or maintain surface and/or groundwater supplies by acting as a recharge or discharge area, or in the case of some ponds, acting as surface water reservoirs. While groundwater recharge and discharge functions and values may vary

seasonally, a freshwater wetland may, either individually or cumulatively, be an important factor in replenishing ground and surface water supplies, maintaining stream flows, transporting surface waters, and storing or metering out surface waters and/or groundwater during seasons or periods of droughts. (SD 10.02(B)(4))

Water Quality
Important water quality functions and values by nutrient retention or removal; pollution filtration; sediment removal; oxygen production; turbidity reduction; maintenance or modification of stream flow; temperature and oxygen regimes in both flowing and surface water bodies, and providing and maintaining safe drinking water supplies. (SD 10.02(B)(5))

When evaluating the project impacts to the functions and values of freshwater wetlands the following general requirements must be met:

Request for Preliminary Determination
Applicants submitting a Request for Preliminary Determination are not required to submit a written evaluation as described below in Rule 10.03(B). However, such applicants must, at a minimum, comply with the impact avoidance and minimization requirements set forth in Rule 10.01, and will be subject to review by the Director to determine if the proposed project complies with the review criteria as set forth in Rule 11.02. (SD 10.03(A)(1))

Applications to Alter
All applicants submitting an Application to Alter must submit a written evaluation to which, in accordance with those requirements set forth herein, describes those functions and values provided and/or maintained by the subject freshwater wetland; describes and assesses any anticipated impacts to the wetland's functions and values; and describes all structural and/or non-structural best management practices, best available technologies, schedules and management plans which will be employed to eliminate, avoid, and/or reduce impacts to freshwater wetlands to the maximum extent possible. The written evaluation must consider and fully address the review criteria as set forth in Rule 11.02. (SD 10.03(A)(2))

As to the written evaluation, the following must be included:

Written Evaluation--Required Elements
The written evaluation must include the following elements: table of contents, introduction, evaluation methodology, qualifications of professional(s) performing the evaluation, identification of regulated

freshwater wetlands(s), identification of the proposed measures to reduce impact, conclusion, and any literature citations. (See Appendix 6 for content requirements for each of the above listed elements). In addition to above listed evaluation elements, the written evaluation must also include and fully address the separately identified elements as required below in paragraphs (C), (D), (E), (F), (G), and (H). (SD 10.03(B))

The paragraphs (C), (D), (E), (F), (G), and (H)--indicated in the written evaluation requirement--refer to the five functions and values of freshwater wetlands, as well as soil erosion and sediment control. In general, each of these sections of the evaluation--described fully in Rule 10.03--must address the following subjects, in compliance with the indicated Rules.

Wildlife and Wildlife Habitat:
1. Existing characteristics of a wetland (10.03(C)(1))
2. Wildlife indicators (10.03(C)(2))
3. Wetland values (10.03(C)(3))
4. Proposed impacts (10.03(C)(4))

Recreation and Aesthetics:
1. Existing characteristics of the wetland (10.03(D)(1))
2. Wetland Values (10.03(D)(2))
3. Proposed Impacts (10.03(D)(3))

Flood Protection:
1. Existing drainage characteristics (10.03(E)(1))
2. Wetland values (10.03(E)(2))
3. Analysis of proposed impacts (10.03(E)(3))
4. Compensation for Loss of Flood Storage (10.03(E)(4))

Groundwater and Surface Water Supplies:
1. Existing drainage characteristics (10.03(F)(1))
2. Wetland functions and values (10.03(F)(2))
3. Proposed impacts (10.03(F)(3))

Water Quality:
1. Existing drainage characteristics (10.03(G)(1))
2. Wetland functions and values (10.03(G)(2))
3. Water quality analysis (10.03(G)(3))
4. Proposed impacts (10.03(G)(4))

Soil Erosion and Sediment Control (10.03(H))

Clearly, under the Freshwater Wetlands Regulations, adverse impacts to a freshwater wetland's functions and values--inclusive of nonpoint source abatement functions--must be avoided or minimized. The avoidance and minimization of impacts must be described in a detailed written evaluation that includes, in part, specific best management practices that comply with this management measure. This evaluation binds the permit applicant to highly protective best management practices. Thus, the Freshwater Wetlands Regulations:

> Protect from adverse effects wetlands and riparian areas that are serving a significant NPS abatement function and maintain this function while protecting the other existing functions of these wetlands and riparian areas. (EPA, 1993, p. 7-8)

To ensure that all Fresh Water Wetlands Act and Regulation policies are adhered to, the Director has the power to undertake enforcement actions as describe in the section of this chapter titled Enforcement.

OVERALL PROGRAM EFFECTIVENESS:

Length of time the program has been in existence:
The original *Rules and Regulations Governing the Enforcement of the Freshwater Wetlands Act* became effective in 1972. The most recently developed Regulations became effective as of April 7, 1994.

Degree of Implementation:
The Freshwater Wetlands Program is fully implemented as defined in the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (SD 1.00-19.00).

Monitoring:
The Department of Environmental Management monitors the implementation of this management measure by monitoring the implementation of its permit requirements. Permits for large projects and projects of particular concern will often contain stipulations such as a requirement for monitoring by an independent environmental consultant, and a schedule for field inspections. The Department also has conservation officers who patrol the state for violations of its rules and regulations. The Enforcement Section of the Division of Freshwater Wetlands also investigates all complaints of possible violations.

Financial Needs:
Enforcement of this management measure requires the availability of enforcement staff. The Division of Freshwater Wetlands currently has only 7 enforcement staff. Accordingly, the Department of Environmental

Management may need some additional financial resources to more effectively enforce the Management Measures of the Urban Chapter.

Technical Needs:
The efficiency of enforcement of this management measure could be improved through the application of geographic information systems into the Freshwater Wetlands Program. The program would also benefit from program-wide computerization.

Restoration of Wetlands and Riparian Areas

Restoration of Wetland and Riparian Areas
Promote the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems in areas where the systems will serve a significant NPS pollution abatement function.

**This management measure does not have to be Implemented with enforceable policies.*

Applicability

This management measure shall be applied by States to restore the full range of wetlands and riparian functions in areas where the systems have been degraded and destroyed and where they can serve a significant NPS abatement function.

Programs Implementing the Measure

The Restoration of Wetlands and Riparian Areas Management Measure is currently implemented through the Rhode Island Department of Environmental Management's (RIDEM) Freshwater Wetlands Program and the Rhode Island Coastal Resources Management Program (RICRMP) implemented by the Coastal Resources Management Council (CRMC). Both agencies go beyond the mandates of the management measure by implementing enforceable policies that require restoration of damaged or destroyed wetlands and riparian areas. Relevant sections of these programs are described below. More information on these programs and associated permit processes, see Chapter 2. An example of implementation of this management measure, the Galilee Salt Marsh Restoration Project, has also been included in the following discussion.

Rhode Island Coastal Resources Management Program

This management measure will also be implemented by the Rhode Island Coastal Resources Management Council (CRMC) pursuant to R.I.G.L. 46-23 and in accordance with the permit requirements as specified in the Rhode Island Coastal Resources Management Program (RICRMP). For more information on the nature of the program and the permit process see the discussion contained in Chapter 2. While this measure does not require enforceable policies, the CRMC has the

statutory authority to require the restoration of the preexisting functions in damaged and destroyed wetlands and riparian systems within its jurisdiction.

Implementation of the Measure

The Restoration of Wetlands and Riparian Areas Management Measure is currently implemented through the RICRMP Section 210.3, Coastal Wetlands, and Section 300.12, Coastal Wetland Mitigation (Appendix E). All proposed projects in or around coastal wetlands are subject to the policies and standards of these Sections. In addition, The Narrow River Special Area Management Plan (Appendix H) contains specific wetland mitigation requirements. For more information about the RICRMP and the overall effectiveness of the program see the section pertaining to the Protection of Wetlands and Riparian Areas Management Measure.

1. Policies contained in RICRMP Section 210.3

It is the Council's goal to preserve, and where possible, restore coastal wetlands (RICRMP 210.3.C.1).

2. Proposed amendments to RICRMP Section 210.3

The following addition to the Council's policies for coastal wetlands is also proposed:

8. It is the Council's policy to protect from adverse effects, and to maintain, wetlands that are serving a significant nonpoint source abatement function while protecting other existing functions of wetlands and riparian areas. In addition, the Council promotes the restoration of the preexisting functions in damaged and destroyed wetlands and riparian areas, and the use of vegetated filter strips, in areas where these systems can serve a nonpoint source abatement function.

3. RICRMP Section 300.12 Wetlands Mitigation Policies

Section 300.12 contains the Council's wetland mitigation policies and requirements. Projects requiring the alteration of coastal wetlands may be granted a Council Assent if: they involve only minor alterations associated with residential docks and shoreline protection facilities adjacent to Types 3, 4, 5 and 6 waters; the alteration is made to accommodate a priority use for the water area, and impacts have been avoided and minimized to the maximum extent; or they satisfy the Special Exception burdens of proof contained in Section 130 (RICRMP Section 210.3.C). It is important to note that 90% of the remaining coastal wetlands in Rhode Island either abut Type 1 and Type 2 waters or have been designated for preservation, and that alterations to those wetland areas, except for minor alterations associated with residential docks and structural shoreline protection facilities which abut Type 2 waters, are explicitly prohibited (RICRMP Section 210.3.B).

When the Council permits the alteration of a coastal wetland of any size, applicants are required to compensate for unavoidable wetland losses and significant alterations by restoring or creating a similar wetland area. The following specific policies implement this measure by promoting the restoration of coastal wetlands.

1. In cases where the Council determines that a coastal wetland may be altered (see Section 210.3.C) or grants a special exception to a prohibition listed in Section 300.12.D the Council shall require the mitigation of all impacts to the coastal wetland. Permanently lost or significantly altered wetlands shall be replaced through the restoration of an historical wetland or the creation of a new wetland at a site approved by the Council.
3. Pursuant to the Council's "no net loss" policy, the goal and minimum requirements of wetland mitigation projects shall be the replacement of permanently lost or significantly altered wetlands with wetlands of equal or greater area and ecological value. Mitigation projects shall be carried out in accordance with the standards set forth in section 300.12.E.
4. Wetlands created or restored for the purposes of replacing permanently lost or altered coastal wetlands shall be considered wetlands as defined in the RICRMP and subject to the policies contained in Section 210.3 (Coastal Wetlands), Section 140. (Setbacks) and Section 150. (Buffer Zones).
9. In cases where the alteration is temporary, the disturbed wetland shall be restored, to the satisfaction of the Council, immediately following the permitted activity.
12. The Council recognizes that successful mitigation projects depend on a number of variables including the type of wetland restored or created. Accordingly, replacement ratios contained in section 300.12.F shall be considered minimum requirements.
14. Any violation of the approved mitigation plan shall constitute a violation of the assent to alter the existing coastal wetland.

In the case where a coastal wetland is proposed to be altered, which is a prohibited activity, the Council requires that the applicant demonstrate the burdens of proof for obtaining a Special Exception (see Section 130 of the CRMP) for the alteration of a wetland. The applicant must demonstrate the following: (1) the proposed activity serves a compelling public purpose which provides benefits to the public as a whole as opposed to individual or private interests; (2) all reasonable steps shall be taken to minimize environmental impacts and/or use conflict; (3) there is no reasonable alternative means of, or location for, serving the compelling public purpose cited by the applicant. If the applicant can meet these requirements, and the Council grants a Special Exception, then the applicant must meet all other applicable programmatic requirements including the restoration or mitigation elements in Section 300.12 of the CRMP. However, it should be noted that these policies have not been invoked since adoption because no coastal wetland alterations have been proposed. In addition, these policies are designed to deter proposals for coastal wetland alterations.

In addition, Section 300.12 contains explicit mitigation requirements and standards which implement this measure. In cases where alterations to coastal wetlands are permitted, applicants must replace wetlands at a minimum ratio of 2 acres of restored or created wetland to every one acre of permanently altered or destroyed wetland (RICRMP Section 300.12.F).

4. CRMC's Special Area Management Plans

Amendments to the Narrow River Special Area Management Plan made in 1993 address wetland mitigation. Section 420.1.C (Controls for Habitat Protection), Exception #2 indicates that an applicant may alter freshwater wetlands within the Narrow River Watershed "to access buildable land and when no other reasonable alternatives for access exist and when the applicant has satisfied the variance burdens of proof set forth in Section 140 of the RICRMP" (Appendix H). Upon receiving Council approval, an applicant must fulfill the following seven mitigation requirements:

1) The applicant shall be required to mitigate the area of wetland lost on a 1 to 1.5 area basis.
2) The wetland that is replaced shall be consistent with that which is filled.
3) The mitigation shall take place on-site and in an area which is hydrologically connected to the impacted area.
4) Setback and buffer requirements shall be required for the wetland replacement area.
5) Enhancement of existing wetland shall not be an acceptable form of mitigation under this section.
6) All wetland replacement projects will require the approval of the Rhode Island Department of Environmental Management (DEM) - Division Of Freshwater Wetlands.
7) The applicant shall concurrently submit applications to the DEM and to the CRMC so that a concurrent review of the proposed activities can occur.

Pursuant to the Council's Section 309 Strategy, the Narrow River and the Salt Ponds SAM Plans are being revised as one new SAM Plan. These wetlands mitigation requirements will be retained and possible expanded upon. In addition, priority sites for restoration of coastal and/or freshwater wetlands will be identified.

Management Measure Oversight

For information on the oversight of this management measure, see the Management Measure for the Protection of Wetlands and Riparian Areas. It also should be noted that, although this management measure does not require implementation through enforceable policies, orders to restore damaged or destroyed wetlands are subject to the same enforcement provisions as the Management Measure for the Protection of Wetlands and Riparian Areas. Therefore, the RICRMP exceeds the requirements of this management measure.

RIDEM Division of Freshwater Wetlands Program

Applicability Criteria:

States should apply this management measure to promote the restoration of the full range of wetlands and riparian functions where they can serve a significant nonpoint source pollution abatement function. Enforceable policies are not required.

The Fresh Water Wetlands Act empowers the Director of the Rhode Island Department of Environmental Management to -- in the event of a violation of the act or the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* --order restoration of the disturbed wetland pursuant to the Rhode Island General Laws, Section 2-1-23. The Fresh Water Wetlands Act and the Freshwater Wetlands Regulations apply statewide to any freshwater wetland[1] including, but not limited, to those areas serving a nonpoint source abatement function.

Agency Responsible:

The agency responsible for the enforcement of the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* is the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands.

Statutory And Regulatory Authority:

This management measure does not require enforceable policies. However, freshwater wetlands policies for Rhode Island are established in the Fresh Water Wetlands Act(RIGL §2-1-19). The Freshwater Wetlands Regulations[2] are promulgated to administer and enforce the Fresh Water Wetlands Act(RIGL §2-1-18

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[1] The term Freshwater Wetland means:

> A. Bog, flood plain, pond, marsh, river bank, swamp, river, area of land within fifty feet (50') area(s) subject to flooding, area(s) subject to storm flowage, floodway, flowing body of water, stream, intermittent stream, perimeter wetland, submergent and emergent plant communities, special aquatic sites, and shrub and forested wetland;
>
> B. Those areas that are inundated or saturated by surface or groundwater at a frequency or duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated conditions; and
>
> C. Any or all wetlands created as part of, or the result of, any activity permitted or directed by the Department after July 16, 1971 including, but not limited to: restored wetlands; value replacement wetlands created to compensate for wetland loss such as flood plain excavations; biofiltration areas; and any wetlands created, altered or modified after July 16, 1971. The Director has sole authority to determine which areas are freshwater wetlands (SD 5.39).

[2] The term "Freshwater Wetland Regulations" is interchangeable with the term "*Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetland Act*" for the purposes of this management measure.

- 2-1-24). Restoration of freshwater wetlands may be required under the Freshwater Wetlands Regulations (SD[3] 15.06-A-3(b),(d)&(f)) and the Fresh Water Wetlands Act(RIGL §2-1-23). These policies go beyond the requirements of the management measure as they hold regulatory authority.

Nature of the program:
The Rhode Island Freshwater Wetlands Program is a regulatory permit program. It includes a schedule of fees (SD 8.04) and a schedule of enforcement actions (SD 15.00-11) authorized by the Fresh Water Wetlands Act(RIGL §2-1-20.1). Under the schedule of enforcement actions in the Freshwater Wetlands Regulations, an order to restore a freshwater wetland that includes details for restoration and a completion deadline, may be required by the Director (SD 15.06-A-3(b)).

Enforcement

Enforceable Policies:
This management measure does not require enforceable policies. However, Rhode Island has enforceable policies for activities in all freshwater wetlands. Policies for freshwater wetlands are enforced through the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands.

Enforceable policies for freshwater wetlands exist in both the Fresh Water Wetlands Act and the *Rules and Regulations for the Administration and Enforcement of the Freshwater Wetlands Act*. The Fresh Water Wetlands Act is a state statute that was adopted as part of the Rhode Island General Laws in 1971. This statute is enforced via the Freshwater Wetlands Regulations and dictates statewide policy on freshwater wetlands. The Act establishes protocol for the exercise of police power to protect the purity and integrity of freshwater wetlands (RIGL §2-1-20.3, 2-1-23 and 2-1-24), including the power to order restoration (RIGL §2-1-23).

Enforcement Mechanisms:
This management measure does not require enforcement mechanisms. However, Rhode Island's freshwater wetland policies are enforced through the *Rules and Regulations for the Administration and Enforcement of the Freshwater Wetlands Act*.

In the event of a violation of the Freshwater Wetlands Regulations, the Director of the Rhode Island Department of Environmental Management has the power to undertake enforcement actions, which may include an order to restore (SD 15.06-A-3(b)). Additional information on the enforcement of restoration of freshwater wetlands can be found in the Management Measure for the Protection of Freshwater Wetlands.

Implementation of the Management Measure

[3] SD preceding a number indicates that number refers to a DEM regulatory section.

This management measure is designed to restore damaged nonpoint source pollution abatement functions of wetlands and riparian systems in the Section 6217 Management Area. This management measure does not require enforceable policies.

Going beyond the management measure, Rhode Island has implemented enforceable policies for freshwater wetlands. Through the *Rules and Regulations for the Administration and the Enforcement of the Freshwater Wetlands Act*, as enforced by the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands.

The Fresh Water Wetlands Act establishes the statutory authority for enforcement of freshwater wetland policy. The Act declares that in the interest of the health, welfare and general well being of the populace, it shall be the public policy of Rhode Island to "preserve the purity and integrity of the swamps, marshes and other fresh water wetlands of this state" (RIGL §2-1-19).

Section 2-1-23 of the Rhode Island General Laws states that in the event of a violation of Section 2-1-21 that the Director of the Department of Environmental Management may order restoration. If the violator does not restore the wetland within a reasonable period of time, the Director may effect restoration and hold the violator liable for the incurred costs. A violator is liable for fines of $1000 per a violation (RIGL §2-1-23).

OVERALL PROGRAM EFFECTIVENESS:

Length of time the program has been in existence:
The original *Rules and Regulations Governing the Enforcement of the Freshwater Wetlands Act* became effective in 1972. The most recently developed Regulations became effective as of April 7, 1994.

Degree of Implementation:
The Freshwater Wetlands Program is fully implemented as defined in the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (SD 1.00-19.00).

Monitoring:
The Department of Environmental Management monitors the implementation of this management measure by monitoring the implementation of its permit requirements. Permits for large projects and projects of particular concern will often contain stipulations such as a requirement for monitoring by an independent environmental consultant, and a schedule for field inspections. The Department also has conservation officers who patrol the state for violations of its rules and regulations. The Enforcement Section of the Division of Freshwater Wetlands also investigates all complaints of possible violations.

Financial Needs:
Enforcement of this management measure requires the availability of enforcement staff. The Division of Freshwater Wetlands currently has only 7 enforcement staff. Accordingly, the Department of Environmental Management may need some additional financial resources to more effectively enforce the Management Measures of the Urban Chapter.

Technical Needs:
The efficiency of enforcement of this management measure could be improved through the application of geographic information systems into the Freshwater Wetlands Program. The program would also benefit from program-wide computerization.

Vegetated Treatment Systems

Vegetated Treatment Systems

Promote the use of engineered vegetated treatment systems such as constructed wetlands or vegetated filter strips where these systems will serve a significant NPS pollution abatement function.

**This management measure does not have to be Implemented with enforceable policies.*

Applicability

This management measure shall be applied by states where engineered systems of wetlands or vegetated treatment systems can treat NPS pollution.

Programs Implenting the Measure

The Vegetated Treatment Systems Management Measure is currently implemented through the Rhode Island Department of Environmental Management's (RIDEM) Freshwater Wetlands Program and the Rhode Island Coastal Resources Management Program (RICRMP) implemented by the Coastal Resources Management Council (CRMC). Relevant sections of these programs are described below. More information on these programs and associated permit processes, see Chapter 2. In addition, both the RIDEM and the CRMC recommend guidance materials, which describe the appropriate use of vegetated treatment systems. The Freshwater Wetlands Regulations recommends the use of best management practices in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook* in Appendix 6, Sections E-6 and E-7. The Council recommends the use of these documents in Section 300.6.B.5. The Council has also developed a CRMC's Buffer Management Guidance (Appendix I).

Rhode Island Coastal Resources Management Program

This measure will be implemented by the Coastal Resources Management Council (CRMC)within its jurisdiction in accordance with the requirements of the Rhode Island Coastal Resources Management Program (RICRMP). For more information about the RICRMP and the overall effectiveness of the program see the section pertaining to the Protection of Wetlands and Riparian Areas Management Measure.

Implementation of the Measure
The CRMC currently implements the Vegetated Treatment Systems Management Measure through RICRMP Section 150, Coastal Buffer Zones. An amendment to the RICRMP Section 210.3, Coastal Wetlands is proposed to further implement the measure.

1. Policies contained in RICRMP Section 150 Coastal Buffers

Section 150 of the RICRMP fully implements this management measure through enforceable requirements. A coastal buffer zone is defined as:

> "a land area adjacent to a Shoreline (Coastal) Feature that is, or will be, vegetated with native shoreline species and which acts as a natural transition zone between the coast and adjacent upland development" (RICRMP 150.A).

It is important to note that a coastal wetland is considered a coastal feature. This Section makes the following Findings which recognize the important nonpoint source pollution abatement function of wetlands (RICRMP 150.B.3.(a),(d),(e)) and contains the following relevant policies:

1. The establishment of a Coastal Buffer Zone is based upon the CRMC's legislative mandate to preserve, protect and, where possible, restore ecological systems. The determination of the inland boundary of the Coastal Buffer Zone must balance this mandate with the property owner's rights to develop and use the property.

2. The Council shall require Coastal Buffer Zones in accordance with the requirements of this section for the following: a) new residential development; b) commercial and industrial development; c) activities subject to Section 300.8 and Section 300.13; and d) inland activities identified in Section 320. For existing residential structures, the Council shall require a Coastal Buffer Zone for category "A" and "B" activities when the RIDEM requires the modification or expansion of an existing septic system or when the footprint of the structure is expanded.

3. The vegetation within a buffer zone must be either retained in a natural, undisturbed condition, or properly managed in accordance with the standards contained in this section. In cases where native flora (vegetation) does not

exist within a buffer zone, the Council may require restoration efforts which include, but are not limited to, replanting the Coastal Buffer Zone with native plant species.

These policies are implemented through specific buffer zone standards and maintenance requirements (RICRMP Section 150.D, E).

2. Proposed amendment to RICRMP Section 210.3 Coastal Wetlands

The following additional policy is proposed to be added to Section 210.3 to further implement this measure.

> It is the Council's policy to protect from adverse effects, and to maintain, wetlands that are serving a significant nonpoint source pollution abatement function while protecting the other existing functions of wetlands and riparian areas. In addition, the Council promotes the restoration of the preexisting functions in damaged and destroyed wetlands and riparian areas, and the use of vegetated filter strips, in areas where these systems can serve a nonpoint source abatement function. (Proposed RICRMP 210.3.C.8)

Management Measure Oversight
For information on the oversight of this management measure, see the Management Measure for the Protection of Wetlands and Riparian Areas. It also should be noted that, although this management measure does not require implementation through enforceable policies, the RICRMP contains detailed buffer zone requirements which promote the use of engineered vegetated treatment systems. Therefore, the RICRMP exceeds the requirements of this management measure.

RIDEM Freshwater Wetlands Program

Applicability
States should apply this management measure to promote vegetative treatment systems where they can serve a significant nonpoint source pollution abatement function. Enforceable policies are not required.

The State of Rhode Island has developed several promotional guidance materials that comply with the management measure. The use of certain documents is recommended in the regulatory text of several Rhode Island state regulatory programs. These include, but are not limited to:

1. *Rhode Island Stormwater Design and Installation Standards Manual.*
2. *Rhode Island Soil Erosion and Sediment Control Handbook.*
3. *Artificial Wetlands for Stormwater Treatment: Processes and Designs.*

4. *Stormwater Basin Plant and Landscaping Guide: A Simple Guide for Designers and Communities.*

These materials are described in more detail in the Implementation section of this management measure.

Agency/Program Responsible

No Rhode Island agency has exclusive responsibility for promoting the appropriate use of vegetative treatment systems. However, the Rhode Island Division of Freshwater Wetlands is authorized to review and permit all alterations to freshwater wetlands in the state. By definition, as per the Freshwater Wetlands Regulations, alterations to freshwater wetlands may involve constructed freshwater wetlands as well as many other engineered freshwater vegetative treatment systems. However, the regulations do allow maintenance activities such as: limited repairs, and maintenance of approved and pre-existing structures in current use located in wetlands in accordance with Rule 6.01 without. A detailed discussion of exempt maintenance activities can be found in Rule 6.03 of the Regulations. Under the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (SD 5.39), the term freshwater wetland means:

> A. Bog, flood plain, pond, marsh, river bank, swamp, river, area of land within fifty feet (50'), areas(s) subject to flooding, area(s) subject to storm flowage, floodway, flowing body of water, stream, intermittent stream, perimeter wetland, submergent and emergent plant communities, special aquatic sites, and shrub and forested wetland;
>
> B. Those areas that are inundated or saturated by surface 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; and
>
> C. Any or all wetlands created as part of , or the result of, any activity permitted or directed by the Department after July 16, 1971 including, but not limited to: restored wetlands; value replacement wetlands created to compensate for wetland loss such as flood plain excavations; biofiltration areas; and any wetlands created, altered or modified after July 16, 1971.

The Director has sole authority to determine which areas are freshwater wetlands.

Statutory And Regulatory Authority

This management measure does not require enforceable policies. Therefore, statutory and regulatory authority need not be established to achieve compliance.

The *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook* are recommended by the Department of Environmental Management for use as technical guidance but are not required. The *Artificial Wetlands for Stormwater Treatment: Processes and Designs* is intended to describe and promote the use of constructed wetlands to

control nonpoint source pollution but should not be construed as technique that will assist in obtaining any type of permit. The *Stormwater Basin Plant and Landscaping Guide: A Simple Guide for Designers and Communities* promotes special techniques for the use of vegetation in stormwater basins but is not intended to assist applicants in acquiring state or local permits.

Nature of the program

The *Artificial Wetlands for Stormwater Treatment: Processes and Designs*, the *Stormwater Basin Plant and Landscaping Guide: A Simple Guide for Designers and Communities*, the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook* are all intended to promote the use of vegetative treatment systems as one type of best management practice for the management of nonpoint source pollution. Two of these, the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*, are recommended in the regulations of the Rhode Island Department of Environmental Management. However, use of these guidance documents is not required to obtain a permit.

Enforcement

This management measure does not require enforceable policies or enforcement mechanisms and Rhode Island does not require the use of vegetative treatment systems to obtain a permit from the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands. However, Rhode Island has enforceable policies for activities in all freshwater wetlands. These include requirements for stormwater management and the management of water quality, inclusive of the control of nonpoint source pollution. Some of the stormwater management practices available to applicants of these programs are vegetative treatment systems.

Policies for freshwater wetlands are enforced through the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands. The jurisdiction of the Division of Freshwater Wetlands includes:

A. Bog, flood plain, pond, marsh, river bank, swamp, river, area of land within fifty feet (50'), areas(s) subject to flooding, area(s) subject to storm flowage, floodway, flowing body of water, stream, intermittent stream, perimeter wetland, submergent and emergent plant communities, special aquatic sites, and shrub and forested wetland;

B. Those areas that are inundated or saturated by surface 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; and

C. Any or all wetlands created as part of , or the result of, any activity permitted or directed by the Department after July 16, 1971 including, but not limited to: restored wetlands; value replacement wetlands created to

compensate for wetland loss such as flood plain excavations; biofiltration areas; and any wetlands created, altered or modified after July 16, 1971. (SD 5.39)

As noted in Rule 10.03.A.2 all applicants submitting an application to alter a freshwater wetland must also submit a written evaluation. Rule 10.03.B lists the various required elements for the written evaluation. Included among these is the "identification of the proposed measures to reduce impact" (SD 10.03.B). This Rule also references Appendix 6 as identifying the content of each required element. Appendix 6 section E describes the required element "Proposed Measures to Reduce Impact" and lists 16 measures, methods and best management practices. These include a wide variety of measures that fit the requirements of the Management Measure for Vegetative Treatment Systems.

A more detailed discussion of Rhode Island's freshwater wetlands policies can be found in Threshold Review Document section titled Management Measure for the Protection of Wetlands and Riparian Areas. Stormwater management policies are also enforced through several other regulatory mechanisms, including but not limited to:

1. The *Regulations for the Rhode Island Pollutant Discharge Elimination Systems.*
2. Local Stormwater Ordinances.

Implementation of the Management Measure

The Management Measure for Vegetative Treatment Systems requires coastal states to promote engineered vegetative treatment systems, such as constructed wetlands and vegetative filter strips, in a manner that will abate nonpoint source pollution. Rhode Island complies with this management measure through existing regulatory programs, educational guide books, and state policies.

Though Rhode Island regulatory programs do not require the use of vegetative treatment systems to acquire a permit or assent, stormwater and water quality management is required. Some of the stormwater management practices available to applicants of these programs are vegetative treatment systems.

Policies for freshwater wetlands are enforced through the Rhode Island Department of Environmental Management, Division of Freshwater Wetlands. The jurisdiction of the Division of Freshwater Wetlands includes:

A. Bog, flood plain, pond, marsh, river bank, swamp, river, area of land within fifty feet (50'), areas(s) subject to flooding, area(s) subject to storm flowage, floodway, flowing body of water, stream, intermittent stream, perimeter wetland, submergent and emergent plant communities, special aquatic sites, and shrub and forested wetland;

B. Those areas that are inundated or saturated by surface 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; and

C. Any or all wetlands created as part of , or the result of, any activity permitted or directed by the Department after July 16, 1971 including, but not limited to: restored wetlands; value replacement wetlands created to compensate for wetland loss such as flood plain excavations; biofiltration areas; and any wetlands created, altered or modified after July 16, 1971. (SD 5.39)

As noted in Rule 10.03.A.2, all applicants submitting an application to alter a freshwater wetland must also submit a written evaluation. Rule 10.03.B lists the various required elements for the written evaluation. Included among these is the "identification of the proposed measures to reduce impact" (SD 10.03.B). This Rule also references Appendix 6 as identifying the content of each required element. Appendix 6 section E describes the required element "Proposed Measures to Reduce Impact", recommending practices as required by the Management Measure for Vegetative Treatment Systems:

Identify and describe the proposed measures, structural and/or non-structural methods, or best management practices that will be implemented to reduce or eliminate harm to wetland functions and values and detail why and how such measures will protect wetland functions and values. Such measures, methods, or best management practices include, but are not limited to:

1) Designing dense plantings of shrubs and trees between development and remaining natural areas to "buffer" impacts from loss of wildlife habitat and natural areas and to reduce the effects of noise, lighting and other disturbances upon wildlife and remaining natural areas;

2) Preserving natural areas in and around wetlands;

3) Minimizing the extent of disturbed areas and encouraging the preservation of land in its natural state;

4) Ensuring the maintenance of fish and other wildlife passage;

5) Designing structures and alterations outside of flood plain, floodway, areas subject to flooding, flowing bodies of water or other freshwater wetlands;

6) Using best management practices for the stabilization of disturbed areas and the selection, use, and maintenance of temporary and/or permanent soil erosion and sediment controls in accordance with or equivalent to the latest version of the *Rhode Island Soil Erosion and Sediment Control Handbook;*

7) Using best management practice selection design criteria in accordance with or equivalent to the *Rhode Island Stormwater Design and Installation Manual* to maximize the control, treatment and maintenance of stormwater flows;

8) Minimizing impervious surface areas such as roads, parking, paving or other surfaces;

9) Incorporating compensatory flood storage area(s) where necessary, and in compliance with these Rules;
10) Encouraging infiltration of non-contaminated run-off;
11) Preventing channelization or piping of run-off and encouraging sheet flow;
12) Landscaping with low slopes to maximize sheet flow and infiltration while minimizing channelization;
13) Incorporating structural methods such as detention basins, wet basins, infiltration basins and trenches, dry wells, galleys, vegetated swales and vegetated filter strips;
14) Minimizing or eliminating the use of, or any increase of, any pollutant, fertilizers, pesticides, herbicides, or any other chemical or organic application which increases pollutant and nutrient loadings;
15) Maximizing setbacks of septic systems and other land disturbances from wetlands; and
16) Minimizing the withdrawal of water from wetlands and minimizing any reduction in river or stream flow.

A more detailed discussion of Rhode Island's freshwater wetlands enforceable policies can be found in the Threshold Review Document section titled Management Measure for the Protection of Wetlands and Riparian Areas.

Noteworthy for this management measure, the Rhode Island Department of Environmental Management recommends guidance materials that describe the appropriate use of vegetative treatment systems. The Freshwater Wetlands Regulations recommends the use of best management practices in accordance with the *Rhode Island Stormwater Design and Installation Standards Manual* and the *Rhode Island Soil Erosion and Sediment Control Handbook*.

The *Rhode Island Stormwater Design and Installation Standards Manual* serves as guidance to design professionals in implementing best management practices for stormwater pollution abatement. It is recommended to persons applying for permits to the Rhode Island Department of Environmental Management. The manual contains information on a variety of vegetative treatment systems and was written to be consistent with Section 6217 of the Coastal Zone Act Reauthorization Amendments. Vegetative treatment systems described in this manual include:

1. Wet ponds.
2. Extended detention ponds.
3. Vegetated filter strips.
4. Grassed Swales.

The *Rhode Island Stormwater Design and Installation Standards Manual* was initially developed and funded under Section 319 of the Clean Water Act. Subsequent funding for the manual was provided under Section 306 of the Coastal Zone Management Act.

The *Rhode Island Soil Erosion and Sediment Control Handbook* provides technical information about soil and water resources management. The handbook contains sections explaining the proper implementation of vegetative treatment systems for soil erosion and sediment control. It is recommended through the regulations of various Rhode Island programs as a starting point for the development of best management practices. This handbook describes treatment systems such as:

1. Grassed waterways.
2. Detention basins.
3. Level spreaders.
4. Temporary vegetative cover.
5. Permanent vegetative cover.
6. Vegetative streambank stabilization.

The revised Rhode Island *Rhode Island Soil Erosion and Sediment Control Handbook* was prepared by the United States Department of Agriculture, Soil Conservation Service and the Rhode Island Department of Environmental Management. In part, the revision was funded through a Section 319, Clean Water Act grant.

Rhode Island also promotes vegetative treatment systems in non-regulatory programs. In 1989, the Department of Environmental Management's Nonpoint Source Pollution Management Program developed and published *Artificial Wetlands for Stormwater Treatment: Processes and Designs*. This document promotes the use of constructed wetlands to abate nonpoint source pollution and is recommended to for use by designers, builders and members of the regulatory community. Pollutants associated with stormwater runoff, the properties of wetlands contributing to pollutant removal, and species of wetland vegetation found to have pollutant removal capabilities are all discussed. *Artificial Wetlands for Stormwater Treatment: Process and Designs* also examines the designs of existing constructed wetlands treatment system. The *Artificial Wetlands for Stormwater Treatment: Processes and Designs* was developed under and published through a grant pursuant to Section 319 of the Clean Water Act.

The Nonpoint Source Pollution Management Program has also included recommendations for vegetative treatment system implementation in *Rhode Island's Nonpoint Source Management Plan*. Two strong recommendations are listed in "Runoff from Developed Areas":

> F) Natural buffer strips should be maintained adjacent to surface waters, especially those sensitive to cultural impacts, such as water supply reservoirs and the salt ponds. Where this is not possible, vegetative filter strips, using seed mixtures recommended for this purpose and which require minimal or no fertilization should be used. Guidelines outlined in the "Permanent

> Vegetative Cover" section of the revised *Rhode Island Soil Erosion and Sediment Control Handbook* should be followed. (RIDEM/OEC, 1989, p. 29)
>
> H) Install and maintain structural stormwater management measures for water quality and flood control benefits. Acceptable measures include wet basins, extended detention dry basins, infiltration systems, oil/water separators, vegetative filter strips, and grassed swales as detailed in the Stormwater Management and Erosion Control Committee's recommendations. (RIDEM/OEC, 1989, p. 29)

Stormwater Basin Plant and Landscaping Guide: A Simple Guide for Designers and Communities exemplifies another Rhode Island effort to promote effective stormwater management through vegetative treatment systems. Published by the Department of Environmental Management, Land Management Project, this manual discusses appropriate landscaping for stormwater management. The manual notes:

> Detention and retention basins and other kinds of man-made stormwater ponds are an increasingly common method of runoff control and treatment. An often overlooked but key aspect of the design of these basins is landscaping. Proper landscaping contributes to several important basin functions. (Land Management Project, 1991, p.1)

The manual goes on to discuss topics such as:

1. Plant selection.
2. Landscaping tips and establishment techniques.
3. Plant species for stormwater basin landscaping.
4. Characteristics of primary species for stormwater basin landscaping.

Overall Program Effectiveness

Length of time the program has been in existence:
The original *Rules and Regulations Governing the Enforcement of the Freshwater Wetlands Act* became effective in 1972. The most recently developed Regulations became effective as of April 7, 1994.

Degree of Implementation:
The Freshwater Wetlands Program is fully implemented as defined in the *Rules and Regulations Governing the Administration and Enforcement of the Freshwater Wetlands Act* (SD 1.00-19.00).

Monitoring:
The Department of Environmental Management monitors the implementation of this management measure by monitoring the implementation of its permit

requirements. Permits for large projects and projects of particular concern will often contain stipulations such as a requirement for monitoring by an independent environmental consultant, and a schedule for field inspections. The Department also has conservation officers who patrol the state for violations of its rules and regulations. The Enforcement Section of the Division of Freshwater Wetlands also investigates all complaints of possible violations.

Financial Needs:
Enforcement of this management measure requires the availability of enforcement staff. The Division of Freshwater Wetlands currently has only 7 enforcement staff. Accordingly, the Department of Environmental Management may need some additional financial resources to more effectively enforce the Management Measures of the Urban Chapter.

Technical Needs:
The efficiency of enforcement of this management measure could be improved through the application of geographic information systems into the Freshwater Wetlands Program. The program would also benefit from programwide computerization.

Rhode Island Stormwater Design and Installation Standards Manual

The *Rhode Island Stormwater Design and Installation Standards Manual* serves as guidance to design professionals in implementing best management practices for stormwater pollution abatement. It is recommended to persons applying for permits to the RIDEM, the CRMC, and any Rhode Island municipality that has a stormwater ordinance. The manual contains information on a variety of vegetated treatment systems and was written to be consistent with Section 6217 of the Coastal Zone Act Reauthorization Amendments. Vegetated treatment systems described in this manual include:

1. Wet ponds.
2. Extended detention ponds.
3. Vegetated filter strips
4. Grassed swales.

The *Rhode Island Stormwater Design and Installation Standards Manual* was initially developed and funded under Section 319 of the Clean Water Act. Subsequent funding for the manual was provided under Section 306 of the Coastal Zone Management Act.

Rhode Island Soil Erosion and Sediment Control Handbook

The *Rhode Island Soil Erosion and Sediment Control Handbook* provides technical information about soil and water resource management. The handbook contains sections explaining the proper implementation of vegetated treatment systems for

soil erosion and sediment control. It is recommended through the regulations of various Rhode Island programs as a starting point for the development of best management practices. This handbook describes treatment systems such as:

1. Grasses waterways.
2. Detention basins.
3. Level spreaders.
4. Temporary vegetative cover.
5. Permanent vegetative cover.
6. Vegetative streambank stabilization.

The revised *Rhode Island Erosion and Sediment Control Handbook* was prepared by the United Statres Department of Agriculture, Soil Conservation Service and the RIDEM. In part, the revision was funded through a Section 319, Clean Water Act grant.

Non-Regulatory Programs

Rhode Island also promotes vegetative treatment systems in non-regulatory programs. In 1989, the RIDEM's Nonpoint Source Management Program developed and published *Artificial Wetlands for Stormwater Treatment: Processes and Designs*. This document promotes the use of constructed wetlands to abate nonpoint source pollution and is recommended for use by designers, builders and members of the regulatory community. Pollutants associated with stormwater runoff, the properties of wetlands contributing to pollutant removal, and species of wetland vegetation found to have pollutant removal capabilities are all discussed. *Artificial Wetlands for Stormwater Treatment: Processes and Designs* also examines the desings of existing constructed wetlands treatment systems. The *Artificial Wetlands for Stormwater Treatment: Processes and Designs* was developed under and published by the RIDEM, Nonpoint Source Management Program, through a grant pursuant to Section 319 of the Clean Water Act.

The Nonpoint Source Management Program has also included recommendations for vegetative treatment sysytem implementation in *Rhode Island's Nonpoint Source Management Plan*. Two strong recommendations are listed in "Runoff from Developed Areas":

> F. Natural buffer strips should be maintained adjacent to surface waters, especially those sensitive to cultural impacts, such as water supply reservoirs and the salt ponds. Where this is not possible, vegetative filter strips, using seed mixtures recommended for this purpose and which require minimal or no fertilization should be used. Guidelines outlined in the "Permanent Vegetative Cover" section of the *Rhode Island Soil Erosion and Sediment Control Handbook* (in preparation) should be followed. (RIDEM/OEC, 1989, p. 29)

> H. Install and maintain structural stormwater management measures for water quality and flood control benefits. Acceptable measures include wet basins, extended detention dry basins, infiltration systems, oil/water separators, vegetative filter strips, and grassed swales as detailed in the Stormwater Management and Erosion Control Committee's recommendations. (RIDEM/OEC, 1989, p. 29)

Stormwater Basin Plant and Landscaping Guide: A Simple Guide for Designers and Communities exemplifies another Rhode Island effort to promote effective stormwater management through vegetative treatment systems. Published by the RIDEM, Land Management Project, this manual discusses appropriate landscaping for stormwater management. The manual notes:

> Detention and retention basins and other kinds of man-made stormwater ponds are an increasingly common method of runoff control and treatment. An often overlooked but key aspect of the design of these basins is landscaping. Proper landscaping contributes to several important basin functions. (Land Management Project, 1991, p.1)

The manual goes on to discuss topics such as:

1. Plant selection (species diversity is encouraged).
2. Landscaping tips and establishment techniques.
3. Plant species for stormwater basin landscaping.
4. Characteristics of primary species for stormwater basin landscaping.

Appendix 9A
Proposed Changes to the RICRMP: Wetlands

Section 140. Setbacks

A. Definition: a setback is the minimum distance from the inland boundary of a coastal feature at which an approved activity or alteration may take place.

B. Setbacks shall be maintained in areas contiguous to coastal beaches, coastal wetlands, coastal cliffs and banks, rocky shores, and existing manmade shorelines, and apply to the following categories of activities and alterations:

1) Filling, removal, or grading, except when part of an approved alteration involving a water-dependent activity or structure (Section 300.2);
2) Residential buildings and garages excluding associated structures (Section 110.4);
3) New individual sewage disposal systems, sewage treatment plants, and associated sewer facilities excluding outfalls (Section 300.6). Repairs and replacements of existing (permitted) individual sewage disposal systems shall be exempt from the Council's setback requirements;
4) Industrial structures, commercial structures, and public recreation structures that are not water-dependent (Section 300.3); and
5) Transportation facilities that are not water-dependent (Section 300.13).

C. Setbacks shall extend a minimum distance of either fifty (50) feet from the inland boundary of the coastal feature or twenty-five (25) feet inland of the edge of a Coastal Buffer Zone, whichever is further landward. In areas designated by the Council as Critical Erosion Areas-(Table 2), the minimum distance of the setback shall be not less than 30 times the calculated average annual erosion rate for less than four dwelling units and not less than 60 times the calculated average annual erosion rate for projects proposing more than 4 dwellings units.

D. Applicants for alterations and activities who cannot meet the minimum setback standards may apply to the Council for a variance (Section 120).

E. The setback provisions do not apply to minor modifications or restoration of structures that conform with all other policies and standards of this program.

Table 2. Setbacks in Critical Erosion Areas.

Erosion Category (on accompanying maps)	Annual Estimated Rate (in feet)	Setback Distance* (in feet)	Setback Distance** (in feet)
(A)	2 - 2 1/2	75	150
(B)	3 - 4	120	240
(C)	4 - 5	150	300
(D)	5 - 6	180	360

* 4 units or less
** more than 4 units

Section 150 Coastal Buffer Zones

A. DEFINITION

1. A Coastal Buffer Zone is a land area adjacent to a Shoreline (Coastal) Feature that is, or will be, vegetated with native shoreline species and which acts as a natural transition zone between the coast and adjacent upland development. A Coastal Buffer Zone differs from a construction setback (Section 140) in that the setback establishes a minimum distance between a shoreline feature and construction activities, while a buffer zone establishes a natural area adjacent to a shoreline feature that must be retained in, or restored to, a natural vegetative condition (Figure 2). The Coastal Buffer Zone is generally contained within the established construction setback.

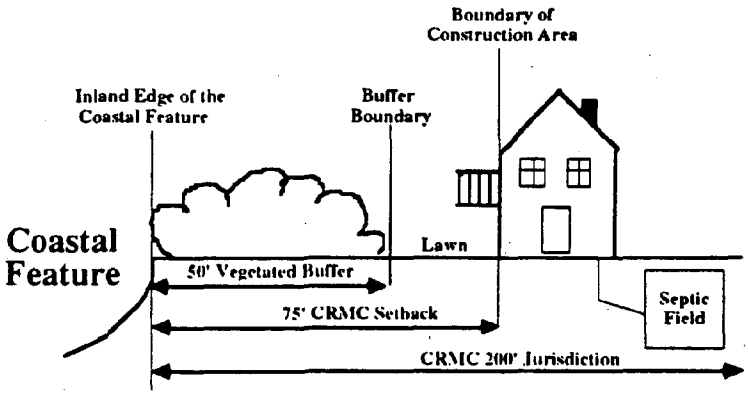
B. FINDINGS

1. The establishment of Coastal Buffer Zones is based upon the CRMC's legislative mandate to preserve, protect and, where possible, restore ecological systems.

2. Vegetated buffer zones have been applied as best management practices within the fields of forestry and agriculture since the 1950s to protect in-stream habitats from degradation by the input of sediment and nutrients (Desbonnet et al 1993). More recently, vegetated buffer zones have gained popularity as a best management practice for the control and abatement of nonpoint source pollutants (contaminated runoff) and are routinely applied in both engineered and natural settings (Desbonnet et al 1993; EPA 1993).

3. Coastal Buffer Zones provide multiple uses and multiple benefits to those areas where they are applied (Desbonnet et al 1993). The multiple uses and benefits of Coastal Buffer Zones include:

Figure 2 An example of the application of a Coastal Buffer Zone.



(a) *Protection of Water Quality*: Buffer zones along the perimeter of coastal water bodies can be effective in trapping sediments, pollutants (including oil, detergents, pesticides, herbicides, insecticides, wood preservatives and other domestic chemicals), and absorbing nutrients (particularly nitrogen) from surface water runoff and groundwater flow. The effectiveness of vegetated buffers as a best management practice for the control of nonpoint source runoff is dependent upon their ability to reduce the velocity of runoff flow to allow for the deposition of sediments, and the filtration and biological removal of nutrients within the vegetated area. In general, the effectiveness of any vegetated buffer is related to its width, slope, soil type, and resident species of vegetation. Effective buffers for nonpoint source pollution control, which remove at least 50%, and up to 99%, of sediments and nutrients entering them, range from 15 feet to 600 feet in width.

The removal of pollutants can be of particular importance in areas abutting poorly flushed estuaries that are threatened by an excess of nutrients or are contaminated by runoff water, such as the South Shore Salt Ponds and the Narrow River. Large, well flushed water bodies, such as Narragansett Bay, are also susceptible to nonpoint source pollutant inputs, and can be severely impacted by nonpoint source pollutants as has been documented in studies completed for the Narragansett Bay Project.

(b) *Protection of Coastal Habitat*: Coastal Buffer Zones provide habitat for native plants and animals. Vegetation within a buffer zone provides cover from predation and climate, and habitat for nesting and feeding by resident and migratory species. Some species which use coastal buffer zones are now relatively uncommon, while others are considered rare, threatened or endangered. These plants and animals are essential to the preservation of Rhode Island's valuable coastal ecosystem.

The effectiveness of vegetated buffers as wildlife habitat is dependent

upon buffer width and vegetation type. In general, the wider the buffer the greater its value as wildlife habitat. Larger buffer widths are typically needed for species that are more sensitive to disturbances (e.g., noise). Furthermore, those buffers that possess vegetation native to the area provide more valuable habitat for sustaining resident species. A diversity of plant species and types (e.g., grasses, shrubs and trees) promotes biodiversity within the buffer area, and the region overall.

(c) *Protection of Scenic and Aesthetic Quality*: One of the primary goals of the Council is to preserve, protect, and where possible restore the scenic value of the coastal region in order to retain the visual diversity and unique visual character of the Rhode Island coast as seen by hundreds of thousands of residents and tourists each year from boats, bridges, and such vantage points as roadways, public parks, and public beaches (Section 330). Coastal Buffer Zones enhance and protect Rhode Island's scenic and visual aesthetic resources along the coast. Coastal buffers also preserve the natural character of the shoreline, while mitigating the visual impacts of coastal development. Visual diversity provides for both contrast and relief between the coastal and inland regions, leading to greater aesthetic value of the landscape.

(d) *Erosion Control*: Coastal Buffer Zones provide a natural transition zone between the open coast, shoreline features and upland development. Natural vegetation within a Coastal Buffer Zone helps to stabilize the soil, reduces the velocity of surface water runoff, reduces erosion of the soil by spreading runoff water over a wide area, and promotes absorption and infiltration through the detrital (leaf) layer and underlying soils. The extensive root zones often associated with buffer zone vegetation also help prevent excessive shoreline erosion during coastal storm events by stabilizing underlying soils.

(e) *Flood Control*: Coastal Buffer Zones aid in flood control by reducing the velocity of runoff and by encouraging infiltration of precipitation and runoff into the ground rather than allowing runoff to flow overland and flood low lying areas. In addition, Coastal Buffer Zones often occupy the flood plain itself and thus add to coastal flood protection.

(f) *Protection of Historic and Archaeological Resources*: Coastal Buffer Zones protect areas of cultural and historic importance such as archaeological sites by helping prevent intrusion while protecting the sites' natural surroundings.

C. POLICIES

1. The establishment of a Coastal Buffer Zone is based upon the CRMC's legislative mandate to preserve, protect and, where possible, restore ecological systems. The determination of the inland boundary of the Coastal Buffer Zone must balance this mandate with the property owner's rights to develop and use the property.

2. The Council shall require Coastal Buffer Zones in accordance with the requirements of this section for the following: a) new residential development; b) commercial and industrial development; c) activities subject to Section 300.8 and Section 300.13; and d) inland activities identified in Section 320. For existing residential structures, the Council shall require a Coastal Buffer Zone for category "A" and "B" activities when the RIDEM requires the modification or expansion of an existing septic system or when the footprint of the structure is expanded.

3. The vegetation within a buffer zone must be either retained in a natural, undisturbed condition, or properly managed in accordance with the standards contained in this section. In cases where native flora (vegetation) does not exist within a buffer zone, the Council may require restoration efforts which include, but are not limited to, replanting the Coastal Buffer Zone with native plant species.

4. Coastal Buffer Zones shall remain covered with native flora and in an undisturbed state in order to promote the Council's goal of preserving, protecting, and restoring ecological systems. However, the Council may permit minor alterations to Coastal Buffer Zones that facilitate the continued enjoyment of Rhode Island's coastal resources. All alterations to Coastal Buffer Zones or alterations to the natural vegetation (i.e., areas not presently maintained in a landscaped condition) within the Council's jurisdiction shall be conducted in accordance with the standards contained in this section as well as all other applicable policies and standards of the Council. In order to ensure compliance with these requirements, the Council may require applicants to submit a Buffer Zone Management Plan.

5. In order to enhance conservation, protect water quality, and maintain the low intensity use characteristic of Type 1 and 2 waters, greater buffer widths shall be applied along the coastline abutting these water types.

6. In critical areas and when the property owner owns adjoining lots, these lots shall be considered as one lot for the purposes of applying the values contained in Table 2a and ensuring that the appropriate buffer zone is established.

D. STANDARDS

1. All Coastal Buffer Zones shall be measured from the inland edge of the most inland Shoreline (Coastal) Feature.

2. *Coastal Buffer Zone Requirements for New Residential Development*: The minimum Coastal Buffer Zone requirements for new residential development bordering Rhode Island's shoreline are contained in Table 2a. The Coastal Buffer Zone requirements are based upon the size of the lot and the CRMC's designated Water Types (Type 1 - Type 6). Where the buffer zone requirements noted above cannot be met, the applicant may request a variance in accordance with Section

Table 2a. Coastal Buffer Zone designations for residential development.

Residential Lot Size (sq. ft.)	Water Use Category: Type 3, 4, 5 & 6		Type 1 & 2
	Required Buffer (ft)		
<10,000	15	.....	25
10,000 - 20,000	25	.....	50
20,001 - 40,000	50	.....	75
40,001 - 60,000	75	.....	100
60,001 - 80,000	100	.....	125
80,001 - 200,000	125	.....	150
>200,000	150	.....	200

120. A variance to 50% of the required buffer width may be granted administratively by the Executive Director if the applicant has satisfied the burdens of proof for the granting of a variance. Where it is determined that the applicant has not satisfied the burdens of proof, or the requested varriance is in excess of 50% of the required width, the application shall be processed as a "Category B" application (Section 110).

3. *Coastal Buffer Zone Requirements for Existing Residential Structures that Expand the Footprint of the Structure and for Structures Required by the RIDEM to Modify or Expand an Existing Septic System*: When an existing residential structure does not meet the Council's Coastal Buffer Zone requirements contained in Table 2a (e.g., the existing structure does not have a buffer zone or has a buffer zone with a width less than the value contained in Table 2a), the following Coastal Buffer Zone requirements shall apply to each modification of the residential structure until the property's Coastal Buffer Zone equals, but does not exceed, the value contained in Table 2a:

   (a) Where alterations to a residential structure result in the expansion of the structure's footprint (square footage of the ground floor area encompassed by the structural foundation of an existing building), the Coastal Buffer Zone requirement shall be established with a width equal to the percentage increase in a structure's footprint as of April 15, 1994 multiplied by the value contained in Table 2a ([square foot increase of footprint/square footage as of April 15, 1994] X value contained in Table 2a = Coastal Zone Buffer Requirement);

   (b) Where alterations to a residential structure result in an increase in flow to the Individual Sewage Disposal System (ISDS) and the RIDEM has required the modification or expansion of the existing ISDS, the Coastal Buffer Zone requirement shall be established with a width equal to 25% of the value contained in Table 2a (0.25 X value contained in Table 2a = Coastal Buffer Zone requirement).

These requirements only apply to category "A" and "B" assents. In addition, the Executive director shall have the authority to grant a variance to these requirements for category "A" assents in accordance with the burdens of proof contained in Section 120.

4. *Coastal Buffer Zone Requirements for all Commercial and Industrial development and activities subject to the requirements of Section 300.8, Section 300.13, or Section 320*: Coastal Buffer Zones shall be determined on a case-by-case basis by the Council. Table 2a may be used as appropriate guidance. However, depending on the activity proposed and its potential impacts on coastal resources, the Council may require a Coastal Buffer Zone with a width greater than that found in the Table 2a.

5. All property abutting critical habitat areas, as defined by the Rhode Island National Heritage Program or the Council, shall possess a minimum vegetated buffer zone of 200 feet between the identified habitat and any development area. The Executive director shall have the authority to grant a variance to these requirements in accordance with the burdens of proof contained in Section 120.

6. All property abutting Coastal Natural Areas (Section 210.4) shall have a minimum vegetated Coastal Buffer Zone of 25 feet from the inland edge of the coastal feature. The Executive director shall have the authority to grant a variance to these requirements in accordance with the burdens of proof contained in Section 120.

7. All property located within the boundaries of a Special Area Management (SAM) Plan approved by the Council shall meet additional buffer zone requirements contained within these SAM plans. When a SAM plan's buffer zone requirements apply, the buffer width values contained in this section will be compared to those required by the SAM plan, and the larger of the buffer widths applied.

8. The setback (Section 140) for all new residential, commercial, and industrial structures shall exceed the Coastal Buffer Zone requirement by a minimum of 25 feet for fire, safety, and maintenance purposes. Where the 25 foot separation distance between the inland edge of the buffer and construction setback cannot be obtained, the applicant may request a variance in accordance with Section 120. The Executive Director shall have the authority to grant variances to this requirement. However, a vegetated Coastal Buffer Zone shall not directly contact any dwelling's footprint.

E. BUFFER MANAGEMENT AND MAINTENANCE REQUIREMENTS

1. All alterations within established Coastal Buffer Zones or alterations to natural vegetation (i.e., areas not presently maintained in a landscaped condition) within the Council's jurisdiction may be required to submit a Buffer Zone Management

Plan for the Council's approval that is consistent with the requirements of this section and the Council's most recent edition of *Buffer Zone Management Guidance*. Buffer Zone Management Plans shall include a description of all proposed alterations and methods of avoiding problem areas such as the proper placement and maintenance of pathways. Applicants should consult the Council's most recent edition of *Buffer Zone Management Guidance* when preparing a buffer management plan.

2. In order to promote the Council's goal to preserve, protect and, where possible, restore ecological systems, Coastal Buffer Zones shall be vegetated with native flora and retained in a natural, undisturbed condition, or shall be properly managed in accordance with the Council's most recent edition of *Buffer Zone Management Guidance*. Such management activities compatible with this goal include, but are not limited to:

   (a) *Shoreline Access Paths*: Pathways which provide access to the shoreline are normally considered permissible provided they are less than or equal to 6 feet wide and follow a path that minimizes erosion and gullying within the buffer zone (e.g., a winding, but direct path). Pathways should avoid, or may be prohibited in, sensitive habitat areas, including, but not limited to, coastal wetlands. Pathways may be vegetated with grasses and mowed, or may be surfaced with crushed stone or mulch.

   (b) *View Corridors*: Selective tree removal and pruning and thinning of natural vegetation may be allowed within a defined corridor in order to promote a view of the shoreline. Only the minimal alteration of vegetation necessary to obtain a view shall be acceptable to the Council. Shoreline access paths shall be located within view corridors to the maximum extent practicable in order to minimize disturbance of Coastal Buffer Zones. View corridors shall be prohibited in sensitive or critical habitat areas.

   (c) *Habitat Management*: Management of natural vegetation within a buffer zone to enhance wildlife habitat and control nuisance and non-native species of vegetation may be allowed. Homeowner control of pest species of vegetation such as European bittersweet and nuisance species such as poison ivy is normally considered acceptable. However, the indiscriminate use of herbicides or the clear-cutting of vegetation shall be prohibited. The use of fertilizers is generally prohibited within the Coastal Buffer Zone except when used to enhance the replanting of native vegetation (e.g., hydro-seeding) approved by the Council. However, the clearing or outright elimination of natural vegetation for such purposes as controlling ticks or pollen shall not be permitted.

   (d) *Safety and Welfare*: Selective tree removal, pruning and thinning of natural vegetation within a Coastal Buffer Zone may be allowed by the Council on a case-by-case basis for proven safety and welfare concerns (e.g., removal of a damaged tree in close proximity to a dwelling). In order to promote child safety and manage pets in areas harboring ticks, fences along the inland edge of a Coastal Buffer Zone and along shoreline access pathways may be

permitted.

(e) *Shoreline Recreation*: The CRMC recognizes that shoreline recreation is one of the predominant attractions for living on, or visiting the Rhode Island Coast. In order to allow for such uses, minor alterations of buffer zones may be permitted along the shoreline if they are determined to be consistent with the Council's requirements. These alterations may include maintaining a small clearing along the shore for picnic tables, benches, and recreational craft (dinghies, canoes, day sailboats, etc.). Additionally, the CRMC may allow small, non-habitable structures including storage sheds, boat houses and gazebos within Coastal Buffer Zones, where appropriate. However, these structures may be prohibited in sensitive or critical habitat areas. Due to the potential for these structures to impact values provided by Coastal Buffer Zones, the Council shall exercise significant discretion in this area.

210.3. Coastal Wetlands

A. DEFINITIONS

1. Coastal wetlands include salt marshes and freshwater or brackish wetlands contiguous to salt marshes or physiographical features. Areas of open water within coastal wetlands are considered a part of the wetland. In addition, coastal wetlands also include freshwater and/or brackish wetlands that are directly associated with non-tidal coastal ponds and freshwater or brackish wetlands that occur on a barrier beach or are separated from tidal waters by a barrier beach.

2. Salt marshes are areas regularly inundated by salt water through either natural or artificial water courses and where one or more of the following species predominate: smooth cordgrass (Spartina alterniflora), salt meadow grass (Spartina patens), spike grass (Distichlis spicata), black rush (Juncus gerardi), saltworts (Salicornia spp.), sea lavender (Limonium carolinianum), saltmarsh bulrush (Scirpus spp.), high tide bush (Iva frutescens).

3. Contiguous freshwater wetlands are those wetlands which border directly on salt marshes or brackish wetlands or physiographical features and which, except for size limitations, meet the definition of bog, marsh, swamp, or pond under the Rhode Island Freshwater Wetlands Act (R.I. General Laws, Section 2-1-18 et seq.). All contiguous freshwater wetlands are protected under this Program, regardless of their size.

4. Contiguous brackish wetlands are those wetlands which border directly on salt marshes and where one or more of the following species predominate: tall reed (Phragmites communis), tall cordgrass (Spartina pectinata), broadleaf cattail (Typha latifolia), narrowleaf cattail (Typha angustifolia), spike rush (eleocharis rostellata), chairmaker's rush (Scirpus americana), creeping bentgrass (Agrostis palustris), sweet grass (Hierochloe odorata), or wild rye (elymus virginicus).

5. High salt marsh is defined as that portion of the salt marsh that typically is flooded by spring, moon, or other flooding tides but otherwise is not flooded on a daily basis. The vegetative composition of high salt marsh typically consists of one or more of the following: salt meadow grass (Spartina patens), spike grass (Distichlis spicata), black rush (Juncus gerardi), tall reed (Phragmites communis), Sea Lavender (Limonium carolinianum), tall cordgrass (Spartina pectinata), saltmarsh bulrushes (Scirpus spp.), and high tide bush (Iva frutescens).

6. Low salt marsh is defined as that portion of the salt marsh that is flooded daily. The vegetative composition of the low salt marsh typically consists predominantly of smooth cordgrass (Spartina alterniflora).

B. FINDINGS

1. Coastal wetlands are important for a variety of reasons. They provide food and shelter for large populations of juvenile fish and are nurseries for several species of fish. The mud flats and creeks associated with many coastal wetlands are rich in shellfish, particularly soft-shelled clams. Coastal wetlands also provide important habitat for shore birds and waterfowl, and many are among the most scenic features of the Rhode Island shore. Coastal wetlands are effective in slowing erosion along protected shores and can serve as a valuable nonpoint source pollution abatement function.

2. Much of the original acreage of coastal wetlands in Rhode Island has been destroyed, and the pressures to fill coastal wetlands continue. Downtown Providence, much of Quonset, and many other low-lying coastal communities are built on what was once coastal wetland. We do not know how much coastal wetland has been destroyed by development, but some 10 percent of our coastal wetlands of 40 acres or more is reported to have been filled between 1955 and 1964. Since coastal wetlands are found in sheltered waters, they frequently coincide with attractive sites for marinas and waterfront homes. The pressures to fill or otherwise alter coastal wetlands therefore remain. According to a 1975 survey, there are some 3,700 acres of salt marsh in the state, of which some 10 percent were fringe marshes less than five yards wide. Approximately 90 percent of the state's salt marshes abut Type 1 and 2 waters.

3. Most of Rhode Island's wetlands are small and, when viewed in isolation, may appear to be of insignificant value. In order to better understand the value of individual coastal wetlands, the Council has sponsored research to investigate the feasibility of rating the relative value of individual coastal wetlands. Two years of research revealed that it is not possible to rate coastal wetlands if all ecological considerations are given equal weight. The study also showed that there is little if any correlation between the perceived scenic coastal wetland and its ecological characteristics.

4. Land uses and activities abutting coastal wetlands may have a strong impact upon the wetland itself. Nearby drainage patterns, and the capacity of the wetland to function as a natural drainage system, which affects sedimentation processes and the salinity of waters, may easily be altered, resulting in detrimental effects. Wildlife must be protected from harassment. Bulkheading and filling along the inland perimeter of a marsh prevents inland migration of wetland vegetation as sea level rises.

5. In light of continuing pressures to alter coastal wetlands, and in accordance with the Council's policy of "no net loss", avoidance and minimization of impacts, and compensation for unavoidable losses are necessary tools for retaining and restoring Rhode Island's coastal wetlands.

C. POLICIES

1. The Council's goal is to preserve and, where possible, restore coastal wetlands.

2. To offset past losses in coastal wetlands and unavoidable alterations to surviving coastal wetlands: (a) disturbed wetlands should be restored as directed by the Council or enhanced when possible, and (b) in areas selected on the basis of competent ecological study, the Council will encourage the building of new wetlands.

3. All alterations to salt marshes and contiguous freshwater or brackish wetlands abutting Type 1 waters are prohibited except for minimal alterations required by the construction or repair of an approved structural shoreline protection facility (see Section 300.7). In Type 1 waters, structural shoreline protection may be permitted only when the primary purpose is to enhance the site as a conservation area and/or a natural buffer against storms.

4. Alterations to salt marshes and contiguous freshwater or brackish wetlands abutting Type 2 waters are prohibited except for minor disturbances associated with (a) residential docks and walkways approved pursuant to the standards set forth in Section 300.3, and (b) approved construction or repair of structural shoreline protection facilities.

5. Coastal wetlands designated for preservation adjacent to Type 3, 4, 5, and 6 waters are identified on maps available for inspection at the Council's offices and at the town halls of coastal cities and towns. In these designated wetlands only the alterations described in #4 above may be permitted. Dredging and filling in these designated coastal wetlands are prohibited. The maps of designated coastal wetlands serve to identify individual wetlands; in all cases precise boundaries shall be determined through a field inspection when proposals that could impact these features are being considered. In support of this goal, the Council advocates a policy of "no net loss" for coastal wetland acreage and functions as a result of coastal development.

6. Salt marshes adjacent to Type 3,4,5, and 6 waters that are not designated for preservation may be altered if (a) the alteration is made to accommodate a designated priority use for that water area, (b) the applicant has examined all reasonable alternatives and the Council has determined that the selected alternative is the most reasonable, and (c) only the minimum alteration necessary to support the priority use is made.

7. All alterations to coastal wetlands shall be carried out in accordance with Section 300.12.

8. It is the Council's policy to protect from adverse effects, and to maintain wetlands that are serving a significant nonpoint source pollution abatement function while protecting the other existing functions of wetlands and riparian areas. In addition, the Council promotes the restoration of the preexisting functions in damaged and destroyed wetlands and riparian areas, and the use of vegetated filter strips, in areas where these systems can serve a nonpoint source abatement function.

300.12. Coastal Wetland Mitigation

A. DEFINITIONS

1. Alterations to coastal wetlands are defined to include, but shall not be limited to: filling, removing or grading (as defined in Section 300.2.A.); dredging and dredged materials disposal (as defined in Section 300.9.A.); and excavation, draining, damming and/or diverting of hydrological flows in a coastal wetland. Furthermore, any activity, including the aforementioned, taking place in an area adjacent to a coastal wetland which impacts the coastal wetland, shall be considered an alteration to coastal wetlands.

2. Activities which shall not be considered alterations include, but shall not be limited to; minor disturbances associated with the approved construction or repair of shoreline protection facilities in accordance with Section 300.7, minor disturbances associated with approved residential docks and walkways constructed in accordance with standards set forth in Section 300.4, and approved mosquito population control programs.

3. For the purposes of this section, mitigation is defined as avoidance and minimization of impacts and compensation for unavoidable losses by creating or restoring coastal wetlands. Mitigation projects are those projects undertaken to compensate for unavoidable losses after impacts associated with a proposed activity have been avoided and minimized to the maximum extent practicable. The Council recognizes the restoration of historic wetlands and the creation of new wetlands as the only acceptable means of compensating for unavoidable

losses of coastal wetlands.

4. Wetland restoration is defined as the re-establishment of a wetland (on the site of an historical wetland) which has been degraded to such an extent that the site performs little or none of its original wetland functions.

5. Wetland creation is defined as the construction of a new coastal wetland where one had not previously existed.

6. Mosquito ditching is defined as the maintenance and construction of ditches in coastal wetlands in order to enhance tidal flushing and thereby reduce and control mosquito breeding sites.

7. Open Marsh Water Management is defined as the maintenance and construction of reservoirs and connectors in order to enhance the tidal food web and thereby reduce and control mosquito breeding sites.

B. POLICIES

1. In cases where the Council determines that a coastal wetland may be altered (see Section 210.3.C) or grants a special exception to a prohibition listed in Section 300.12.D the Council shall require the mitigation of all impacts to the coastal wetland. Permanently lost or significantly altered wetlands shall be replaced through the restoration of an historical wetland or the creation of a new wetland at a site approved by the Council.

2. The Council shall not grant any variance to the policies, standards, and prerequisites set forth in this section.

3. Pursuant to the Council's "no net loss" policy, the goal and minimum requirements of wetland mitigation projects shall be the replacement of permanently lost or significantly altered wetlands with wetlands of equal or greater area and ecological value. Mitigation projects shall be carried out in accordance with the standards set forth in section 300.12.E.

4. Wetlands created or restored for the purposes of replacing permanently lost or altered coastal wetlands shall be considered wetlands as defined in the RICRMP and subject to the policies contained in Section 210.3 (Coastal Wetlands), Section 140 (Setbacks) and Section 150 (Buffer Zones).

5. Activities listed in Section 300.12.A.2. shall be exempt from mitigation requirements. In addition, wetlands created for the purposes of stormwater management, erosion control, or waste management, in accordance with Section 300.6, shall not be subject to mitigation requirements.

6. Applicants proposing to alter coastal wetlands shall submit the application and

the proposed mitigation plan concurrently. In cases where an applicant is proposing an alteration to coastal wetlands prohibited under Section 300.12.D, the applicant shall be required to first meet the burdens of proof contained in Section 130 and obtain a Special Exception. If the applicant obtains a Special Exception, or a Special Exception is not necessary, then the Council shall consider the merits of the proposed alteration.

The Council shall not consider the mitigation plan in determining whether an assent shall be granted for the alteration of a coastal wetland, but shall require mitigation as a condition of the assent. If the Council approves the proposed alteration to a coastal wetland, then the applicant shall obtain the Council's approval of the mitigation plan prior to any alteration of the coastal wetland. The issuance of the assent to alter coastal wetlands subject to mitigation requirements will be based, in part, upon adequate assurance that required mitigation is feasible and will occur.

7. To the maximum extent practicable, mitigation projects shall be carried out prior to, or concurrent with, the approved alteration of the coastal wetland.

8. To the maximum extent practicable, mitigation projects shall be carried out on-site. Where no on-site alternative exists, the Council may consider off-site mitigation within a hydrologically connected area. In circumstances where an overall benefit to the state is demonstrated and no on-site alternative exists, the Council may approve mitigation projects outside the watershed in which the impact, due to the alteration of a coastal wetland, will occur.

9. In cases where the alteration is temporary, the disturbed wetland shall be restored, to the satisfaction of the Council, immediately following the permitted activity.

10. In no case shall monetary compensation be considered as an acceptable form of mitigation.

11. The Council may consider proposals for joint mitigation projects, advanced mitigation projects, and other innovative wetland mitigation approaches, such as mitigation banks, on a case-by-case basis.

12. The Council recognizes that successful mitigation projects depend on a number of variables including the type of wetland restored or created. Accordingly, replacement ratios contained in section 300.12.F shall be considered minimum requirements.

13. Recognizing that restored and created wetlands require a period of time to become established as functional coastal wetlands, the Council may require the applicant to post a bond to ensure compliance with the mitigation plan and other Council stipulations.

14. Any violation of the approved mitigation plan shall constitute a violation of the assent to alter the existing coastal wetland.

15. The Council recognizes the nuisance caused by large breeding populations of mosquitos in portions of some coastal wetlands. The Council recognizes that the problem can be effectively controlled by good wetland management practices that include open marsh water management, ditch maintenance and, in some cases, the limited use of pesticides.

C. PREREQUISITES

1. Applicants proposing any alteration to coastal wetlands prohibited in Section 300.12.D shall be required to obtain a Special Exception (Section 130) from the Council.

2. Applicants proposing alterations to coastal wetlands are required to obtain permits from the Army Corps of Engineers and applicable permits from the Department of Environmental Management. In some cases, mitigation projects will require additional permits from the Army Corps of Engineers and the Department of Environmental Management. Applicants shall consult with these agencies for a determination of the need for additional permits and obtain any required permits prior to undertaking any mitigation activities.

3. Mosquito control programs in any coastal wetland area will be considered only when authorization from the DEM Division of Fish and Wildlife, the R.I. Mosquito Abatement Board, and the local municipality has been obtained. Further, applicants should concurrently obtain a permit from the Army Corps of Engineers. However, in some cases the Council may require the applicant to first obtain an Army Corps of Engineers permit.

D. PROHIBITIONS

1. All alterations to coastal wetlands abutting Type 1 waters are prohibited except for minimal alterations required for the construction or repair of an approved or pre-existing structural shoreline protection facility (see Section 300.7) and alterations resulting from approved mosquito population control programs.

2. Alterations to coastal wetlands abutting Type 2 waters and coastal wetlands designated for preservation adjacent to Types 3,4,5 and 6 waters are prohibited except for minor disturbances associated (a) residential docks or walkways approved pursuant to the standards set forth in Section 300.4, (b) approved construction or repair of shoreline protection facilities, and (c) approved mosquito population control programs.

3. Alterations to coastal wetlands which are adjacent to Types 3, 4, 5 and 6 waters

and which are not designated for preservation are prohibited unless:

(a) the alteration is made to accommodate a designated priority use for that water area;
(b) the applicant has examined all reasonable alternatives and the Council has determined that the selected alternative is the most reasonable; and,
(c) only the minimum alteration necessary to support the priority use is made.

4. The practice of applying broad spectrum persistent pesticides on any coastal wetland area is prohibited.

5. Future development on any mitigation site is prohibited. All alterations to mitigation sites other than those required to maintain, or enhance the restored or created coastal wetland are prohibited.

E. ADDITIONAL CATEGORY B REQUIREMENTS

1. Applicants shall demonstrate to the Council's satisfaction that (a) the proposed alteration will accommodate a priority use, as determined by the adjacent water type, (b) the alternative selected is the most reasonable for supporting that priority use, and (c) the proposed alteration is the minimum necessary to support that alteration.

2. Any mitigation plan submitted pursuant to this section shall include, but not be limited to, the following:

(a) A site plan accurately depicting wetlands which will be altered, the proposed mitigation site, existing buffer zones and proposed buffer zones;
(b) The size, in terms of surface area, of wetlands to be altered and of the proposed mitigation site. Surface areas shall not include buffer zones; however, alterations to existing buffer zones shall be described;
(c) A description of existing elevations, soil types, flora species, vegetative densities and habitats in the wetland to be altered and for the proposed mitigation site;
(d) A description of the hydrology of the existing wetland site and proposed mitigation site including ground water levels and, where applicable, tidal and salinity ranges of the site and of adjacent inundating waters;
(e) A description of any excavation, grading, filling, etc. to be conducted as part of the mitigation plan;
(f) A description of species to be planted or seeded, spacing of plantings and/or the density of seeding, the source of vegetation to be planted, and the source of any organic soils to be introduced at the mitigation site;
(g) A schedule for implementation of the mitigation plan;
(h) Success criteria, which shall include benchmark dates and minimum survivability rates for plantings/seedings;
(i) A monitoring program; and,

(j) Evidence of financial security.

F. STANDARDS

1. For alterations to Coastal Wetlands:

(a) Altered coastal wetlands shall be replaced by wetlands of a similar type (as defined in Section 210.3.A) which provide an ecological value equal to or greater than that of the altered wetland.
(b) The following ratios of replacement coastal wetland to permanently altered or lost coastal wetland shall be considered minimum compensation requirements for mitigation projects:

i) 2:1, area of coastal wetland restored: area permanently altered or lost.
ii) 2:1, area of coastal wetland created: area permanently lost or altered.

Specific replacement requirements shall be determined on a case-by-case basis, taking into account such factors as size, type and ecological value of the existing coastal wetland, and the probability of achieving fully functional replacement at the proposed mitigation site. In no case shall the Council consider mitigation projects which do not meet these minimum compensation requirements.

(c) Restored and created coastal wetlands shall be subject to buffer zone and setback requirements.

2. For mosquito population control

(a) Alterations to coastal wetlands undertaken as part of a mosquito control program shall be minimal and shall utilize open marsh water management techniques in accordance with the most recent version of *Manual of Methods for Open Marsh Water Management in Rhode Island* (RIDEM).
(b) Wherever possible, marsh sediments excavated as part of an approved mosquito population control program shall be placed at the terminal end of a pre-existing mosquito ditch identified for abandonment. In cases where such a pre-existing mosquito ditch does not exist or is not a feasible sediment disposal site, marsh sediments shall be disposed of at a suitable upland location.
(c) Ditches shall be no more than 24 inches wide and not less one foot, nor more than 3 feet, deep.

Chapter 10
Additional Management Measures

Land Uses and Threatened and Impaired Coastal Waters:
The Rhode Island Division of Planning (RIDOP) has projected an average 20 percent growth rate for Rhode Island's suburban and rural communities between 1985 and 2010, compared to a 2.6 percent growth rate in the State's cities, and a statewide growth rate of 9.5 percent. Although 69 percent of the State's population already lives in a coastal city or town, coastal communities are expected to grow more rapidly than the state averages. In addition, based on the projected rate and distribution of growth, the RIDOP estimates that 88 percent of the developable lands in Rhode Island could be fully developed by 2010 (*Land Use 2010: State Land Use Policies and Plan*, Appendix O). The primary land uses which threaten and impair coastal waters due to nonpoint sources of pollution are associated with this projected development. Specifically, the primary sources of nonpoint pollution causing or threatening water quality impairments are associated with stormwater runoff from impervious surfaces and failed or improperly sited or designed ISDS. Accordingly, the major nonpoint source impacts are due to heavy metals, low D.O., bacteria (coliform) and nutrients(*The State of the State's Waters - Rhode Island: A Report to Congress*, Appendix R).

In the 305(b) Report, the nonpoint source assessment of surface waters contained waterbody by waterbody descriptions of the State's surface waters relative to threats and impairments by nonpoint source pollution. However, resource limitations have prevented a comprehensive update of these assessments since the original in 1990. Should Section 6217 and/or Section 319 funds allow, this waterbody specific data will be updated and used as a partial basis for developing additional management measures.

According to the 1992 305 (b) report, a total of nine percent of the State's coastal waters were considered to be not supporting designated uses due to both point and nonpoint sources of pollution. In upper Narragansett Bay the non-attainment status can be primarily attributed to point sources such as municipal wastewater treatment facilities and combined sewer overflows. The exact level of nonpoint source pollution contributing to non-attainment status has not been determined for impaired waters, but could be, if resources were available.

It has been estimated that seven percent of the State's coastal waters are threatened by nonpoint sources of pollution. These waters, which include many of the salt ponds in the southern part of the State and several coves in Narragansett Bay, are primarily threatened by bacteria, nutrients, metals and

petroleum hydrocarbons resulting from urban stormwater runoff. Accordingly, a number of cooperative efforts, by both governmental and nongovernmental organizations, are underway to prevent and mitigate nonpoint sources of pollution to these identified "hot spots" where nonpoint source pollution impacts are known to exist or threaten water quality. Two examples of these types of efforts are discussed in more detail below. In addition, the revised *Rhode Island's Nonpoint Source Management Plan* (Appendix W), developed in accordance with requirements contained in Section 319 of the Clean Water Act, contains a priority watersheds selection system that sets out an ongoing process for the coordinated targeting of future watershed management efforts to threatened and impaired waters, including estuarine waters.

These efforts are additional management measures, since they often result in controls that exceed (g) Guidance requirements, provide a greater level of pollution control than that which exists elsewhere in the State, and/or are targeted to specific areas that have been determined to be nonpoint source pollution "hot spots" due to existing and anticipated development. These efforts have relied upon coordinated approaches to ensure the best use of scarce resources in agreed upon problem areas. It is expected that implementation of (g) measures combined with these efforts will go a long way toward minimizing nonpoint source pollution to the State's waters. Therefore, Rhode Island will monitor the effectiveness of these efforts before developing additional measures in accordance with Section 6217 requirements.

Critical Coastal Areas:
One of the requirements of Section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA) is that the coastal state must identify and have a continuing process for identifying critical coastal areas adjacent to either:

- Coastal waters failing to attain or maintain applicable water quality standards or protect designated uses, as determined by the state pursuant to its water quality planning processes; or,
- Coastal waters that are threatened by reasonably foreseeable increases in pollution loadings from new or expanding sources.

Within these critical coastal areas, any new land uses or expansion of existing land uses shall be subject to management measures in addition to those provided for in the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution to Coastal Waters* (EPA 1993).

As noted above, a number of efforts are currently underway in the State which target nonpoint pollution mitigation and prevention efforts to

identified problem areas. The Salt Pond and Narrow River Special Area Management Plans are an example of one such ongoing program which provides for implementation of enforceable policies that exceed (g) Guidance management measures. These plans, currently being updated to reflect new water quality and land use data, are discussed below. A second program, the Greenwich Bay initiative, has also been described since it focuses, through a coordinated approach, on a recognized nonpoint source pollution problem area. And, as a third example, a brief description of the newly-developed system for the selection of high priority watersheds, as contained in the revised *Rhode Island's Nonpoint Source Management Plan*, has been provided. Again, it is important to keep in mind that these are only examples; numerous existing State programs meet Section 6217(b) requirements and are discussed in greater detail in specific source category chapters.

Cumulative and Secondary Impacts Study of the Salt Ponds and Narrow River Watersheds and Revised Special Area Management Plans:
The CRMC is undertaking a three year Special Area Management Plan (SAMP) revision in an effort to technically update the plans and revise their format. The staff at CRMC evaluated both the "Rhode Island's Salt Pond Region: A Special Management Plan" and the "Narrow River Special Area Management Plan" and decided to move to a consistent format for SAMPs, which highlights the CRMC's policies and regulations. Each plan will still contain chapters on land use and water quality, critical habitats and living resources. Revised CRMC regulations, policies, and recommendations for municipal and state actions and future research needs will be contained in each chapter. In addition, more detailed geological processes and storm hazards sections will be incorporated with assistance from the University of Rhode Island.

Foremost to the SAMP update, will be a review of, and any necessary revisions to, the boundary maps contained within the plan. These maps delineate the watershed boundary and relative density of development within the watershed, which drive the CRMC land use regulations contained within the plan. Any changes in mapping will be derived from the "Cumulative and Secondary Impacts Study of the Salt Ponds and Narrow River Watershed" currently being conducted by Virginia Lee and the staff of the Coastal Resources Center under a 309 Project of Special Merit Enhancement Grant. As one of the authors of the original SAMP for the Salt Pond Region, Virginia Lee will provide a good retrospective on the SAMP process and scientific methodology to help minimize the time it will take to make revisions to these plans. This study will conclude in June of 1995 and will provide new groundwater, nutrient-loading, and build-out analysis data that will be the basis for any regulation and boundary revisions that may occur. This study will also

provide new GIS coverages within these watersheds for the State's GIS system, and will be a valuable tool available for users of the system. Currently, preliminary draft maps are being used to discuss policy issues and to get a sense of the existing development status within the areas encompassed by the SAMPs.

In conjunction with the nutrient-loading analysis and groundwater monitoring, zoning recommendations contained within the existing plans will be reviewed. These recommendations are particularly important in light of the Comprehensive Planning and Land Use Regulation Act which requires each municipality to amend their zoning within sixteen months of state approval of the community's comprehensive plan. Data generated through the build-out analysis, nutrient loading analysis, and the groundwater monitoring will be used in an effort to reexamine the effectiveness of zoning undertaken when the SAMPs were initially adopted.

There are finfish and shellfish resources, wetlands and submerged aquatic habitats, and valuable upland habitat for rare and endangered species that are located within these SAMP boundaries and which benefit from a watershed approach to management. Accordingly, the RIDEM Division of Fish, Wildlife, and Estuarine Resources will assist in the update of the "Critical Habitat and Living Resources" chapter, and will add valuable field experience and management recommendations to the existing regulations. The revisions to these sections are in the early stages and should be completed by early 1996.

Greenwich Bay Initiative:
A major priority of the Narragansett Bay Project is the restoration of Greenwich Bay, a large embayment in Warwick and East Greenwich that has been closed to shellfishing since December 1992 due to high fecal coliform levels. (However, shellfish harvesting has been recently allowed on a conditional basis, as determined by rainfall events.) Alarmed by the Bay's problems, DEM and the City of Warwick are teaming together to identify and remediate the bay's various pollution sources. The Bay Project is heading up this task for DEM by coordinating the various programs and entities involved. Section 319 funds are being used to support this initiative. Specific features of the program include a door-to-door survey around Greenwich Bay to identify failed septic systems; exploring the feasibility of innovative on-site waste-water technologies; retrofitting storm drains for water quality improvements; promoting best management practices for erosion control; financial support for tie-ins into an existing sewage treatment facility in an identified problem area; financial support for volunteer monitoring of pre- and post-project water quality; shoreline surveys storm drain stenciling; and technical assistance

in the development of marina operations and maintenance plans for marinas located within Greenwich Bay. In addition to these efforts, the City of Warwick recently passed a $130 million bond referendum, a portion of which will be devoted to supporting sewer tie-ins in areas where septic systems have been determined to be a problem.

Based on the results of this initiative, additional steps necessary to further prevent and mitigate nonpoint source pollution impacts, particularly those related to failed and improperly sited or designed septic systems, may be taken in the Greenwich Bay area. However, the development and implementation of such additional steps, which would meet the requirements of additional management measures, would clearly be premature at this time, especially in light of planned water quality research to determine specific causes of pollution and "hot spots".

System for the Selection of High Priority Watersheds:
As part of *Rhode Island's Nonpoint Source Management Plan* recently revised in accordance with Section 319 requirements, a coordinated approach for the selection of high priority watersheds has been developed. The intent of this selection process is to develop a priority system that can be used by all applicable water quality agencies in a team approach that will combine funds and resources, including those provided under Section 319, for the greatest benefit to the watershed. The system focuses on four types of waterbodies, including estuarine waters, and lays out a framework for the ongoing identification of, and targeting of resources towards, manageable watershed units with identifiable nonpoint source pollution problems or threats. Demonstrable water quality problems, including threats, must exist for a waterbody to be selected as a priority. Also, all priority watersheds must be consistent with the following objective.

Clean up and protect the waters of the State that are most important for:

1. maintaining public health;
2. providing public benefit; and,
3. providing ecological value.

Specific critieria, primarily for threatened and impaired waters, have been developed for the selection of priority watersheds. With regard to estuarine waters, first-tier criteria include public access, recreation (swimming, boating, fishing) commercial habitat, and natural habitat. Second-tier critieria focus on management feasibility and public and financial support.

RIDEM's Nonpoint Source Pollution Management Program will use the selection process to develop a preliminary list of watersheds. A Technical Advisory Committee consisting of applicable DEM Divisions and other agencies and organizations that are involved in watershed management, will further evaluate the preliminary list of priorities and make a recommendation to the Director of the Department of Environmental Management, who will make the final decision. The watershed priority list will be reexamined on an annual basis to evaluate the management process in high priority watersheds and to determine if new watersheds are ready to be selected for management.

The above examples constitute one approach for the establishment of critical coastal areas in Rhode Island and are based on site specific evaluations to determine the extent of the critical coastal area (e.g., the Narrow River watershed). In addition, the CRMC's 200 foot permit jurisdiction also meets the intent of the "critical coastal area" designation as contained in Section 6217(b)(2). Within this area, all development activities are subject to special controls, many of which exceed (g) measure requirements. These controls include erosion and sediment control requirements, setbacks, buffers, and stormwater management.

Based on water quality data and development trends, the CRMC and RIDEM will continue to target efforts towards problem areas. Accordingly, it is the State's position that Rhode Island has identified and currently addresses critical coastal areas with respect to Section 6217(b)(2) requirements.

Development and Implementation of Additional Management Measures: Since the Coastal Nonpoint Pollution Control Program relies on an iterative approach, Rhode Island will implement (g) measures prior to developing additional management measure as required under Section 6217(b). As previously noted, many existing State programs could meet the requirements for additional management measures under Section 6217(b). However, as this is contrary to the spirit and intent of the Coastal Nonpoint Pollution Control Program, Rhode Island will develop additional management measures based on Section 6217 requirements only after (g) measures have been fully implemented, ongoing efforts in targeted watersheds have been completed, and water quality data has been updated and assessed accordingly.

The development and implementation of additional management measures prior to evaluation of the results of existing efforts would be premature and possibly undermine those efforts. Again, it is important to understand that Rhode Island is currently implementing policies and programs which meet the requirements of Section 6217(b) (1), (2) and (3) in areas where water quality

standards are not being met or are threatened, and where land uses, both existing and predicted, threaten water quality impairments.

Selection of Additional Management Measures

Future development of additional management measures will depend upon results of ongoing efforts and (g) measure implementation. Should the need for additional management measures be determined, the State would rely on existing authorities and mechanisms for the development and implementation of those measures. For example, if water quality data or land use trends were to indicate that Onsite Sewage Disposal Systems remained a problem in the Salt Ponds region, the CRMC and RIDEM would jointly develop additional regulatory requirements and incorporate relevant portions of the same into each respective program. This approach has been successfully used in the past, and most recently for the development and implementation of denitrification requirements within specific problem areas of the Salt Pond region.

Strategy and Schedule

Rhode Island will comply with statutory provisions for CNPCP implementation, including the development and implementation of additional management measures. In accordance with current statutory provisions, additional management measures must be implemented by 2004. Regardless of any extensions of existing statutory deadlines, Rhode Island will continue its targeted watershed management efforts. Based on land use and water quality data derived from these efforts, Rhode Island fully expects to develop, implement, and periodically revise regulatory controls that will satisfy the requirements of Section 6217(b).

Chapter 11
Technical Assistance

Section 6217(b)(4) requires states to provide for technical assistance to local governments and the public for implementing additional management measures. Rhode Island has a number of technical assistance programs that will be used to assist municipalities and the general public with implementation of additional management measures. These programs are briefly described below.

Nonpoint Source Pollution Management Program.

Utilizing federal funds under Section 319 of the Clean Water Act, the RI Nonpoint Source Pollution Management Program conducts projects and activities consistent with Rhode Island's Nonpoint Source Pollution Management Plan. The Plan, updated in 1995, includes numerous recommendations relating to technical assistance to municipalities and the general public. These recommendations fall under the following sixteen categories:

- On-Site Sewage Disposal Systems
- Surface Runoff
- Underground Discharges
- Construction Activities
- Agriculture
- Lawn Care and Grounds Management
- Silviculture
- Storage Tanks
- Hazardous Materials
- Road and Bridge Maintenance
- Boating Facilities and Activities
- Surface Mining Activities
- Landfills
- Domestic and Wild Animals
- Land Use Management
- Watershed Management

The types of technical assistance projects and activities recommended in the Plan relate to assistance in developing ordinances and regulations, assistance with site plan reviews, training, development of manuals and guidance materials, public education and outreach, financial incentives, demonstration projects, and technology transfer.

Coastal Resources Management Council

Provides assistance to municipalities in developing Harbor Management Plans and ordinances to address problems including water quality and marine litter.

University of Rhode Island, Cooperative Extension

Through the Rhode Island On-Site Wastewater Training Program, provides training to planners, regulators, engineers, and contractors on the design, installation, operation, and maintenance of alternative OSDS technologies. Conducts training and education programs for state and local personnel, contractors, and others involved with (1) the siting, design, installation, and inspection of stormwater treatment systems; (2) the control of erosion and sedimentation at construction sites; and (3) zoning and land use regulations. Assists land owners and local officials in preventing water quality degradation from residential and agricultural practices. Guides and assists farmers with the development and implementation of integrated farm system plans. Provides various forms of technical assistance and outreach to the agricultural community concerning nonpoint source pollution management, particularly nutrient and pesticide management. Conducts training programs for pesticide applicators. Develops and implements pollution prevention, education, and training programs that provide guidance to homeowners on proper lawn care and gardening practices. Conducts pollution prevention programs that advocate proper storage, use, and disposal of household hazardous materials. Administers volunteer water quality monitoring program.

University of Rhode Island, Coastal Resources Center

Conducts public education/outreach/training programs for marina operators. Promotes and facilitates the use of innovative technologies for conducting boat maintenance operations at marinas. Produces Environmental Guide for Marinas. Provides technical assistance to municipalities to assist them with the incorporation of nonpoint source control measures into municipal Harbor Management Plans. Conducts training programs for local officials that address zoning and land use regulations.

Rhode Island Conservation Districts

Provides broad-based community technical assistance program. Assists municipalities with reviewing the adequacy of stormwater plans and designs and soil erosion and sediment control plans, and conducting site visits for compliance with these plans and applicable ordinances. Assists municipalities with the development and adoption of ordinances governing stormwater, soil erosion, and surface mining operations. Assists municipalities and land owners with the design

and implementation of best management practices and water quality improvement projects. Provides technical reviews of site development proposals for municipalities and post-construction site inspection. Assists sand and gravel operators with site plan and reclamation plan reviews, site surveys, identification of existing and potential problems and recommendation of appropriate best management practices.

Natural Resources Conservation Service

Guides and assists farmers with the development and implementation of integrated farm system plans. Provides various forms of technical assistance and outreach to the agricultural community concerning nonpoint source pollution management. Assists landowners with the implementation of conservation practices that control erosion, reduce runoff, and manage animal wastes. Develops and implements pollution prevention, education, and training programs that provide guidance to homeowners on proper lawn care and gardening practices.

RI Resource Conservation and Development Area Council

Assists communities and non-profit organizations with natural resource management and land use planning issues. Prepares site-specific environmental assessments and management plans for communities and non-profit organizations. Prepares natural resource inventories. Conducts environmental education programs.

RIDEM, Division of Agriculture

Guides and assists farmers with the development and implementation of integrated farm system plans. Provides various forms of technical assistance and outreach to the agricultural community concerning nonpoint source pollution management. Coordinates with municipalities through RIDEM's Wellhead Protection Program on proper management of pesticides and nitrogenous fertilizers. Develops and implements pollution prevention, education, and training programs that provide guidance to homeowners on proper lawn care and gardening practices. Conducts training and certification programs for pesticide applicators. Provides technical and financial assistance to encourage alternatives to traditional pesticide use.

RIDEM, Division of Forest Environment

Advises landowners, woods operators (including loggers, private consultants, etc.), on how to conduct forestry operations in accordance with applicable best management practices (BMPs). The Division intends to publish, distribute, and

conduct training workshops on a BMP Manual for timber harvesting. It also provides technical support/education on urban reforestation, forest conservation and mangement, and marketing and utilization of forest products. Additionally, the Division administers various federal cost-share programs to promote conservation and wise use of our forest resources for a wide variety of purposes.

RIDEM, Division of Water Resources

Provides grants to marina operators and municipalities to help them install pumpout facilities. Educates boaters and pumpout facility operators regarding the use, availability, and importance of pumpout facilities and the prevention of sewage discharges. Through the Aquafund Program, provides grants aimed at preventing and mitigating stormwater runoff problems. Through the Narragansett Bay Project, a wide range of technical assistance and public education/outreach projects are carried out, many involving nonpoint source pollution management issues. The Bay Project also coordinates RIDEM bay-related activities and cooperative projects with local community, government, and watershed organizations.

RIDEM, Pollution Prevention Program

Provides grants to industry for the development and demonstration of waste reduction and recycling technologies. Performs multi-media source reduction assessments for Rhode Island industries, recommends more effective pollution prevention practices, and tracks costs savings and toxic use reductions achieved by industries that implement these practices. Conducts statewide household hazardous waste recycling, collection, and disposal programs.

RIDEM, Ocean State Cleanup and Recycling Program

Develops and implements pollution prevention, education, and training programs that provide guidance to homeowners on proper lawn care and gardening practices.

RIDOA, Division of Planning

Serves as the clearinghouse for innovative land management techniques that protect sensitive environmental resources while accommodating balanced growth. Develops technical handbooks and model ordinances and conducts workshops to make local officials aware of new land use techniques and the "how to's" of implementation. Under the RI Geographic Information System, provides maps of sensitive natural resources in the state.

Consolidated Farm Service Agency

Administers USDS cost-share programs, including some soil and water conservation practices.

Chapter 12
Public Participation

Introduction

This chapter discusses the public involvement and education activities which have both taken place and are planned during the development of the Rhode Island Coastal Nonpoint Pollution Control Program (RICNPCP). This chapter does not discuss public outreach and education activities related to particular management measures or the implementation of the RICNPCP. That discussion is contained in the sections addressing those particular management measures.

Section 6217 of the 1990 Coastal Zone Act Reauthorization Amendments (CZARA) has broad requirements for public participation. It requires states to provide:

> "Opportunities for public participation in all aspects of the program, including the use of public notices and opportunities for comment, nomination procedures, public hearings, technical and financial assistance, public education, and other means (Section 6217 (b)(5))."

Accordingly, public involvement, education, and outreach have been an important component of Rhode Island's efforts to develop the Rhode Island Coastal Nonpoint Pollution Control Program (RICNPCP) satisfy the requirements of Section 6217 of CZARA and *Rhode Island's Nonpoint Source Management Plan (RINSMP)* which satisfies the requirements of Section 319 of the Clean Water Act (CWA). The goals of the public participation efforts pursuant to Section 6217 of CZARA and Section 319 of the CWA are to:

- Provide the public with meaningful opportunities to participate in the decision making process through the review and comment on draft work products related to the development of the RICNPCP and the update of the *RINSMP;*
- Provide education and outreach opportunities to decision makers, members of nongovernmental organizations, and the general public so that they can more effectively participate in the development of the RICNPCP and the update of the *RINSMP;* and,
- Provide education and outreach opportunities to build public and political support for the implementation of the RICNPCP and the update of the *RINSMP.*

The public involvement and outreach activities described in this chapter are intended to achieve these goals and to satisfy the public participation requirements associated with Sections 6217 of the CZARA and 319 of the CWA.

Early Public Participation Efforts

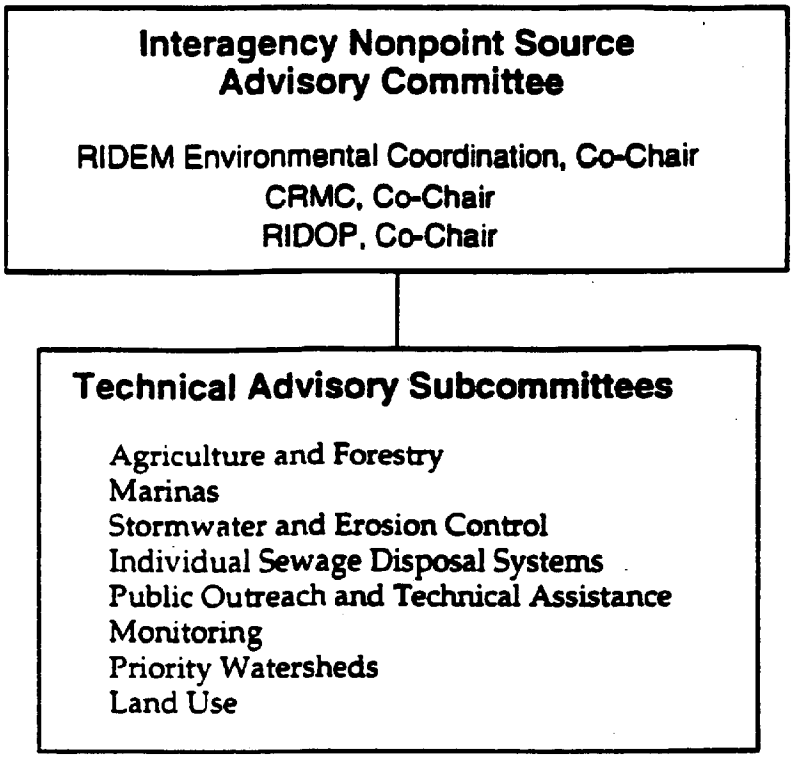
Rhode Island's public participation activities began before the *Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance* (EPA and NOAA 1993) and the *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters* (EPA 1993) were published. In the year leading up to the publication of these guidance documents, the CRMC held numerous informal meetings with the Rhode Island Department of Environmental Management (RIDEM), Office of Environmental Coordination, which implements the *RINSMP* (DEM 1989) (Appendix W), and the Rhode Island Department of Administration, Division of Planning (RIDOP) to discuss issues related to the development of the RICNPCP and the update of the *RINSMP*. The CRMC and the RIDEM, 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), also sponsored a statewide conference on nonpoint source pollution which focused on the requirements of Section 6217 and the development of the RICNPCP.

When the Section 6217 guidance was published in January 1993, the CRMC and the RIDEM created a steering committee which included representatives from the CRMC, RIDEM, RIDOP, SCS, CE, and the 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 RICNPCP and update the *RINSMP*. It was also agreed that strong public involvement, education, and outreach during the development of the RICNPCP was a high priority.

Advisory Committee Structure

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 (Figure 12.1). The INSAC reports to the Coastal Resources Management Council and the State Planning Council and coordinates the efforts of the technical advisory subcommittees. It was determined that the 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 include: the update of the *RINSMP*, draft regulation changes, the Section 6217 Threshold Review Documents, and the RICNPCP submitted to the NOAA and EPA for approval in July 1995.

Figure 12.1 Interagency Nonpoint Source Advisory Committee Structure



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 to assist with the development of the RICNPCP and the update of the *RINSMP*. The subcommittees are organized around particular nonpoint sources and federal requirements for Section 6217 and Section 319. 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 identified 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. Subcommittee membership is open to any interested person or organization. Accordingly, the subcommittee memberships have been expanded to include additional representatives. A current list of represented organizations can be found in this chapter as well as in Appendix 12A. It should be noted that, due to political and other changes

within the State, some individual agency representatives may have changed during the course of this document's development. In cases where more than one agency representative has served on a committee/subcommittee, the most current reprentative is listed. In all cases, we have tried to acknowledge the valuable contributions of the many committee and subcommittee members and regret any errors or omissions.

Interagency Nonpoint Source Advisory Committee

The Interagency Nonpoint Source Advisory Committee was established to coordinate, update and expand Rhode Island's nonpoint source pollution control efforts. The primary objectives of this committee are: 1) to advise in the development of Rhode Island's Coastal Nonpoint Source Pollution Control Program (CNPCP) as required by Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA); 2) to assist in the update of Rhode Island's Nonpoint Source Management Plan (which will then be adopted as an element of the *State Guide Plan*) in accordance with Section 319 of the Clean Water Act; and, 3) to coordinate other nonpoint source pollution control efforts throughout the State with the above objectives. The advisory committee reviews and comments on all work products generated prior to public notice and mediates any disputes or inconsistencies arising at the subcommittee level. The committee will continue to advise on and assist in CNPCP and Nonpoint Source Management Plan implementation as necessary.

Membership

- RIDEM, Office of Environmental Coordination, co-chair
- NOAA
- Soil Conservation Service
- U.S. Fish and Wildlife Service
- RIDEM, Div. of Groundwater and ISDS
- RIDEM, Div. of Agriculture
- RI Dept. of Economic Development
- URI, Coastal Resources Center
- URI, Cooperative Extension
- CRMC, co-chair
- RIDOP, co-chair
- Office of the Governor
- Environmental Protection Agency
- RIDEM, Div. of Water Resources
- RIDEM, Div. of Freshwater Wetlands
- RI Dept. of Transportation
- RI League of Cities and Towns
- RI Dept. of Health

Agriculture and Forestry Technical Advisory Subcommittee

The Agriculture and Forestry Technical Advisory Subcommittee was established to:

- Provide and review data relevant to nonpoint source pollution from agricultural and forestry activities and advise the CRMC, RIDEM and RIDOP on the need to address management measures and how to implement them if necessary;
- Review proposed -- and recommend new or revised -- goals and objectives for incorporation into RI's Nonpoint Source Plan (Section 319);
- Review proposed -- and recommend new or revised -- additional management measures, policies, regulations, statutes, programs and/or recommendations necessary to: (1) comply with Section 6217 requirements; (2) meet the goals and objectives set forth in RI's Nonpoint Source Plan; or (3) address water quality problems;
- Identify opportunities for enhanced coordination among all organizations associated with nonpoint source pollution on agricultural and forested lands;
- Make recommendations pertaining to a four-year Nonpoint Source Management Plan;
- Identify and target relevant funding sources for nonpoint source pollution control projects;
- Identify technical assistance and public outreach needs; and,
- Determine if it is best to form two subcommittees.

Membership

- RIDEM, Division of Forest Environment, Co-Chair
- RIDEM Division of Freshwater Wetlands
- CRMC
- Soil Conservation Service
- ASCS
- RI Turf Growers Association
- State Conservation Committee
- RIDEM, Division of Fish, Wildlife, and Estuarine Resources
- RI Nurserymen's Association
- Southside Community Land Trust
- RIDEM, Division of Agriculture, Co-Chair
- RIDEM, Office of Environmental Coordination
- Office of the Governor
- Cooperative Extension
- RI Farm Bureau Federation
- RI Dairy Farmers Group
- RI Agriculture Council
- RI Group for Alternatives to Spraying Pesticides
- Urban Forestry Council
- Conservation Districts

Ma Technical Advisory Subcommittee

The Mari nical Advisory Subcommittee was established to:

- Advise the RIDEM and RIDOP on how to best implement manageme ures (relating to marinas and recreational boating) nc mented through enforceable state policies;
- Review pr and recommend new or revised -- goals and objectives f poration into RI's Nonpoint Source Plan.
- Review pr -- and recommend new or revised -- additior manageme: ures, policies, regulations, statutes, program and/or rec ations (relating to marinas and recreationa boating) ne to: (1) comply with Section 6217 requirements; (2) meet the nd objectives set forth in RI's Nonpoint Source Plan; and (3 ess existing water quality problems.
- Identify op ties for enhanced coordination am all organizatio ciated with nonpoint source pollu: ro: marinas anc tional boating;
- Make recom ations on portions of a four-year N oin Source Man nt Plan;
- Identify and relevant funding sources for nonp po ation control proje d,
- Identify rele chnical assistance and public outre n needs.

Membership

- CRMC, Co-Chair
- Coastal Resources r, Co-Chair
- RI Marine Trades ation
- Narragansett Bay
- Save the Bay
- Marina Operators
- RI Shellfishermen's Association
- State Conservation Committee
- Conservation Districts
- RIDEM, Div. of Wate esources, Co-Chair
- RIDEM, Office of Envir nmental Coordination
- Environmental Protection Agency
- Office of the Governor
- International Marina Institute
- RI Mobile Sportsfishermen

Storm Water and Erosion Control Technical Advisory Subcommittee

The Storm Water and Erosion Control Technical Advisory Subcommittee was established to:

- Advise the CRMC, RIDEM and RIDOP on how to best implement management measures (relating to storm water and erosion control) not implemented through enforceable state policies;
- Review proposed -- and recommend new or revised -- goals and objectives for incorporation into RI's Nonpoint Source Plan;
- Review proposed -- and recommend new or revised -- additional management measures, policies, regulations, statutes, programs and/or recommendations (relating to storm water and erosion control) necessary to: (1) comply with Section 6217 requirements; (2) meet the goals and objectives set forth in RI's Nonpoint Source Plan; and (3) address existing water quality problems;
- Identify opportunities for enhanced coordination among all organizations involved in the control of (non-agricultural) nonpoint source pollution associated with storm water and erosion;
- Make recommendations on portions of a four-year Nonpoint Source Management Plan;
- Identify and target relevant funding sources for nonpoint pollution control projects; and,
- Identify relevant technical assistance and public outreach needs.

Membership

- RIDEM, Div. of Water Resources, Chair
- RIDEM, Div. of Freshwater Wetlands
- RIDEM Division of Groundwater and ISDS
- Soil Conservation Service
- Cooperative Extension
- RI League of Cities and Towns
- RI Association of Realtors
- RI Society of Professional Engineers
- Office of the Governor
- Save the Bay
- American Planning Association
- RIDEM, Office of Environmental Coordination
- CRMC
- RIDOP
- RIDOT
- Conservation Districts
- Office of Lieutenant Governor
- Coastal Resources Center
- State Conservation Committee
- RI Builders Association
- American Society of Landscape Architects
- Soil and Water Conservation Society of America, SNEC

ISDS Technical Advisory Subcommittee

The ISDS Technical Advisory Subcommittee was established to:

- Advise the CRMC, RIDEM and RIDOP on how to best implement management measures (relating to ISDS) not implemented through enforceable state policies;
- Review proposed -- and recommend new or revised -- goals and objectives for incorporation into RI's Nonpoint Source Plan;
- Review proposed -- and recommend new or revised -- additional management measures, policies, regulations, statutes, programs and/or recommendations (relating to ISDS) necessary to: (1) comply with §6217 requirements; (2) meet the goals and objectives set forth in RI's Nonpoint Source Plan; and (3) address existing water quality problems;
- Identify opportunities for enhanced coordination among all organizations involved in addressing nonpoint source pollution associated with ISDSs;
- Make recommendations on portions of a four-year Nonpoint Source Management Plan;
- Identify and target relevant funding sources for nonpoint pollution control projects; and,
- Identify relevant technical assistance and public outreach needs.

Membership

- CRMC, Co-Chair
- Town Planners
- RIDEM, Office of Environmental Coordination
- RIDEM Division of Freshwater Wetlands
- Cooperative Extension
- Audubon Society of RI
- State Conservation Committee
- Brown University Center for Environmental Studies
- RI Association of Realtors
- American Planning Association
- RIDEM, Division of Groundwater and ISDS, Co-Chair
- Office of the Governor
- Environmental Protection Agency
- Coastal Resources Center
- Save the Bay
- Salt Ponds Coalition
- League of Cities and Towns
- Conservation Districts
- Building Code Commissioner
- RI Independent Contractors
- RI Builders Association

Public Outreach and Technical Assistance Subcommittee

The Public Outreach and Technical Assistance Subcommittee was established to:

- Coordinate the distribution of existing nonpoint source outreach and technical assistance materials;
- Review and comment on all public outreach and technical assistance materials developed pursuant to Section 319 and Section 6217;
- Advise on how to best reach target audiences
- Review and comment on the public outreach and technical assistance elements of the Section 6217 CNPCP and the Section 319 Nonpoint Source Management Plan; and,
- Develop a strategy which recommends a mechanism to coordinate ongoing and future public outreach and technical assistance efforts related to nonpoint source pollution control issues and identifies a permanent clearinghouse(s) for nonpoint source public materials.

Membership

- CRMC, Co-Chair
- Save the Bay
- Cooperative Extension
- RIDEM, Division of Water Resources
- RIDOP
- Office of the Governor
- RI Marine Trades Association
- League of Cities and Towns
- American Planning Association
- RI Association of Realtors
- Clean Water Action
- Narragansett Bay NERR
- Alton Jones Environmental Education Center
- Interfaith Ecology Coalition
- RIDEM, Office of Environmental Coordination, Co-Chair
- Coastal Resources Center
- Conservation Districts
- RIDEM, Narragansett Bay Project
- Soil Conservation Service
- RI Sea Grant
- RI Department of Transportation
- The Salt Ponds Coalition
- RI State Conservation Committee
- Audubon Society of RI
- Garden Club
- Brown University Center for Environmental Studies

Monitoring Technical Advisory Subcommittee

The Monitoring Technical Advisory Subcommittee was established to:

- Identify and coordinate existing monitoring programs;
- Recommend ways to improve the utilization of volunteer water quality monitoring program's data;
- Identify additional monitoring needs to satisfy the Section 6217 and Section 319 requirements; and,
- Prioritize monitoring needs.

Membership

- RIDEM, Div. of Water Resources, Chair
- RIDEM, Fish and Wildlife
- CRMC
- USGS
- Pond Watchers
- RI Department of Transportation
- EPA, Narragansett Lab
- Citizens Bank (River Rescue)
- Watershed Watch
- State Conservation Committee
- Conservation Districts
- RIDEM, Office of Environmental Coordination
- RIDEM, Narragansett Bay Project
- Office of the Governor
- Cooperative Extension
- Coastal Resources Center
- RI Department of Health
- Save the Bay
- Wood/Pawcatuck Watershed Association
- Clean Water Action

Priority Watersheds Technical Advisory Subcommittee

The Priority Watersheds Technical Advisory Subcommittee was established to:

- Recommend revisions to the existing nonpoint source watershed prioritization criteria to reconcile differences between other priority lists (i.e., §319, §303(d), Rivers Council, CRMC, USDA, Sole Source Aquifers, Narragansett Bay Project Critical Areas, Greenspace 2000, Outstanding Natural Resource Waters, and National Estuarine Research Reserves).

Membership

- RIDEM, Office of Environmental Coordination, Chair
- RIDEM, Div. of Water Resources
- CRMC
- RI Department of Health
- Rhode Island Rivers Council
- Coastal Resources Center
- RI League of Cities and Towns
- American Planning Association
- Blackstone River Watershed Association
- Conservation Districts
- Citizens Bank/River Rescue
- Clean Water Action
- RIDEM, Div. of Groundwater and ISDS
- RIDEM, Narragansett Bay Project
- RIDOP
- Office of the Governor
- Soil Conservation Service
- Cooperative Extension
- Narragansett Bay Commission
- Save the Bay
- Wood/Pawcatuck Watershed Association
- State Conservation Committee
- Audubon Society of RI

Land Use Technical Advisory Subcommittee

The Land Use Technical Advisory Subcommittee was established to:

- Recommend specific land use policies and management measures for incorporation into the *State Guide Plan* and municipal ordinances (i.e., setbacks, zoning in sensitive areas, etc.); and,
- Identify technical assistance and public outreach needs of municipalities and landowners.

Members:

- RIDOP, Chair
- RIDEM, Office of Environmental Coordination
- RIDEM, Division of Freshwater Wetlands
- Office of the Governor
- RI Dept. of Health
- Cooperative Extension
- URI, Dept. of Community Planning
- American Planning Association
- RI Builders Association
- State Conservation Committee
- Conservation Districts
- RI Bar Association
- Nature Conservancy
- Audubon Society of RI
- CRMC
- RIDEM, Narragansett Bay Project
- RIDEM Division of Agriculture
- RI Dept. of Economic Development
- RI Dept. of Transportation
- Office of Lieutenant Governor
- RI League of Cities and Towns
- Coastal Resources Center
- URI, Dept. of Natural Resources
- Landscape Architects
- RI Association of Realtors
- RI Federation of Chambers of Commerce
- RI League of Women Voters
- RI Farm Bureau Federation

The role of each subcommittee is to provide technical assistance and guidance to the CRMC, RIDEM and the RIDOP during the development of the RICNPCP. 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 appropriate subcommittees reviewed and advised on relevant sections of the RICNPCP and the *Nonpoint Source State Guide Plan Element* as they were developed. Each technical advisory subcommittee also will identify public outreach and education needs as they become evident for the Public Outreach and Education Subcommittee. At this point in time, no clearly identified public outreach and technical assistance needs have been forwarded to the Public Outreach and Education Subcommittee.

Each subcommittee addresses the relevant management issues, comments on draft work products, and makes recommendations to the RIDEM, CRMC, and RIDOP. In developing the CNPCP, the Agriculture and Forestry, Stormwater and Erosion and Sediment Control, Marinas, ISDS, and Public Outreach Subcommittees have each met numerous times to review drafts (Appendix 12B).

Additional Public Involvement Activities

Although the INSAC advisory committee structure was the primary means of ensuring public involvement in the development of draft work products (e.g., the threshold review document, draft regulation changes, etc.), the CRMC and RIDEM Office of Environmental Coordination have initiated other public involvement activities as well. These activities have included various meetings with other state regulatory agencies, local officials, interest groups and nongovernmental organizations on various issues related to nonpoint source management including the development of Rhode Island's CNPCP (Appendix 12B). In short, the CRMC and RIDEM made an effort to take advantage of every opportunity to inform the public about nonpoint source pollution generally, and Section 6217 and its related requirements, specifically.

In order to ensure public involvement in the development of the RICNPCP and the *Nonpoint Source State Guide Plan Element* , the CRMC, the RIDEM, and the RIDOP:

- Continued to utilize the advisory committee structure to obtain public involvement in the development of work products related to Section 6217
- Met with other federal, state, and local agencies as well as interest groups and other nongovernmental organizations to discuss issues related to Section 6217

The RIDEM and CRMC will also provide adequate opportunity for public review and comment prior to final CNPCP submittal to NOAA and EPA.

Following submittal, a number of additional public involvement activities are planned. These activities include:

- One or more public hearings on the update of the *RINSMP*
- Public hearings and adequate opportunity for public comment on all regulation changes developed to implement Section 6217 requirements

These public involvement activities ensure that the public participation requirements contained in Section 6217 (b)(5) have been satisfied during the development of the RICNPCP as well as the update of the *RINSMP*, and that the public will continue to have adequate opportunities to participate in the further development and implementation of the RICNPCP.

Public Outreach and Education Activities

In addition to the public involvement activities described above, the CRMC, RIDEM, and RIDOP have undertaken numerous public education and outreach efforts designed to educate the public and decision makers about the requirements of Section 6217 and the issues associated with the development of the RICNPCP and the *Nonpoint Source State Guide Plan Element*. The following is a brief description of some of the many outreach and education activities that have taken place, are ongoing or are planned in the State. It is important to note, however, that this is not an exhaustive list, but rather some examples of the State's efforts to inform the public of nonpoint source pollution issues.

CRMC outreach and education efforts

One of the CRMC's first accomplishments was the development of a special issue of the *Coastal Features* newsletter which focused exclusively on Section 6217 (CRMC 1993) (Appendix U). This special issue was followed-up a year later, in the Spring of 1994, with another special issue on Rhode Island's progress in the development of itsCNPCP. Further, virtually every issue of this quarterly newsletter has contained information on Section 6217 and nonpoint source issues since the publication of the (g) Guidance. Another outreach and education product developed by the CRMC that has been particularly popular with students has been a "Pollution Is Pointless" poster which specifically focuses on nonpoint source issues in Rhode Island. This poster has been

distributed at several schools where CRMC staff made presentations to students on nonpoint source pollution. The CRMC has also distributed over 1,000 copies of the Section 6217 fact sheets and brochures developed by NOAA and EPA (Appendix V). Many of these outreach materials were distributed at special events such as the annual Rhode Island Boat Show, while others were distributed at numerous presentations given to interest groups, the general public, and schools (Appendix 12B). To enhance these presentations, the CRMC developed a slide presentation which outlines the Section 6217 requirements.

RIDEM outreach and education efforts

The RIDEM continues to support and conduct outreach and education on nonpoint source management issues. Since the publication of the (g) Guidance, the RIDEM has developed the *Rhode Island Community Nonpoint Source Pollution Management Guide* to assist local officials in making informed decisions about the quality of proposed developments and potential nonpoint pollution problems. The Guide was distributed at a workshop on state regulatory programs for local officials. RIDEM also supported, through Section 319 funds, the development and distribution of *The Environmental Guide for Marinas: Conntrolling Nonpoint Source and Storm Water Pollution in Rhode Island* by the University of Rhode Island's Coastal Resources Center and *The Community Wastewater Management Guidance Manual* by the University of Rhode Island's Department of Environmental and Civil Engineering.

The RIDEM, in cooperation with Save The Bay, developed and continues to distribute a pumpout facilities chart for Narragansett Bay boaters. The RIDEM has also supported outreach efforts associated with the Greenwich Bay Initiative (see Chapter 10) and has partially funded a municipal resource protection coordinator.

The RIDEM also implements several ongoing programs which have significant public outreach components including the Ocean State Cleanup and Recycling (OSCAR) Program and the Pollution Prevention Program. In addition, thr RIDEM has provided funds and/or staff to assist in numerous other efforts in the State including outreach workshops sponsored by the Marina Assistance Collaborative (a consortium of representatives from regulatory programs, academia and private industry with a common interest in marina issues) and the develpment of educational materials for and the implementation of a Waste Water Management District in Charlestown.

Nongovernmental outreach and education efforts

Numerous nongovernmental efforts have been and continue to be extremely effective in providing outreach and education on nonpoint source pollution issues. While a listing of these programs is currently unavailable, the following provides a sampling of the types of efforts currently being undertaken by some of Rhode Island's nongovernmental organizations and environmental groups.

Save The Bay continues to conduct a highly visible campaign to ensure the protection of Rhode Island's coastal waters with recent efforts including: support and distribution of

Narragansett Bay pumpout facilities charts; development of a slide show on nonpoint source pollution and Greenwich Bay for city and community groups; publication of "Community Report Cards" on nonpoint source pollution management and prevention; sponsorship of the Explore the Bay Shoreline Classroom program; and, stormdrain stenciling. Additional outreach and education activities and programs are planned.

The University of Rhode Island also continues to promote nonpoint source pollution outreach and education efforts through a number of departments. These departments include Cooperative Extension, the Department of Environmental and Civil Engineering, and Rhode Island Sea Grant/ Coastal Resources Center. Among the many ongoing Cooperative Extension outreach and education efforts are: the development and distribution of fact sheets; the Wellhead Protection Program; the Watershed Watch program; and municipal training programs. Cooperative Extension also sponsors numerous educational workshops related to nonpoint source pollution issues on a regular basis. The Coastal Resources Center supports a number of outreach and education programs related to nonpoint source management including: the Marina Assistance Collaborative; the development of guidance documents such as the *Environmental Guide for Marinas;* and, municipal training programs.

In additon to the many individual efforts, several cooperative efforts with significant outreach and education components are currently taking place in the State. Notable among these efforts is the Onsite Wastewater Management Training Program which is a cooperative effort involving the RIDEM, CRMC, EPA, Cooperative Extension, and the URI Department of Civil and Environmental Engineering. A second cooperative effort is the Greenwich Bay initiative which is described in some detail in Chapter 10 of this document.

Conclusion

Future public education and outreach activities based on the identification of specific outreach and education needs should ensure that the CRMC, RIDEM, and RIDOP continue to satisfy the public participation requirements contained in Section 6217 (b)(5). These activities should also help to educate decision makers and advisory committee members about issues related to Section 6217 and help create public and political support for the RICNPCP and the *Nonpoint Source State Guide Plan Element*.

Public participation in the development of the Rhode Island Coastal Nonpoint Pollution Control Program has been and will remain a high priority of the CRMC, RIDEM, and RIDOP. It should be clear that the public involvement and education activities discussed in this chapter illustrate that Rhode Island has provided sufficient opportunities to date for public participation in the development of the RICNPCP in accordance with Section 6217 (b)(5) and will continue to provide for such activities during program implementation.

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Appendix 12A

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Appendix 12B

Meetings Related to Section 6217

Date	Meetings	Description	Attendance
2/1/93	Steering Committee on interagency conference	Scheduled NPS pollution interagency conference for March	Representatives from DEM, CRMC, SCS, CRC
2/3/93	Wood Pawcatuck Hydrologic Unit Area Meeting	Update on Wood/ Pawcatuck HUA activities, work plan	Representatives from URI, SCS, ASCS, DEM, and CRMC
2/3/93	Nonpoint Source Pollution Forum	At URI Bay Campus, planning and strategy session for outreach programs. ISDS Maintenance presentation	Representatives from URI, SCS, Pond Watchers, CRMC
2/9/93	Management between DEM & CRMC re: 6217	Strategy session for 6217 program development	Representatives from DEM, CRMC
3/3/93	Interagency Workshop	Organizational meeting for Interagency workshop on NPS	Representatives from SCS, DEM, CRMC
3/24/93	Interagency Workshop	Organizational meeting for Interagency workshop on NPS	Representatives of DEM CRMC
4/7/93	CRMC / DEM ISDS Denitrification Task Force	Discussed ISDS issues	CRMC Policy & Permitting Staffs
4/8/93	CRMC / RIDEM Workgroup	Organized April 23 interagency coordination agreement	Representatives from DEM, CRMC, SCS
4/19/93	NPS Committee organizing meeting	Organized NPS sub committees	Representatives from SCS in Warwick. CRMC, DEM, SCS, and Cooperative Extension URI
4/23/93	Interagency staff meeting on NPS	Concerned 6217 / 319 8 presentations	SCS, NOAA, EPA, RIDEM, CRMC, URI 65-70 people

Date	Meetings	Description	Attendance
5/3/93	Agriculture meeting	Informal meeting DEM Div. of Agriculture, discussed DEM's agriculture programs and data sources	Representatives from DEM CRMC
5/4/93	USDA Narragansett Bay Initiative	Discussed public outreach efforts related to the Narragansett Bay Plan, NPS pollution, and the USDA/SCS program.	Representatives from SCS, CE, ASCS, CRMC
5/5/93	CRMC / DEM ISDS Denitrification Task Force	George Loomis gave presentation on denitrification from a soil science perspective	Several RIDEM and CRMC staff attended
5/6-7/93	National Cumulative Impacts Conference at URI Bay Campus	Issues included wetlands and Nonpoint source	35-40 organizations, researchers, and agencies attended CRMC was represented
5/10/93	Narragansett Bay Project Executive Committee	Possible CRMC work tasks funded by the NBP these tasks would compliment 6217	CRMC Grover Fugate & Mark Imperial
5/8/93	Proposal to NBP	Informal meeting to discuss CRMC's proposal to integrate work tasks with 6217	CRMC & Narragansett Bay Project
5/24-27/93	New England Interstate Water Pollution Control Commission	Annual NPS Conference in Cromwell CT. 6217/319 regional meeting	CRMC sent representatives
6/2/93	6217 workgroup at SCS	Organized advisory committee structure and discussed mission and responsibilities of advisory committees.	Representatives from CRMC, DEM, RIDOP, SCS, Cooperative Extension URI, CRC
6/2/93	Stormwater Management Meeting	Discussed Stormwater regulations and 6217	Representatives from CRMC DEM all divisions dealing with stormwater

Date	Meeting	Description	Attendance
6/3/93	6217 Technical Assistance	Discussed technical assistance as it applies to 6217	Representatives from CE CRMC
6/9/93	CRMC / DEM ISDS Denitrification Task Force at DEM	Presentation on Composting Systems General Discussion	Representatives from CRMC & DEM
6/14/93	NPS workgroup	Discussed creating and function of Advisory Committees.	Representatives from SCS, CE, CRC, CRMC, DEM, RIDOP.
6/16/93	Program Development Meeting	Discussed Nonpoint Source / 6217 program with CRC	Virginia Lee CRC Mark Imperial CRMC
6/22/93	Stormwater Management	Discussed state Stormwater Management Manual and RIPDES	Representatives from DEM Div. of Freshwater Wetlands, CRMC
6/29/93	Dept. of Transportation Stormwater Meeting	DOT's comments and how their agency could be incorporated into the Stormwater manual	Representatives from DOT CRMC
6/29/93	Stormwater/Erosion Management	Discussed creating a joint stormwater / erosion management slideshow	Lauraine Joubert, URI Eric Offenberg Mark Imperial CRMC
7/2/93	Buffer Meeting	Coastal Resources Center presentation of their buffer project	Representatives from CRC CRMC
7/6/93	RI Dept. of Transportation	Comments on stormwater manual	Representatives from CRMC RIDOT
7/8/93	Stormwater & Erosion Control Review	Meeting w/ RIPDES general permit section of RIDEM, discussed coordination of stormwater and erosion / sediment control reviews	Representatives from CRMC DEM general permit staff

Date	Meetings	Description	Attendance
7/15/93	Non governmental organizations meeting	Meeting with the Environmental Council and Save The Bay ,discussed their role in 6217 advisory committees	Representatives from CRMC Save The Bay Environmental Council
7/28/93	NPS Advisory Committee	Formalized Advisory Committee structure	Various representatives from federal and state agencies
8/25/93	6217 Progress Meeting	Misc. topics	Representatives from DEM CRMC
9/1/93	6217 Progress Meeting	Misc. topics	Representatives from DEM CRMC
9/7/93	6217 Progress Meeting	Misc. topics	Representatives from DEM CRMC
9/13/93	Pre Interagency NPS Advisory Committee Meeting	Discussed scheduled INSAC meeting for 9/14	CRMC DEM RIDOP
9/14/93	Interagency Nonpoint Source Advisory Committee	First Meeting	Various federal and state agencies
9/29/93	Marina Demonstration Tour	Meeting held in Warwick	Various federal, state, local officials and non governmental representatives
9/30/93	Progress Meeting CRMC & CRC	Discussed Marinas and 6217	Representatives : CRC, Mark Amaral CRMC, Laura Miguel
10/7/93	RIPDES Workshop	Discussed Rhode Islands Pollution Discharge Elimination System	Held at SCS in Warwick various agencies attended
10/20/93	Nonpoint Source Meeting	6217 Coordination Meeting	Representatives from EPA, NOAA, RIDEM, CRMC

Date	Meetings	Description	Attendance
11/8/93	6217 Conference Call	Discussed 6217 with other New England States	New England State NPS Coordinators
11/23/93	6217 Forestry Coordination	Discussed Forestry Management Measures	Representatives from RIDEM Div. of Forestry CRMC
11/24/93	CRMC / DEM ISDS Task Force	Discussed ISDS issues	At CRMC DEM
11/29/93	Alton Jones RI Coastal Resources Management Council & Staff Retreat	30 minute discussion of 6217 to council members and staff	CRMC: council, permitting and policy staff.
12/10/93	6217 Forestry Coordination Meeting	Discussed Forestry Management Measures	Representatives from DEM Div. of Forestry CRMC
12/14/93	6217 Forestry Coordination Meeting	Discussed Forestry Management Measures	Representatives from DEM, CRMC
12/14/93	General Coordination Meeting	Discussed state guide plan, comp plans and enforceable policies	Representatives from DEM CRMC
1/20/94	General Coordination Meeting	Discussed coordination of subcommittees and threshold review process.	Representatives from DEM CRMC
1/26/94	GIS Meeting	Met with RIGIS to discuss equipment needs and coordination	Representatives from CRMC RIGIS
1/27/94	General Coordination Meeting	Discussed coordination of subcommittees and threshold review process	Representatives from DEM CRMC
1/28/94	6217 Agriculture Meeting	Discussed Agriculture management measures	Representatives from DEM Div. of Agriculture SCS and CRMC
1/31/94	Conference on protecting New England's coastal resources	Purpose was to frame new model for the conservation and management of New England's threatened resources	DEM Nonpoint Management Staff

Date	Meetings	Description	Attendance
2/1/94	Quarterly NPS DEM Division Chiefs Meeting	Discuss strategy for compliance with Section 6217	DEM Division Chiefs and NPS Staff
2/2/94	6217 Forestry Meeting	Meeting of DEM Division of Forest Environment and DEM NPS Staff to coordinate Forestry exclusion starategy	DEM Division of Forest Environment and NPS Staff
2/2/94	6217 Conference Call	Coordinate on Threshold Review and CNPCP Meetings	Representatives from DEM, CRMC, NOAA and EPA
2/4/94	6217 Agriculture Meeting	Meeting to coordinate agriculture exclusion	DEM NPS Staff, DEM Division of Agriculture, SCS, RI Farm Bureau
2/10/94	CRMC / DEM ISDS Denitrification Task Force	Discussed 6217 ISDS requirements	Representatives from CRMC DEM
2/14/94	6217 Conference Call	Interagency Coordination	Representatives from DEM CRMC
2/14/94	Wetlands Threshold Review Coordination	DEM In-house coordination for wetlands section of threshold review	DEM Division of Freshwater Wetlands, NPS Staff
2/16/94	Pumpout Plan Meeting	Discussed comments about RI's pumpout plan	Representatives from CRMC Narragansett Bay Project
2/16/94	ISDS Subcommittee Meeting	Discussed ISDS requirements	Representatives from DEM CRMC & Various committee members
2/24/94	Public Outreach Subcommittee Meeting	Discussed 6217 Public outreach requirements	Various committee members
2/24/94	Marina Subcommittee Meeting	Discussed Marina Management Measures	Various committee members
3/1/94	New England Regional Coastal Program Managers Conference	Discussed various coastal management issues including 6217	In Boston MA.
3/2/94	Agriculture and Forestry Subcommittee Meetings	6217 requirements and existing state policies	Various committee members

Date	Meetings	Description	Attendance
3/14/94	Urban Subcommittee Meeting	Discussed 6217 Urban management measures	Various committee members
3/17/94	305(b) Update	DEM In-house update on status of 305(b) report and its impact on coastal issues	DEM, Division of Water Resources, NPS Staff
3/17/94	CRMC / DEM Water Quality Work Group	Discussed water quality issues dealing with NPS	Representatives from CRMC DEM Div. of Water Quality
3/17/94	Narragansett Bay Project Public Outreach Meeting	Discussed Newsletter for locals	Various staff of DEM and CRMC
3/23-25/94	Office of Ocean and Coastal Resources Management (OCRM) Program Managers Meeting	Discussed 6217 and state progress	Washington DC. CRMC Represented
3/28/94	6217 Workshop	Workshop on program changes to the RI Coastal Resources Management Plan by 6217	At URI Alton Jones Campus, CRMC staff, council members and legal council attended
3/30/94	Marinas Subcommittee	Discussed proposed CRMC regulation changes	Various committee members
4/1/94	Outreach Subcommittee Meeting	Discussed 6217 Outreach requirements	Various committee members
4/6/94	ISDS Subcommittee	Discussed how RI Addresses the management measures	Various committee members
4/8/94	Coordination meeting with Narragansett Bay NERR	Discussed various issues including Section 6217	CRMC staff and Alan Beck from the NERR
4/10-12/94	Ocean Governance Meeting in Lewes, DE	One of issues discussed was Section 6217	About a 100 people
4/11/94	Public Outreach Subcommittee	Discussed the substance of the public participation section of the threshold review and future activities	Various committee members
4/19/94	CRMC/RIDEM Water Quality Workgroup	Discussed issues related to Stormwater management	Various CRMC and RIDEM staff present

Date	Meetings	Description	Attendance
4/26/94	CRMC/RIDEM Denitrification Workgroup	Discussed ISDS issues and threshold review	Various RIDEM and CRMC staff present
5/4/94	ISDS Subcommittee	Continue discussion of the management measures and the threshold review	Various committee members
5/9/94	Interagency meeting on threshold review and update of 319 plan	Meeting to discuss framework for agriculture exclusion	DEM NPS Staff, DEM Division of Agriculture, SCS
5/10/94	Marina Subcommittee	Reviewed final draft of proposed regulation changes and response to comments; discussed BMP manual; and, discussed coordination with RIPDES general permit program	Various committee members
5/12/94	Agriculture Subcommittee	Reviewed the proposed chapter of the threshold review document	Various committee members
5/16/94	Public Outreach Subcommittee	Discussed the proposed public participation chapter of the threshold review	Various committee members
5/24 - 26/94	NEIWPCA Annual Nonpoint Pollution Control Conference	Discussed Section 6217 in a special session	Mark Imperial
6/2/94	ISDS Subcommittee	Discussed final comments on the ISDS sections of the threshold review	Various committee members
6/2/94	CRMC and RIDEM Nonpoint Staff	Discussed Deadlines for finishing Threshold Review Sections	Scott Millar, Jim Riorden, Mark Imperial, and Laura Miguel
6/16/94	Threshold review coordination meeting	Coordination and development of threshold review document	NOAA, DEM NPS Staff, DEM Division of Water Resources

Date	Meetings	Description	Attendance
6/22/94	CRMC/RIDEM Denitrification Workgroup	Discussed enforcement of old program changes and Green Hill Pond closure	Various workgroup members
6/29/94	Urban Subcommittee	Discussed CRMC's proposed program changes and the threshold review	Various committee members
6/30/94	ISDS Subcommittee	Meeting to discuss, coordinate and review OSDS management measures and comments	Various subcommittee members
7/1/94	CRMC/RIDEM Water Quality Workgroup	Discussed issues related to improved coordination and RIDEM's comments on CRMC's draft marina regulations	Various workgroup members
7/13/94	Urban Subcommittee	Discussed Urban Section of the Threshold Review	Various Subcommittee Members
7/14/94	INSAC Committee	Discussed Threshold Review Materials	Various Committee Members
7/20/94	DEM In-house 6217 Meeting	Threshold review document review and comment	Various DEM Divisions and DEM NPS Staff
8/24-25/94	Threshold Review Meeting	Meeting with representatives of EPA and NOAA to discuss development of RI's CNPCP	Reprentatives from NOAA, EPA, CRMC, DEM, DOP and various state agencies.
9/7/94	CRMC/DEM Water Quality Workgroup	Discussed issues related to improved coordination and draft regulations/policies	Various workgroup members
9/19 9/22/94	Coastal Nonpoint Source Conference, Port Deposit, MD	Conference for state and federal representatives involved in the developmnent of Section 6217 programs	Representatives from state coastal zone and water quality agencies, EPA and NOAA
9/15/94	Narragansett Bay NPS Management Committee	Discussed and coordinated USDA, Cooperative Extension and other agency nonpoint source management initiatives/programs	Representatives from MA and RI Cooperative Extension, NRSC, CZMA, and others

Date	Meetings	Description	Attendance
10/18/94	Water Quality Regulations Meeting	Discussed CRMC concerns regarding proposed water quality regulations for the State	Representatives from CRMC and RIDEM, Division of Water Resources
11/3/94	CRMC/DEM Water Quality Workgroup	Discussed issues related to improved coordination and draft regulations/policies	Various workgroup members
11/17/94	Storm Water Workshop	Meeting for representatives from public and private interests to explain State stormwater management requirements and latest techniques in effective stormwater control	Various private and regulatory individuals
11/18/94	Water Quality Regulations Meeting	Discussed CRMC concerns regarding proposed water quality regulations for the State	Representatives from CRMC and RIDEM, Division of Water Resources
12/9/94	Narragansett Bay Project Conference	Daylong workshop to discuss ongoing efforts and improve ccordination throughout the State	Bay project , URI, CRMC, DEM, and various interest groups
1/3/95	Charlestown WWMD Commission Meeting	Continued developing WWM program for the town	CRMC and DEM representatives, town officials
1/10/95	RIOWTP Steering Committee	Discuss spring training program for alternative and innovative ISDS techniques	CRMC, DEM, NRCS, and private industry
1/12/95	Planning Meeting for 6217 Workshop	Discuss possible workshop topics that would result in better understanding, coordination and implementation of 6217 requirements	DEM and CRMC representatives
1/23/95	State Conservation Committee	Discuss conservation and regulatory issues	NRCS, Conservation Districts, regulatory agencies (DEM & CRMC), RIDOT, DOP

Date	Meetings	Description	Attendance
1/24/95	6217 Planning	Discuss strategies for responding to NOAA/EPA comments on Threshold Review and developing final CNPCP	CRMC & DEM
1/24/95	INSAC Meeting	INSAC members reviewed portions of draft RI Nonpoint Source Management Plan	Various Committee Members
1/31/95	RIOWTP Technical Review Committee Meeting	Review proposed new DEM regulations for innovative and alternative wastewater disposal techniques	CRMC, DEM, NRCS, URI and private industry
2/1/95	Land Use Subcommittee Meeting	Reviewed draft sections of RI Nonpoint Source Managment Plan	Various Subcommittee Members
2/2/95	Charlestown WWMD Commission Meeting	Continued planning development and implementation of WWM program	CRMC and DEM representatives, town officials
2/2/95	Marina Certification Program Meeting	Discussed extending MCP and potential incorporation of O&M Plans into MCP	Representatives from the marina industry, CRMC
2/2/95	NPS Management Plan Meeting	Review DEM NPS Plan	CRMC, DEM, DOP
2/7/95	Volunteer Water Quality Monitoring Steering Committee Meeting	Discuss monitoring protocol and data usage	CRMC, DEM, URI, and various watershed groups
2/8/95	Municipal Watershed Planning Committee	Discuss watershed projects in East Greenwich, North Kingston, & Warwick	CRMC, DEM, NBP, NRCS, URI
2/9/95	Aquatic Habitat Meeting	Discuss aquatic habitat restoration	CRMC, DEM, Save The Bay

Date	Meetings	Description	Attendance
2/13/95	RIOWTP Technical Review Committee	Review proposed DEM ISDS regulations	CRMC, DEM, NRCS, URI, and private industry
2/14/95	Marina Collaborative	Planning session for April workshop on state regulatory and pollution prevention programs	CRMC, DEM, DED, DOP,
2/27/95	State Conservation Committee	Discuss conservation & regulatory issues	CRMC, DEM, DOP, DOT, NRCS, Conservation Districts
2/28/95	INSAC Meeting	Reviewed draft sections of RI Nonpoint Source Managment Plan	Various Committee Members
2/28/95	On-site Waste Water Training Program Technical Review Committee	Review proposed DEM ISDS regulations	CRMC, DEM, NRCS, URI, and private industry
3/7/95	RIOWTP Steering Committee	Discuss upcoming ISDS workshops	CRMC, DEM, NRCS, URI, and private industry
3/8/95	RI Watershed Management Collaborative	Coordinate watershed projects in Greenwich Bay and Hunt-Potowomut watershed	CRMC, DEM, DOP, NBP, URICE
3/9/95	Aquatic Habitat Meeting	Discuss aquatic habitat restoration	CRMC, DEM, Save The Bay
3/10/95	Meeting with CT Coastal Program Representatives	Discussed, in part, approaches for meeting 6217 requirements	Representatives from CRMC and CT Coastal Program
3/14/95	RIOWTP Technical Review Committee	Review DEM ISDS Regulations	CRMC, DEM, NRCS, URI, and private industry
3/21/95	RIOWTP Technical Review Committee	Review OWTP literature for workbooks	CRMC, DEM, NRCS, URI, and private industry
3/23/95	Greenwich Bay Task Force	Discuss water quality issues in Greenwich Bay	CRMC, DEM, NBP, URI, City of Warwick

Date	Meetings	Description	Attendance
3/27/95	State Conservation Committee	Discuss conservation & regulatory issues	CRMC, DEM, DOP, DOT, NRCS, Conservation Districts
3/28/95	RIOWTP Steering Committee	Review OWTP training modules for workshops	CRMC, DEM, URI, and private industry
3/28/95	INSAC Meeting	Review portions of draft RI Nonpoint Source Management Plan	Various Committee Members
3/30/95	Rhode Island Regulatory Workshop	Meeting of state agency representatives and local officials on various state regulatory programs	Representatives from DEM, local officials
3/30/95	Technical Review Committee Meeting for RIOWTP	Review of training modules for "Designers Workshop"	CRMC, DEM, URI, and private industry
4/1-7/95	National Conference in Monrovia, NY on remote sensing and its application to NPS Pollution outreach activities	Week-long training program on incorporating remote sensing data and techniques into nonpoint source management outreach and education efforts	NERRS and CZM representatives
4/4/95	NBP Implementation Committee Meeting	Discuss NBP budget FY'95	CRMC, DEM, DOADOP, NBP, EPA
4/11-12/95	RI Onsite Waste Water Training Program	"Designers Workshop"	Representatives from CRMC, URI, DEM and private industry
4/18/95	Greenwich Bay Task Force	Discuss water quality issues for Greenwich Bay	CRMC, DEM, NBP, URI, City of Warwick
4/19/95	RI Watershed Management Collaborative	Coordination of watershed management activities	CRMC, DEM, DOP, NBP, URICE

6217 Presentations and Public Outreach Activities

Date/ Event	Description	Attendance
June 18, 1992-First Annual RI NPS Symposium	Discussed NPS control in RI, 6217, workshops on public outreach & Intergovernmental Coordination	85 People Sponsored by CRMC, RIDEM, SCS, and URI Cooperative Extension
2/18/93-Presentation to ASCS Board of Directors and staff	Discussed 6217 and agriculture management measures	15 People and CRMC
3/11-12/93-New England Leadership Meeting	Presentation given on NPS control in RI, 6217	Portsmouth NH. 40 People from conservation districts throughout New England
3/10-14/93-RI Boat Show	Distributed Facts Sheets on 6217	General Public
4/20/93-Presentation to East Greenwich Middle School	Presentation on CRMC, Nonpoint Source Pollution	50 Students Presentation by CRMC
4/28/93-6217 Presentation	Presentation on CRMC and 6217 to the Pawcatuck Hydrologic Unit Area Steering Committee	15 Members Pawcatuck HUA Hosted by CRMC at URI
9/2/93-6217 Literature distribution	Mailed 6217 Newsletter	
10/18-19/94-Special Area Management Plan Conference	Conference concerning CRMC's SAMPs, distributed 6217 materials	CRMC and other state and regional planning programs
10/29/93-6217 Literature Distribution	Distributed 6217 newsletter to URI faculty and Graduate Students	

Date/Event	Description	Attendance
12/10/93-Distribution of Public Outreach Materials	NPS 6217 materials distributed at NBP Implementation Committee Meeting, NBP Policy Committee Meeting	RIDEM, Narragansett Bay Project CRMC
2/9/94-Presentation NPS	CRMC Executive Director gave presentation at Navigating Beyond '94	CRMC
2/16/94-Presentation	Presentation to State Conservation Committee on CRMC water quality programs and 6217	State Conservation Committee Presented by CRMC
3/21/94-Presentation	Presentation on erosion and sediment control workshop	Sponsored by RI Conservation Districts
4/4/94 - Presentation	Presentation to the RI Marine Trades Association (RIMTA) on the CRMC's proposed marina regulations	Approximately 30 members of RIMPTA
4/5/94 - Lecture	Taught a Marine Affairs Graduate Class which focused on the Section 6217 requirements and coastal zone management	Approximately 40 students and faculty
4/11/94 - Presentation	Presentation on Evaluating Section 6217 at the Ocean Governance Conference in Lewes, DE	Approximately 100 people in attendance
4/13/94 - Presentation	Presentation on stormwater management and the Section 6217 requirements to a municipal training program run by the URI CE and CRC	Approximately 40 local officials and members of the public

Date / Event	Description	Attendance
5/2/94 - Presentations (2)	Presentations of the new stormwater manual and the CRMC's stormwater management regulations and on the Section 6217 requirements at a stormwater management conference hosted by the conservation districts	Approximately 60 design professionals and local officials
5/24/94 - Presentation	Presentation CRMC's salt Ponds SAM plan's implementation and nonpoint pollution control measures at the 4th annual NEIWPCA conference in Portland, ME	Approximately 100 people in attendance
5/21/94 - Display	Bring Back Greenwich Bay Day. Handed out Section 6217 materials	Approximately 600 people in attendance
6/6/94 - Lecture	Taught a 4th grade class at Hampton Meadows School in Barrington on water use and the concept of nonpoint runoff	Approximately 50 children
6/14/94 - Presentation	Presentation to the Salt Ponds Coalition on the CRMC and its current planning initiatives including Section 6217	Approximately 20 people in attendance
2/1/94	Stormwater management presentation	
3/30/94 - Presentation	Presentation to local officials on RI's NPS Program at RI Regulatory Workshop	Approximately 100 local officials
11/17/94	Representation on CRMC regulations at Stormwater Workshop	Various private and regulatory representatives

Chapter 13
Water Quality Monitoring

Section 6217(g) calls for a description of any necessary monitoring techniques to accompany the management measures to assess over time the success of the measures in reducing pollution loads and improving water quality. The 6217(g) Guidance describes two general types of recommended monitoring and tracking techniques:

1) Measuring changes in pollution loads and in water quality that may result from the implementation of management measures [Monitoring].

2) Ensuring that management measures are implemented, inspected, and maintained properly [Tracking].

I. Monitoring

With regard to water quality monitoring, Rhode Island has several state and federal programs in place, as well as a host of volunteer monitoring programs.

State and Federal Monitoring Programs

With regard to water quality monitoring, RIDEM conducts several distinct surface water monitoring programs that can be used to measure changes in water quality attributable to reductions in nonpoint source pollution. A brief description of these programs follows.

1. Beach Monitoring Each year, RIDEM performs water quality checks on all State owned and operated freshwater and saltwater beaches in Rhode Island. These beaches are tested once a year, just prior to the bathing season, for total and fecal coliform. Several beaches, considered susceptible to various sources of bacterial input, are monitored on a weekly or bi-monthly basis throughout the bathing season. If samplings show fecal coliform numbers that exceed standards, follow-up sampling is conducted. Sampling for all other Department of Health-licensed beaches is the responsibility of the Department of Health.

2. Shellfish Growing Area Monitoring This monitoring program is part of the State of Rhode Island's agreement with the USFDA's National Shellfish Sanitation Program. Samples are collected from 17 separate shellfish growing areas and analyzed for total and fecal coliform bacteria. The 17 growing areas encompass all of Narragansett Bay and its shellfish harboring tributaries, all the south shore coastal salt ponds, Little Narragansett Bay, Block Island and offshore waters. Each of the 17

growing areas incorporates anywhere from 9 to 39 fixed sampling stations. Samples are collected monthly from some stations and six times a year from other stations.

Additional monitoring programs include a paralytic shellfish monitoring program and a shellfish meat analysis program.

3. USGS Monitoring Fixed Stations RIDEM contracts with the U.S. Geological Survey to conduct riverine trend monitoring on a monthly basis at six stations in four of the state's major rivers: the Blackstone, Branch, Pawtuxet, and Pawcatuck. Samples are analyzed for a broad range of parameters.

4. RIDEM Supplemental Monitoring RIDEM collects samples once per year during low-flow periods at eleven stations in nine rivers and streams. Samples are analyzed for a range of parameters, including conventional pollutants, bacteria, selected metals, chlorinated hydrocarbons, and volatile organics.

5. RIDEM Chemical Baseline Monitoring RIDEM contracts with the Univer-sity of Rhode Island to conduct baseline monitoring at approximately 25 stations in various Rhode Island rivers. Samples are analyzed for trace metals, bacteriological indicators, nutrients, and other parameters.

6. Biological Monitoring RIDEM conducts biological monitoring, using artificial invertebrate-substrate methods, on a yearly basis at seven stations on the Branch, Blackstone, Pawtuxet, Pawcatuck, and Wood Rivers. In addition to this in-house ambient trend monitoring, RIDEM has initiated a Rapid Bioassessment Study of 40 new stream sections.

7. Comprehensive Conservation and Management Plan for Narragansett Bay During the characterization phase in the development of the Comprehensive Conservation and Management Plan for Narragansett Bay, a variety of monitoring and baseline assessment programs were conducted throughout the Narragansett Bay watershed. Measurements were taken of water quality, trace metals in hardshell clams, and toxic contaminant levels in sediments. Few historical baywide long-term data sets exist to compare with these results. However, changes in pollutant loads can sometimes be surmised from other sources such as old navigation maps and historic fisheries documents which often provide descriptions of historic locations of eelgrass beds and significant changes in bay natural resources noted by those involved in commerce. Historic load estimates, changes in the transport of pollutants, and location of potential "hot spots" to the bay can also be developed based on information gained from the socio-economic/industrialization history of the watershed.

A second source utilized by RIDEM's Narragansett Bay Project (NBP) is the information which can be extracted from sediment cores. The concentration of conservative pollutants such as some heavy metals can be measured at different

depths in the core, allowing inference of changes in pollutant loads to the Bay over time. Probable dates can be assigned to these changing levels using radioisotope marker techniques and estimates of the rate that sediments accumulate. Through this techniques, the NBP now has a valuable historic record of metal trends in the sediments throughout the Bay.

In addition, the NBP funded a study to determine water quality sources and impacts during wet weather. The impacts of discharges on the Providence River were determined through a comprehensive field program which monitored the system before, during and after wet weather events. The intent was to calibrate a model under wet weather conditions.

8. Blackstone River Initiative This project is a federally funded multi-state investigation of wet and dry weather pollutant loadings along the entire length of the second largest freshwater source to Narragansett bay. This cooperative project is coordinated by URI and involves staff from the regulatory agencies of both Massachusetts (MADEP) and Rhode Island (RIDEM), as well as the USEPA Region I. Results of the study will provide a calibrated model that clearly distinguishes the relative impacts of point and nonpoint sources, including contaminated sediment transport on the water quality of the river, as well as a more refined estimate of the annual loads from this major river and all its pollution sources to the Providence River/Upper Bay.

9. Complaint Investigations RIDEM regularly investigates a variety of water quality complaints. During the 1992-1993 period, a total of 723 complaints were investigated. These complaints involved: 297 illegal discharges to surface water; 192 questions regarding surface water quality, with testing performed; 69 reports of debris in surface water; and 165 point-source related or miscellaneous complaints.

10. Intensive River Surveys Through cooperative efforts with URI, intensive river surveys, including dry and wet weather surveys, have been conducted on the Pawtuxet, Blackstone, and Pawcatuck Rivers.

In addition to RIDEM's monitoring programs, the EPA is also involved in monitoring Rhode Island's waters through its Environmental Monitoring and Assessment Program (EMAP). EMAP is a long-term monitoring program to determine trends in, and the condition of, the nation's ecological resources. Estuarine stations in Rhode Island are located in Block Island Sound and Narragansett Bay. Parameters measured include dissolved oxygen, temperature, salinity, conductivity, pH, suspended solids, benthic biomass, water chemistry, benthic biomass, health of fish, fish populations, sediment toxicity, sediment contaminants, sediment composition, and sediment grain size. In addition, EMAP has sampled the following lakes in Rhode Island: Mountaindale Reservoir, Watson Reservoir, and Mansi's Pond.

Volunteer Monitoring Programs

In addition to RIDEM's and EPA's monitoring programs, volunteer monitoring by citizens has become an important environmental monitoring force within Rhode Island. Its popularity is reflected in the growing number of volunteer monitoring programs and in the increased number of volunteers and monitoring stations being added to programs. Some of the most well-established volunteer monitoring programs in Rhode Island are highlighted below.

1. Salt Pond Watchers Program Under the auspices of the Salt Ponds Coalition, the Pond Watchers Program monitors water quality conditions in the salt ponds along Rhode Island's south shore.

2. Watershed Watch Program Coordinated by Cooperative Extension personnel in URI's Department of Natural Resources Science, this program involves over 200 volunteers who monitor water quality conditions in 80 lakes and tributaries in twelve of Rhode Island's 14 major watersheds.

3. Block Island Pond Watcher Program Under the auspices of the Committee for the Great Salt Pond, the Great Salt Pond Watchers is a citizen volunteer monitoring group who measure fecal coliform, nutrients, salinity, temperature, water clarity, and dissolved oxygen in the pond.

4. Narragansett Bay National Estuarine Research Reserve Under the Reserve's volunteer program, volunteers from the Prudence Conservancy monitor two stations in Narragansett Bay associated with Prudence Island: Potter Cove and the T Wharf. Parameters measures are dissolved oxygen, salinity, temperature, pH, and water clarity.

5. Kickemuit River Council Program Under the auspices of the Kickemuit River Council, a volunteers have conducted shoreline surveys and a follow-up pipe monitoring program. Volunteers collect monthly wet weather samples which are analyzed for total and fecal coliform. The group plans to continue their bacteria monitoring and expand the program to include ambient water quality monitoring.

6. Pokanoket Watershed Alliance Program Working in conjunction with the New England Interstate Water Pollution Control Commission and state and municipal governments, the Alliance has been conducting regular bacteria monitoring along the river, as well as shoreline surveys.

7. Palmer River Watershed Alliance Program A new water quality monitoring program, involving some 40 volunteers, will be targeting the Palmer River. Shoreline surveys will also be conducted.

8. Wood-Pawcatuck Watershed Association In addition to being involved in URI's

Watershed Watch Program, the Association, with a grant from the RI Coastal Resources Management Council, has recently begun monitoring the estuarine portion of the Pawcatuck River between Pawcatuck Rock and the Route 1 bridge in Westerly. Measurements of salinity, temperature, and dissolved oxygen are taken at nine stations every two weeks. The Association plans to expand these efforts to investigate sources of bacterial contamination in the Pawcatuck River estuary.

9. Bay Watcher and Bay Keeper Programs Save The Bay's Bay Watcher Program conducts water quality monitoring with volunteers, focusing on coves and estuaries throughout Narragansett Bay. On a monthly basis, from May through November, volunteers monitor dissolved oxygen, salinity, water temperature, water clarity, and fecal coliform. Shoreline surveys are also conducted. Save The Bay's Bay Keeper Program, staffed by Save The Bay personnel, measures parameters throughout the water column at eight to ten mid-Bay sites twice a month.

10. Whole Rivers Program Developed as a collaborative network between six Narragansett Bay high schools, this program conducts water quality monitoring on the Runnins River, the Woonasquatucket River, Hardig and Buckeye Brooks, the Blackstone River, the Mosshasuck River, and the West River.

Increasing Assessment of Surface Waters

RIDEM recognizes that, despite the extensive coverage afforded by the above-described programs, there are still wide gaps in the information available to RIDEM on the true water quality of the State's diverse surface waters, especially for coastal waters.

The monitoring needs for Narragansett Bay are being addressed by a Long-Term Monitoring Plan under the Narragansett Bay Project (NBP). The NBP has had URI researches develop a long-term monitoring plan for the Bay which provides a tiered approach that can be expanded to fit varied levels of future funding. The plan recommends developing long-term records of the annual riverine loading changes to the Bay, as well as annual review of changes in point source loadings from discharge monitoring reports, while tracking trends for toxic contaminants in the Bay through sediment core analyses on a five year cycle. There is also a projected need to begin developing a long-term database of eutrophication-related measurements. The report urges a regular summer eight-week coastal monitoring program for dissolved oxygen levels, as well as dissolved nutrients and chlorophyll a. At present there are no state or federal sources of long-term funding to initiate such a baseline long-term monitoring effort.

Since 1988, the Water Quality Planning Section of RIDEM's Division of Water Resources has attempted to examine the freshwater monitoring/assessment needs for Rhode Island and attempted to close the data gap for freshwaters in a cost-

effective way. A supplemental monitoring program was developed in 1988-1989, using federal funds from several sources [e.g., 205(j)] to examine waters outside of the major reaches of the Blackstone, Pawtuxet, and Pawcatuck Rivers. Some 30 river points and 35 ponds/lakes were monitored through 1990. In addition, a water quality assessment of 34 different ponds, mainly in southern Rhode Island, was performed for RIDEM by URI in 1989-1990 under a USEPA Lakes Assessment Grant.

Since 1991, RIDEM staff continued this effort to obtain at least limited baseline "snapshots" of water quality conditions for 25 other sites where data is lacking. There was also a desire to examine the possibility of developing baseline information on biological macroinvertebrate community health, using the USEPA's Rapid Bioassessment Protocols at 40 stream sites in Rhode island. The sites have been surveyed in the spring through fall months by researchers from Roger Williams College. At 25 stream stations in close proximity to over half of the 40 stream sites, chemical water quality samples have been taken on a quarterly basis since 1991 by URI researchers.

It is hoped that these chemical and biological baseline monitoring efforts can be continued in the future. The success of Rhode Island's basic monitoring program will depend on the availability of adequate funds and the ability to continue such cooperative water quality research efforts with local university and college research scientists and engineers.

During the past several years, there appeared to be little or no opportunity to use Section 319 funds for monitoring or assessment activities. However, based on new Section 319 Guidance developed by EPA, it appears that it may be possible to use some Section 319 funds for certain monitoring activities that are linked to specific nonpoint source abatement projects. RIDEM's Nonpoint Source Pollution Management Program will be considering this option as it formulates its Section 319 work plans over the next several years.

For further information on all of the above-described monitoring programs, see the Rhode Island 1994 305(b) Report.

II. Tracking

Rhode Island has a number of programs in place which will help to ensure that the 6217 management measures are implemented, inspected, and maintained properly. The most important of these programs are:

- Municipal Comprehensive Planning Program, State Enabling Acts related to Land Use Planning, and the State Guide Plan

- Rhode Island Coastal Resources Management Program

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-Permit requiremen..
-Harbor Management Program

- RIDEM, Division of Freshwater Wetlands
  -Permit requirements
  -Dam Safety Program

- RIDEM, Division of Groundwater and ISDS
  -Permit requirements

- RIDEM, Division of Water Resources
  -Permit requirements

For more information on the general nature of these programs, see Chapter 2. For more information on how these programs will be used to implement and track individual manage-ment measures, see Chapters 6 through 9.