RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
FY2000 WORK PLAN - OFFICE OF WATER RESOURCES

I. Introduction:

Rhode Island enjoys an abundance of water resources that support vital uses such as drinking water, recreation, habitat and commerce, among others. The state has approximately 1,392 miles of rivers, 21,299 acres of lakes and ponds, and approximately 15,500 acres of freshwater swamps, marshes, bogs and fens as well as close to 72,000 acres of forested wetlands. Estuaries, including Narragansett Bay and the coastal ponds, cover 152 square miles. Underlying the state are 22 major stratified drift (sand and gravel) aquifers as well as usable quantities of groundwater in almost all other locations from the bedrock aquifers. The Office of Water Resources (OWR) implements a variety of programs aimed at protecting and restoring the state's surface waters, groundwaters and wetlands.

Over the past two decades, public and private investment in point source pollution control has paid off in significantly improved water quality conditions reflected in the resurgence of recreational boating in the Upper Bay and re-opening of shellfishing areas. However, despite some improvement, there remains significant work to be done to reduce impairments of water resources; e.g. shellfishing restrictions, etc. Toward this goal, DEM recognizes the need to work on a watershed basis to abate both point and non-point pollution sources and develop new strategies, where needed, to protect and restore resources. Given the local nature of most non-point pollution, OWR is placing greater emphasis on partnerships with other agencies and stakeholders to accomplish protection and restoration goals. To maintain and enhance its capabilities, DEM is seeking new funds to continue a targeted local grant program to support watershed restoration efforts. Components of the program will include assessment, feasibility and design studies, pollution abatement measures and habitat restoration.

OWR programs play a pivotal role in controlling wastewater discharges, promoting non-point source abatement, preventing groundwater pollution and averting alterations to freshwater wetlands. New watershed-based initiatives are helping to build partnerships and enhance management of water resources at both the state and local level through better land use planning, collaborative projects and other means. The targeting of activities, ranging from permitting to financial assistance, to priority watersheds is expected to improve overall effectiveness. New emphasis is being placed on restoring both freshwater wetland and coastal habitats. Permit streamlining measures have begun to improve efficiency. Additional progress is expected after further actions, including data system improvements, are implemented over the next few years.

With respect to Narragansett Bay, DEM has been working with partners to implement high priority recommendations of the Comprehensive Conservation and Management Plan (CCMP) for the Bay. In addition to habitat restoration, current priorities include:
(1) work to develop stakeholder consensus around sustainable environmental and economic strategies for the Bay and its watershed;
(2) provide technical assistance to coastal communities and non-governmental groups; and, (3) identify and meet new needs for scientific data to support bay management decisions.

The Office of Water Resources (OWR) includes 11 major programs. Those programs are: Individual Sewage Disposal Systems (ISDS) and Freshwater Wetlands Permitting; Groundwater and Surface Water Quality Certifications and Underground Injection Control (UIC); Rhode Island Pollutant Discharge Elimination System (RIPDES) and Pretreatment; Wastewater Treatment Facilities (WWTFs) and sludge management; Narragansett Bay Estuary Program; Shellfishing Area Water Quality Monitoring; Groundwater Protection; Water Quality Classifications and Standards; and Watershed protection and restoration (TMDL/Assessment).

State of Rhode Island- Department of Environmental Management
Office of Water Resources

II. Mission:

To protect, preserve, and restore the State's water resources, which include surface waters, groundwaters and wetlands.

III. Program Highlights

Within its broad range of planned activities, the OWR will focus attention on a number of strategic initiatives over the next two years. A common theme among many of the initiatives is the pursuit of watershed-based approaches to resource protection and restoration. Instituting a watershed approach on a Department-wide basis is a high priority expected to be pursued through a pilot project in FY00. This approach represents a significant new manner in which DEM plans to organize its work, in collaboration with various partners, to more effectively accomplish environmental goals. The watershed approach and other initiatives for FY00-01 are highlighted below:

- **Piloting the Watershed Approach**
  Recognizing the benefits of working more closely with partners and stakeholders, DEM is continuing to pursue a watershed-based approach to environmental protection. By fostering involvement and building capacity at the local level, DEM along with other state and federal partners, will encourage greater collaboration in addressing priority natural resource concerns. The watershed approach framework calls for monitoring and assessment of environmental conditions as well as the development and implementation of strategies to better protect or restore resources. It is expected that the approach will be phased in with a long-range goal of having watershed-based plans developed statewide. In FY00-01, OWR will be participating in pilot watershed initiatives targeting Southern Rhode Island and the Woonasquatucket River. OWR contributions include further development of water use management strategies in the Usquepaug, targeted TMDL work, grants to support best management practices (BMPs) and improved public outreach, among others.

- **Complete Licensing of Septic System Designers**
  The next two years will involve the final phases of licensing septic system designers including instituting soil-based siting requirements and issuing Class IV- Soil Evaluator Licenses. In October 1999, it becomes mandatory for ISDS applications to be prepared by and installations inspected by Class I-III designers, which currently number over 200. Completing this major reform in the ISDS program will privatize the oversight of system construction and enable DEM to strategically focus on protective siting of new systems and resolving problems with failed systems.

- **Permit Streamlining**
  Permit Streamlining continues to be a priority in the Office of Water Resources. To date, over 37 recommended actions have been successfully implemented in water-related programs pursuant to the KPMG report. Over the next two years, additional streamlining initiatives are planned for ISDS, wetlands, UIC and groundwater programs. OWR will play a key role in the department-wide project to design and eventually implement an integrated permit tracking and data management system.

- **Watershed Restoration – TMDLs**
  During the past year, the Office of Water Resources successfully organized its staff into teams to assess priority polluted surface waters and develop watershed restoration strategies, known as TMDLs (Total Maximum Daily Loads). The current schedule for this work calls for assessing 83 waterbodies over the next 12 years. For the next two years, OWR has targeted 16 rivers, 3 lakes and 11 coastal areas for various work. This new geographically based approach has the advantages of identifying both point and non-point problems and incorporating public involvement throughout the projects. The TMDLs provide the sound technical basis for making public investments in pollution abatement. OWR expects to see improvement in water quality conditions monitored over the long term as TMDLs are successfully implemented.

- **Wetlands Program Development**
  In YR00, DEM will initiate the development of Rhode Island's first statewide wetlands conservation strategy. Currently, there are several divisions within DEM conducting activities related to wetlands protection or restoration. One goal of the strategy will be to improve coordination of such activities to maximize effectiveness. Additionally, with stakeholder collaboration, DEM will develop a framework of recommendations for improving the effectiveness of state activities with respect to federal, local or private efforts to protect and restore freshwater wetlands resources. This effort will promote partnerships, seek new incentives for protection, and enhance non-regulatory programs as a complement to existing regulatory protections. It is expected that wetlands protection will be integrated with watershed-based environmental planning efforts.

- **Local Wastewater Management**
  In FY99, major progress was made toward the goal of establishing a local wastewater management program in the 28 communities that significantly rely on septic systems. The programs provide the means for municipalities to access the Community Septic System Loan Program (CSSLP) which targets financial assistance to homeowners for septic system upgrades.

  Grants to establish programs in 8 communities brought the percentage participating up from 21% to 50% statewide. With additional awards OWR hopes to increase the level of active programs to at least 70% by the end of FY01.

- **Habitat Restoration**
  Responding to increased public interest, OWR will take several important steps to encourage habitat restoration. In the freshwater wetlands program, rule changes to facilitate the approval of beneficial habitat restoration projects will be promulgated. Additionally, OWR will collaborate with URI toward the development of technical criteria to support a new freshwater wetlands restoration strategy. With respect to coastal habitats, DEM will continue to provide leadership in the collaborative effort to complete mapping and photointerpretative projects, which provide a strong technical basis for pursuing restoration projects. Working collaboratively with partners, including CRMC, USFW, ACOE, as well as with non-governmental groups, DEM will develop a State Habitat Restoration Strategy that will prioritize projects, focus resources and expertise, and seek to establish reliable funding mechanisms for coastal habitat restoration.

Baseline Conditions

As mentioned, while progress has been made, the state needs to continue to invest in protecting and restoring its water resources. In planning its work for the next two years, OWR reviewed the baseline conditions of the State's water resources, which are summarized in the following:

- **Surface Waters**

With respect to surface waters, available baseline water quality data indicate that most lakes and rivers assessed support their designated uses; 86% of lake acres, 72% of river miles and 69% of estuarine waters (sq. mi.) assessed fully support all designated uses. The state has documented impairment in 99 specific water bodies and needs to continue to develop watershed restoration plans, based on thorough water quality assessments, for these areas in order to restore healthy aquatic habitats and reduce public health threats associated with fishing and water recreation. In addition, the Department needs to increase baseline monitoring in order to have adequate information to prioritize work and make informed decisions; currently, the water quality of 46% of river miles and 25% of lake acres is not assessed due to a lack of data.

With respect to surface waters, **bacterial contamination** continues to be the leading cause of impairments, especially in marine waters and freshwater streams. About 20% of shellfishable waters are closed, either on a permanent or conditional basis. The unabated CSO discharges associated with the NBC wastewater system represent a significant problem. Plans to abate CSOs are moving forward having recently passed DEM environmental review, and will constitute the largest pollution control project in the state's history. Other sources of bacteria include septic systems, stormwater runoff, certain agricultural operations, animal wastes, etc.

- SA waters – 125 square miles assessed for shellfishing use: 73% fully support shellfishing, 6% support but are threatened; 16% partially support (conditionally open); 4 % permanently closed.

- 3% of lake acres, 11% of river miles and 1.4% coastal waters assessed are considered impaired for swimming.

A second priority concern with surface water is **excessive nutrient enrichment** – which is the leading problem with lakes and ponds. Additionally, monitoring of the Bay is revealing increased evidence of plankton blooms and hypoxia (low dissolved oxygen) due to excess nutrients in portions of the upper half of the Bay. Key sources are WWTFs, septic systems, stormwater, etc. Correspondingly, there is increased interest in developing cost-effective strategies to reduce nutrient inputs from wastewater treatment facilities (WWTFs) into Narragansett Bay.

The enforcement of industrial pretreatment requirements has greatly reduced the loading of **toxics into surface waters**. Vigilance is still needed. The historical releases of toxics have caused contamination of sediments. Although the extent of contamination in sediment is not fully known, there is data indicating a concern for urban rivers and the Upper Bay. There are currently no established sediment criteria against which to evaluate sediment data.

* 14% of lake acres, 27% of river miles and 16% of coastal waters assessed are considered impaired for aquatic life uses.

Another challenge in managing water resources is ensuring adequate quantities to support desired uses, such as drinking water, habitat and irrigation. **Low flows** have been documented as concern in the Blackstone and Wood- Pawcatuck Watersheds. DEM is currently participating in a collaborative effort to manage water use for a sub-watershed (Usquepaug).

- **Groundwater**

  Approximately two-thirds of Rhode Island communities utilize groundwater to meet all or a significant portion of their water supply needs. Groundwater resources are currently classified as follows: GAA-20%, GA-71%, GB-9%, GC<1% of state land acreage. As of June 1997, 642 public wells were in use. DEM has designated wellhead protection areas (WHPAs) for all public wells covering 92,129 acres or 13% of the state. WHPA range in size from 15-2000 acres each. With respect to groundwater resources, it is believed that most contamination problems are historical in nature. Volatile organic compounds (VOCs), associated with gasoline and solvents, continue to be a leading cause of contamination, being detected in 15-20% of public wells tested for the last decade. Leaking USTs and past waste disposal practices are the primary sources. In the past decade, the number of known contaminated sites, now over 450 statewide, has risen sharply due to better reporting, more stringent site assessment practices and other factors. Remediation of groundwater is usually lengthy and often technically infeasible, particularly in bedrock aquifers. Given the challenges with remediation, prevention is emphasized in groundwater protection programs and reflected in requirements such as the upgrading of USTs, etc. Nitrate contamination in groundwater has been identified as another growing concern. The full extent of this problem is not known, but merits further attention.

- **Wetlands**

  With respect to wetlands, Rhode Island has historically lost a significant portion of its original resource base. As much as 50% of the state's coastal marshes have been lost. Eelgrass beds, valuable nursery and feeding grounds for important commercial and recreational species, now number about 100 acres, down from historical coverage of hundreds of acres. For freshwater wetlands, it has been reported that up to a 37% loss has occurred, but that figure has been deemed less accurate. Regulatory programs are in place to minimize the further loss of wetlands, although compliance remains a concern. New strategies are being developed to promote and facilitate wetland restoration.

  With respect to freshwater wetlands, DEM has committed to developing a comprehensive conservation strategy that will recommend ways to enhance protection of the many values of wetlands through non-regulatory programs. Over the long term, there is need to develop a better means to assess the ecological health of wetland systems to measure the effectiveness of protection efforts. Work continues among partners to reverse the impacts to coastal wetlands caused by ditching, impounding, filling and restricting tidal flow. A collaborative effort is well underway to develop a statewide coastal habitat restoration strategy.

Office of Water Resources' Workplan
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OBJECTIVE 1: **I.** Reduce pollutant loadings to achieve surface water quality goals and support all designated uses.	**Environmental Indicators:** - Reductions in pollutant loadings from WWTFs, where applicable. - Percentage of assessed surface waters supporting all designated uses. - Impaired surface waters restored following implementation of TMDLs (reported via 305B)	
STRATEGIES*	**ACTIVITIES**	**Performance Measures***
Point Source Pollution Control 1. Regulate the discharge of pollutants into surface waters or wetlands. *The RIPDES program currently includes 26 major and 122 minor permits as well as about 190 discharges covered under general permits. Water quality based limits are incorporated into 25 of 26 permits. Over the next few years, limits will be refined based on assessment studies performed as part of TMDL projects. To address low dissolved oxygen conditions in coastal waters, OWR expects further reduction in nutrient loadings will be needed.*	Report annually on number/percent of facilities (a) covered by a current individual permit, (b) operating with expired permit, (c) pending application and (d) disputed permit on appeal. Through revised permit limitations, improve the protection provided to receiving waters. 1a. Reissue the following 20 major permits to incorporate refined water quality based effluent limits: Clariant Corporation, New Shoreham , Scarborough , E. Greenwich, RIEDC/Quonset Pt., Smithfield, Cranston, Warwick, W. Warwick, Burrillville, Woonsocket (YR00), E. Providence, Kenyon, Bradford , S. Kingstown , NBC (Bucklin and Fields Pt.) Manchester Street, Mobil, Jamestown, (YR 01). Continue to process/issue new permits. 1b. Track compliance with the requirements of the following 10 consent agreements: Bristol, NBC Fields Point, Westerly, Bradford Dyeing Associates, Kenyon Industries, Woonsocket, Warwick, West Warwick, Cranston and Warren. 1c. Issue or modify 6 consent agreements to ensure compliance with water quality based limits: Burrillville, East Greenwich, Smithfield, Woonsocket, Clariant Corporation, and Newport.	Reduce the backlog in major permits to: 40% by 12/31/99, 28% by 9/30/00, 0% by 12/31/01. Report status of permitees' compliance with the 1994 CSO policy. Report number/type of facility and status of other general permits. Compliance with reissued RIPDES permits will result in the following rivers meeting DO standards: Pawtuxet River, Greystone Mill Pond (Woonasquatucket River), Blackstone River (pending MA WWTF compliance). Generate quarterly compliance reports and enforcement actions, as appropriate. Number/type of facility and status of stormwater permit, e.g. current, expired, etc.

	1d. Enter data into the PCS and PET systems. EPA will assist with training. 1e. Continue to issue individual and general stormwater permits for industrial and construction activities and initiate Phase II Stormwater Requirements. 1f. Issue groundwater remediation general permit approvals. 1g. Implement the User Fee program. Work on possible program changes to provide a better assessment of the impacts of wastewater discharges 1h. As needed, assist in responding to environmental emergencies and other public water quality concerns including providing field investigation and related support. Participate in assessment impact teams for major spill/release events; coordinate with OCI, F&W and others on aquatic organism kill events and assist in source identification of specific pollution problems.	

2. Prevent release of toxics through effective pretreatment programs. *Fifteen of 19 POTWs implement local pretreatment programs due to the extent of industrial wastewater discharged into their collection systems. The other POTWs regulate discharges to the sewer with DEM assistance, as appropriate.* *The discharge of effluent metals from the NBC-Fields Point WWTF, the state's largest, was reduced 93% between 1981-1995.*	2a. Conduct 6 pretreatment compliance inspections (PCIs) and 3 pretreatment audits within the next two years. Inspections/Audits to be conducted include: Bristol, Cranston, E. Greenwich, NBC-Bucklin and Fields Point, RIEDC, S. Kingstown, Warren and Westerly. Local officials and industries will be referred to OTCA for assistance integrating pollution prevention techniques. (FY00-01) 2b. Revise the State Pretreatment regulations to reflect previous changes to the federal regulations, (DSS, PIRT and possibly project XL) and incorporate incentives for pollution prevention as feasible (YR01). 2c. Coordinate with OTCA on technical assistance to facilities interested in improving pretreatment. 2d. Coordinate with Narragansett Bay Commission (NBC) on activities to promote pollution prevention.	Number/% of pretreatment programs audited. Number of audits finding significant deficiencies and number of local programs upgraded to achieve compliance. Pretreatment Regulations revised for federal consistency. Develop a measure to reflect the number of industries assisted.
3. Ensure that all major wastewater treatment facilities are designed, constructed, and operated to protect the quality of the state's waters. *Due in part to multi-faceted state effort to promote their proper operation and maintenance, RI WWTFs have continued to generally perform very well - with 17 of 19 receiving good to excellent performance ratings for conventional pollutants based on 1998 data. The state's largest water pollution project – implementing the CSO abatement strategy will move into the design phase over the next two years.*	3a. Conduct annual POTW compliance evaluation inspections at 25 major facilities. Inspect 7 minor facilities targeted in Woonasquatucket and 1 facility targeted in South County Watersheds as well as 4 significant non-compliers. Conduct periodic O&M inspections as needed. (Approximately 80/year) 3b. Review/investigate all WWTF/collection system bypass/overflow events (+- 75/yr.) Make recommendations as appropriate. - Review and approve I/I and SSES reports and project designs to reduce system overflows in East Providence (NOV) and Bristol. Require schedules for implementing corrective actions. 3c. Review and approve updates/changes to WWTF operation and maintenance manuals (10/yr) 3d. Review 23 sludge handling applications to ensure	Summarize 1998-99 WWTF performance data and report trends in flow, BOD, and TSS. Target: At least 80% compliance rate with conventional effluent limitations (FY00). Percentage of major facilities inspected. Target: 100%/year Number/percent of bypasses that result in use restrictions in surface waters. Reduce number of by-pass events due to insufficient system capacity. Target: 10% reduction. Report number of POTWs beneficially reusing all or part of their biosolids; and percentage reused. Target: 8% of

	proper disposal. Conduct 60 sludge handling facility inspections. (FY00-01) 3e. Continue to provide WWTF Operator Training focusing in FY00 on reduction of total nitrogen training to be provided in cooperation with NEIWPCC. 3f. Research and draft revisions to the Operation & Maintenance regulations originally written in 1979 (YR 00). Promulgate regulations incorporating incentives for pollution prevention as feasible (FY01). 3g. Continue to work with other OWR programs and Bradford Dye to identify the source and mitigate the effect of sulfur bacterial growth in the Pawcatuck. 3h. Review and approve the planning and design for several major projects required through recent enforcement actions, more restrictive permits and CSO control program. (Burrillville, Cranston, East Providence, East Greenwich, Smithfield, Warwick, West Warwick, Westerly, Woonsocket), Review other new projects as they are submitted. 3i. Review and approve 30% and 100% design for NBC-CSO Control Program, Phase I (includes tunnel and interceptor along the Woonasquatucket River). 3j. Initiate research to develop a state policy for reuse of treated wastewater and outline, as necessary, the program (s) and regulations required to implement the policy. This effort will be coordinated with the Department of Health (YR01). (Additional resources required)	biosolids. Target: Train 200 WWTF personnel/year. Revised operation and maintenance regulations (FY01) incorporating stronger requirements for odor control, reflect up-to-date technologies, and achieve consistency with other federal/state rules. Implementation of Phase I of CSO Control Program will reduce: Annual CSO volume by 39% TSS + BOD loading by 30% Fecal Coliform loading by 40%

Non Point Source Pollution Control 4. Implement the RI Non-point Source Pollution Management Plan and RI	4a. With stakeholder input, complete an update to the NPS Plan to comply with the nine key elements and maintain RI eligibility for CWAP funds. Draft and coordinate	Updated RI NPS management plan to guide future program development. (YR01)

Coastal Non-point Pollution Control Program. *Septic systems and stormwater discharges continue as Rhode Island's leading non-point sources of pollution. Many of the recommendations in the 1995 NPS management plan have been implemented to strengthen programs to prevent and abate NPS pollution. Updating the plan is now appropriate to provide incentives for pollution prevention and reflect new priorities including watershed restoration.*	review of RI Non-Point Source Pollution Management Plan. 4b. Finalize 6217 program submittal for federal approval, working in cooperation with CRMC and other partners. 4c. Utilizing 319 and CWAP funds, administer grants for 17 watershed restoration projects awarded in FY99 via RFP process. With continued CWAP funding (approx. $450,000/year) solicit via RFP process and issue additional grant awards in FY00 and FY01. 4d. Utilizing state NPS Bond funds, administer grants to municipalities to develop local on-site wastewater management programs. 4e. Conduct 4-6 septic system policy forum meetings to provide a vehicle for community outreach and transfer of technical information. 4f. Investigate mechanisms to facilitate BMP designs, including publication of updated BMP manuals (FY00) and initiate steps to implement recommended approach as feasible (FY01). 4g. Develop a BMP monitoring/evaluation policy (FY00-01). 4h. Prepare annual non-point source program report. 4i. Also see discussion on septic systems watershed restoration and groundwater protection for additional NPS related activities.	6217 final approval of RI Coastal NPS plan and sustained eligibility for funding. (YR00) Number watershed projects provided financial assistance: Target: FY00-01: 5-10/yr. Develop performance measure regarding the estimated number of BMP projects completed/year. Increase number of communities developing/implementing local on-site wastewater management programs: Target: 70% (FY01) Develop a report, which recommends actions to address concerns on denitrification and state/local coordination issues (FY00-01). Updated BMP guidance distributed. (FY00)

5. Ensure the projects planned in and near state waters will not degrade water quality.	5a. Review and determine if projects (other than RIPDES discharges) comply with State water quality standards. Process approximately 125 WQC Applications per year. 5b. Promote use of BMPs to prevent pollution through distribution of guidance manuals, environmental land use planning and other activities. Also see non-point activities (prior section). 5c. Continue to provide technical reviews of the Providence River dredge project and coordinate with CRMC on all RI dredge projects (YR 00/01). 5d. Continue to assist CRMC on development of a viable long-term dredge disposal plan.	Prevent degradation of water quality due to construction projects and various other activities. Ensure no adverse environmental impact from dredge projects, including dredge disposal locations.
Targeted Watershed Activities 6. Enhance water resource protection by working in partnership with other agencies and local stakeholders to resolve environmental concerns. *In FY99, OWR completed work on the development of a watershed-based approach to resource protection. In FY00, the approach will be refined and implementation initiated via one or more pilot projects.*	6a. RESERVED – Pilot project for watershed approach. Scope of work to be determined. Also see pilot watershed workplans regarding Southern RI and Woonasquatucket. 6b. Continue participation in water use subcommittee of Pawcatuck Partnership initiative. Continue in study initiated with USGS and others to assess habitat impact of water withdrawals in Usquepaug Watershed. (Additional funding required) 6c. Continue participation in Urban Rivers Team including expanding outreach on Urban Rivers and Upper Bay water quality concerns. 6d. Continue to host and participate with Partners in Resource Protection (PRP); including continued grant making as funding allows. 6e. Coordinate as needed, with URI and ACOE on work pertaining to the Blackstone River.	Complete Phase I of Habitat Assessment study (understanding of stream habitat types and relationship with changes in stream flow by 2001).

7. Promote watershed restoration by conducting studies of polluted water bodies and identifying strategies to abate pollution (TMDLs). *99 waterbodies are identified on RI's list of impaired surface waters with over 230 impairments identified. OWR has an aggressive schedule to develop water quality restoration plans (TMDLs) for these waterbodies within the next 15 years. The TMDLs have been prioritized considering drinking water supply, closed shellfishing areas and priority watersheds. OWR will be active in 30 waterbodies over the next two years.*	7a. Oversee implementation of pollution abatement strategies for Stafford Pond (FY 00) and other targeted watersheds as projects are developed. 7b. Complete modeling and pollutant load allocations and submit TMDL to EPA in FY00 for the following 6 waterbodies: Narrow River, Barrington/Runnins Rivers, Palmer River; Robin Hollow Pond, and Hunt River. 7c. In FY00, begin review of data monitoring and stakeholder involvement for TMDL development in the following 8 waterbodies: Sakonnet River, Saugatucket River, Blackstone River, Ninigret/Green Hill Ponds, Woonasquatucket River, Greenwich Bay, Kickemuit Reservoir, and Providence/Seekonk Rivers. 7d. Complete modeling and pollutant load allocations and submit TMDL to EPA in FY01 for these 6 waterbodies as follows: Sakonnet, Saugatucket, Kickemuit Reservoir, Providence/Seekonk, Greenwich Bay, Ninigret/Green Hill Ponds. Schedule for FY01 subject to change based upon results of water quality assessments performed in FY00.	Report the number of impaired waterbodies covered by a Watershed Restoration Action Strategy. (Completed TMDL or comparable document) Target FY01: 13 waterbodies (total to date) Report on status of TMDL implementation (specific measure to be developed).

8. Implement the Comprehensive Conservation and Management Plan (CCMP) for Narragansett Bay. *The RIDEM Narragansett Bay Estuary Program has, to date, targeted the highest priority recommendations from the Narragansett Bay CCMP.*	8a. Produce Bay Summit 2000 in Spring 2000 to present status and trends information and to solicit stakeholder input on future directions for Bay protection and restoration. A watershed-wide public opinion survey will precede summit. Results to be incorporated into a report, which is expected to include recommendations on policy, data needs, and improving coordination among programs. 8b. Plan and coordinate a second annual dissolved oxygen survey of mid and upper Narragansett Bay and produce data report. 8c. Coordinate with EPA Narragansett Lab on the federal Coastal 2000 monitoring initiative to develop bay monitoring plan and secure federal funding for implementation. 8d. Develop a coastal habitat restoration plan in cooperation with RIDEM divisions, CRMC, ACOE, and other stakeholder interests. Continue capacity building to support restoration including: - With partners, complete analysis of Narragansett Bay coastal wetlands for restoration potential. - With partners, complete Narragansett coastal wetlands loss trend analysis. - Initiate for photo-interpretation and analysis of South Shore aerial photos of coastal wetlands, seagrass beds and coastal features (FY00). (Funding required) Complete by FY01. - Work with the US Army Corps of Engineers and other partners on Feasibility Plan for identified Rhode Island ecosystem restoration projects.	Final DO report with data interpretation and recommendations. Data collection from 50 bay and coastal water sites. Completed Coastal Habitat Restoration Plan. Acres of Coastal habitat restored (salt marsh, eelgrass beds) Produce a Bay Issue Forum on invasive species in Narragansett Bay. (Requires funding) Based on voluntary reporting, report volume of wastewater collected at marina pump out facilities (estimated annually).

	8e. Collaborating with CRMC and others to provide technical assistance to at least one other municipality (e.g. Warren) on harbor management planning and bay resource protection (similar to NBEP/Bristol project). Encourage adoption of pollution prevention measures, e.g. marina BMPs. 8f. Collaborating with DEM F&W, CRMC and others, seek funding for a baseline survey of invasive species in Narragansett Bay as well as to assess risk associated with existing and potential impacts of invasive species to the Bay. 8g. Initiate coastal habitat restoration project at Mill Pond, Bristol, in collaboration with ACOE, CRMC, Save the Bay, Town of Bristol and DEM Mosquito Abatement Program. 8h. Continue to implement the marina pump out strategy which supports the no discharge designation for coastal waters.	
9. Manage the shellfish growing areas consistent with National Shellfish Sanitation Program. *Management of shellfish growing areas is expected to benefit from the eventual implementation of watershed restoration strategies identified via TMDL projects. 20% of shellfishing grounds are closed either permanently or conditionally. 7 of 25 priority TMDL projects (Group 1) involve bacterial contamination of coastal waters.*	9a. Conduct the following shoreline surveys: Sakonnet River (YR00), Offshore/Block Island (YR00), Kickemuit Reservoir (FY00), Mt. Hope Bay (FY00), East Middle Bay (YR01), West Middle Bay (YR01), Greenwich Bay (YR 01), Upper Bay (YR01) and 12 Year Review Little Narragansett Bay (YR01) 9b. Collect water samples from 17 shellfish growing areas – 2000 samples from 300 stations per year 9c. Administer Bay Closures coordinating with DOH, DEM, Fish & Wildlife and Enforcement as necessary. 9d. Coordinate, as needed with DOH on completion of EMPACT study activities aimed at improving beach monitoring.	Maintain Interstate Shellfish license. Percent and acres of shellfish grounds closed (permanently/conditionally) and annual net increase/decrease in closed areas. Percent of assessed SA waters supporting shellfishing.

Statewide Support 10. Administer a statewide system of classifying surface waters for water quality purposes, which includes standards/criteria to define protection/restoration goals, monitoring baseline conditions, evaluating and reporting water quality status and prioritizing water quality restoration activities. *The percentage of surface waters currently not assessed due to a lack of data includes 46% of river miles and 25% of lake acres.*	10a. Continue working on indexing and georeferencing RI's waters to EPA's RF3 for mapping (YR 01). 10b. Complete development of a state wide monitoring strategy with assistance from EPA Narragansett Lab aimed at reducing the percentage of unassessed waters (YR 00). Seek additional state funds or public/private funding partnerships to address gaps, including providing support to partners (URI) which train and deploy volunteer monitoring. 10c. Coordinate with DOH on development of plans to assess fish tissues in urban rivers. 10d. Conduct a triennial review of the State's Water Quality Regulations, including a review with respect to protection of wetland resources. 10e. Oversee grant to USGS for collection of water quality data on a quarterly basis at 7 river stations. Oversee grant to URI for collection and analysis of water quality data at 25 river stations on quarterly basis. Oversee URI Watershed Watch Program contract to monitor lakes in the state. Oversee contract to RWU to conduct biological monitoring at 45 river stations during summer months (YR 00/01). Initiate new monitoring activities working with other agency partners and volunteer monitoring programs to eliminate data gaps as resources allow. 10f. Compile and assess water quality data. Coordinate with volunteer monitors. Draft 305B Report. 10g. Coordinate with NEIWPCC on a biological criteria project. Pursue an agreement with EPA Lexington Lab to assist us in sampling and analyses of macroinvertebrates and fish populations of various	Improved reporting capability in characterizing water quality conditions for all audiences. Reduction in data gaps as reflected by increase in percentage of waters assessment. Percent of assessed surface waters that support safe recreation (swimming). Percent of assessed river miles and lake acres subject to fish consumption advisories or restriction (Data not readily available). Number of fish kills due to (a) toxic releases (b) other conditions. Updated surface water quality regulations consistent with federal requirements. Baseline monitoring data collected for portions of the state. Number of waterbodies restored to designated uses. Percentage of assessed surface waters with healthy aquatic communities. Submit YR 2000 305(b) report to EPA (YR 00). Updated list of Impaired

	rivers (YR00-01). 10h. Coordinate with CRMC on issues of consistency between DEM water quality classification system and CRMC water use designations in coastal zone.	Waterbodies (303d). New computerized macroinvertibrate database to assist assessment process. (FY00)
11. Provide financial and technical assistance for water pollution control and water-quality improvement projects. *Over the next 12 months, DEM expects to fully obligate or exhaust bond funding in most of its water pollution assistance programs including: Non-governmental Bond Fund, Aqua Fund, Non Point Source, and Sewer Water Supply Failure Fund. OWR has put forward a proposal for new bond money for water pollution abatement. The proposed funding provides an integrated source of funding to support local activities to address water-quality improvements.*	11a. Carry out baseline activities including solicitation and ranking of projects for the Project Priority List (PPL). 11b. Provide technical assistance and review of projects submitted for SRF funding via the PPL process. Conduct inspections to monitor construction progress of SRF funded projects. Including environmental reviews for DOH DWSRF projects. 11c. Award the remaining grant funds in the Aqua Fund, Non-governmental Water Pollution Control Facilities and NPS Bond Funds. Administer the active grants in these programs. Pursue changes to SRF enabling legislation to allow non-profit organizations the ability to access SRF funding. 11d. Secure approval for a new bond issue subject to referendum in 2000 to allow continuation of pollution abatement grants and support watershed and habitat restoration. Develop new rules to support integrated grant solicitation process. (New resources needed). 11e. Administer the Pawtuxet River Funds, including implementation of $9M Pawtuxet River Fund and award and administer the remaining funds in the $10 Pawtuxet River Water Quality Fund. 11f. Administer the Rural Hardship Communities grant to the town of New Shoreham (YR00). 11g. Evaluate the fee systems utilized in OWR and	Annual revised PPL identifies projects needing funding. Ensure SRF funded projects meet environmental standards. Award $600,000 in state financial assistance to support water resource protection and pollution abatement. Integrated funding source available to address water quality impairments. (Requires approval of new bond authority). Revised fee system in Freshwater Wetlands Program. Increase the use of pollution prevention to meet industrial pretreatment limits.

	recommend changes to support permit streamlining. 11h. Present information at a RI Pretreatment Coordinators Association meeting to educate officials about pollution prevention assistance available from OTCA.	
12. Raise public awareness of DEM water resource protection and restoration activities and the importance of water resources.	12a. Add to RIDEM's web site a Water Resources web site having specific information regarding the SRF, watersheds, wetlands, TMDL's, groundwater programs, Partners in Resource Protection Activities, and other public activities. Other OWR programs to be included pending additional funding. 12b. Create a manual providing standard graphic and format for developing and disseminating information to the media and public. 12c. Compile information in formats suitable for the public including poster presentations. Topics to include descriptions of OWR programs, summary of 305(b), TMDL project, etc. With OTCA pursue establishment of mechanism to allow routine access by DEM to technical writing services. 12d. Place public summary of 305(b) on web site (FY01). 12e. Continue education campaign to promote use of marina pump-out stations (YR00-01). 12f. Also see outreach activities for groundwater and wetland programs. 12g. NBEP Outreach Initiatives: - Produce poster session on NBEP habitat restoration and Bay monitoring for Estuarine	Improved public information.

	Research Federation's National Conference. - Produce quarterly newsletter on activities of NBEP. - Produce bay outreach event for National Estuary Day in early October; repeat call radio show on Bay issues.	

OBJECTIVE 2: II. Prevent or reduce pollutant loadings to achieve groundwater quality standards.	**Environmental Indicators:** Number of public wells with detection of selected pollutants in raw water (VOC, SOC, elevated nitrates) Long-term goal: The number of public wells with detections of contaminants in raw water will decrease.	
STRATEGIES	**ACTIVITIES**	**Performance Measures***
1. Prevent the contamination of aquifers that supply existing and future public drinking water wells. *DEM has designated WHPAs for all public wells. 35 of 44 pollution source inventories are complete. 8 of 41 required local protection plans have been approved.*	1a. Implement the state wellhead protection program: - Update the Wellhead Protection Area (WHPA) map (FY00). - Evaluate and revise the DEM WHPA delineation methodology (FY01) - Prepare WHP Biennial Report – which reports on the status of refined delineations, pollution source inventories local WHPA plans and implementation activities (Fall 1999 and 2001). - Complete the WHP Facility Manual (FY00) - Oversee agreements between DEM and the 7 communities/suppliers awarded funds for WHP projects in FY99 - Review and approve WHPA pollution source inventories and local protection plans, as submitted by local entities. 1b. Provide financial incentives to foster local WHP implementation, including public outreach projects. This will include the following: - Ensure completion of agreements between	Increase the number of completed local WHPA plans from 8 to 13. (31% of total required) All communities in the WHP program will be implementing at least one WHP measure (FY00-01). The number of communities implementing three or more WHP measures will increase to ten (FY01). Number of regulatory violations eliminated in WHPAs. Number of local wellhead protection projects implemented with financial grant support. Target: 14 (FY00-01)

	DEM and the nine communities or water suppliers for WHP projects funded prior to FY00. - Utilizing existing federal funds, solicit for new wellhead implementation projects in FY00. 1c. Coordinate with the Department of Health on the development and implementation of the State's Source Water Assessment Program, including participation on the Technical Advisory Committee. 1d. Continue WHP Enforcement Initiative. Inspect high priority sources identified in WHP inventories, DOH Source Water Assessments and UIC inventory. 1e. Coordinate, as needed, on watershed projects that address groundwater concerns including interaction between groundwater and surface waters.	

2. Prevent groundwater contamination due to subsurface discharges of pollutants. *To date, the UIC program reflects 515 sites. These include 215 active discharges, 288 discharges permanently eliminated. The program is proposing to streamline its regulation of stormwater discharges via a general permit mechanism, which will allow staff to devote more attention to discharges with greater pollution potential.*	2a. Implement Underground Injection Control (UIC) program and continue targeted compliance and enforcement efforts. 2b. Revise the UIC regulations, originally developed in 1984, including incorporation of a comprehensive groundwater discharge program that includes groundwater certification activities (FY00). 2c. Prioritize the inventory of potential UIC sites in priority resources areas for inspections, as resources allow. (WHPAs, GAA, etc.) 2d. Review and determine if projects comply with state groundwater quality standards. Issue certifications: ±6/yr.	Number of Class V wells by type brought under specific control through permits (Target: 20/yr). Number of abandoned or unauthorized wells closed (Target: 25/year). Maintain high compliance rate for active discharges (Target: >90%). Gaps in the regulation of subsurface discharges are eliminated through the promulgation of revised regulations.
3. Prevent groundwater contamination due to the application of pesticides and fertilizers.	3a. Participate with Division of Agriculture on evaluation of nitrate concentration in groundwater in selected areas of Southern Rhode Island 3b. Coordinate with Agriculture and Conservation Districts, as needed, to implement state strategy regarding pesticides and fertilizer use.	Complete groundwater-monitoring assessment. Refer to Agriculture's workplan.
4. Maintain statewide groundwater classification system and enforce ambient groundwater quality standards.	4a. Revise the Groundwater Protection Strategy (FY01). With stakeholder involvement initiated in FY00, utilize the process to identify new strategies for addressing nitrate contamination and private well issues. Updated groundwater	Updated groundwater protection strategy to guide future program development. Number of non-attainment sites.

	protection strategy (FY01). 4b. Update the groundwater classification map (FY01). 4c. Update the non-attainment map annually (FY00/01). Distribute to well drillers and municipal officials. 4d. Prepare assessment of state's groundwater quality to support the 305(b) report (FY00).	Number of non-attainment sites restored to compliance with groundwater standards. Performance measures on status of non-attainment sites to be developed.
5. Promote restoration of groundwater quality where feasible. *The oversight of most remediation actions is conducted by the OWM under various site clean-up programs. As of November 1996 there were 452 groundwater non-attainment sites identified statewide.*	5a. Continue coordination with the Office of Waste Management on remediation. 5b. Revise Groundwater Quality Regulations addressing issues involving remediation, e.g., residual zones, non-attainment areas.	Groundwater remediation projects handled consistent with groundwater quality standards. Revised groundwater regulations (FY00-01).
6. Ensure that new ISDS systems meet standards established to protect public health and the environment.	6a. Implement ISDS regulatory program Permitting workload includes 2,300 site suitability assessments, 4,000 permit reviews and over 10,000 inspections per year. 6b. Revise ISDS regulations to initiate soil-based siting process (Fall/Winter 1999). 6c. Fully implement designer licensing including establishing advisory committee and oversight procedures for Class I-III (FY00). Initiate training, exams and licensing for Class IV in Fall 1999 with full implementation expected early January 2001 (FY01). Develop an automated performance tracking system for licensed designers (FY00-01).	Achieve and maintain average application review time targeted at 2-4 weeks. Improved technical basis for septic system siting and design implemented via a soil-based approach. Licensing of septic system designers fully implemented. Number of ISDS' that prematurely fail remains very low. Reduce rate of initial deficient applications by 10%.

	6d. Continue to review and approve innovative and alternative septic system technologies. Develop systems to track and assess their performance (FY01). (Funding required) 6e. Continue to license ISDS installers.	Increase number of approved innovative and alternative technologies. Target: 5/yr. (FY00-01)
7. Facilitate the repair and replacement of failed and substandard septic systems. *DEM estimates that 70,000 of the 140,000 existing septic systems in the state are substandard, e.g. cesspools.*	7a. Continue to prioritize ISDS repair applications and issue prompt approvals. 7b. As resources allow, target compliance inspections in coordination with TMDL projects. 7c. Assist local wastewater programs, as resources allow, and encourage replacement of substandard septic system.	Achieve and maintain permit review time frame of 1-2 weeks. Number of substandard systems upgraded/year.
8. Raise awareness and engage public in groundwater protection.	8a. Expand public outreach utilizing fact sheets, folders, etc.. Distribute with partners. Targeted topics: ISDS, Wellhead Protection. 8b. Publish and distribute septic system inspection maintenance handbook. Sponsor workshops to promote its use. Partners include Realtors, RIBA and URI among others. 8c. Sponsor an I/A training seminar. 8d. Also see wellhead protection and non-point source sections.	Training provided to 30 licensed designers/year.

OBJECTIVE 3: III. Wetlands will be protected and restored to provide wildlife habitat, reduce floods, improve water quality and provide recreational opportunities.	**Environmental Indicators***	
STRATEGIES	**ACTIVITIES**	**Performance Measures***
1. Ensure impacts to wetlands are avoided, minimized or otherwise mitigated via administration and enforcement of freshwater wetlands regulatory program. Computerize tracking of wetlands loss/gain was instituted in January 1998. Losses authorized by permitting are generally minimal. However, actual losses, due to non-compliance, are presumed higher.	1a. Continue to review and process freshwater wetland applications estimated at 450/yr for preliminary determinations and over 225 for all other types. 1b. Coordinate with CRMC on implementation of jurisdictional line for freshwater wetlands, including development of consistent computerized tracking of wetland loss and gain.	Limit the number of acres of wetlands alterations authorized via permitting to 5 or less. Track the number of acres of unauthorized loss of wetlands identified via compliance/enforcement activities.
2. Increase wetland protection program capacity. *While Rhode Island has been recognized for its strong wetlands protection law and corresponding rules, there are practical limits to the level of protection provided through a regulatory approach. A more comprehensive strategy is needed to foster and improve the non-regulatory approaches utilized to protect and restore wetlands, including adding wetlands projects and development restoration projects via watershed approach.*	2a. With stakeholder input, develop framework for a statewide Wetland Conservation Plan. Complete background research (YR00). Collaborate with URI to develop recommendations on wetland mapping issues (YR00-01). Continue to work with the group to complete development of plan (YR01). 2b. Participate with EPA and New England states in development and implementation of regional bioassessment project in forested wetlands 2c. Develop a project targeting Southern Rhode Island to enhance data coverage on vernal pools, e.g. field verification of selected sites (YR00-01). (Funding deferred to FY01).	New statewide wetlands conservation plan. (FY01) 200 acres per year of wetlands permanently protected via acquisition (land purchase, easements, etc.).

	2d. Coordinate with EPA and local partners on wetland protection grant issued in FY99.	
3. Build capacity and tools to promote both coastal and freshwater wetland habitat restoration.	3a. Coordinate with URI, CRMC, and others regarding Phase I of the development of a statewide wetlands restoration strategy. Participate in monthly meeting with URI and other meetings with restoration stakeholders (YR00). Continue with Phase II (YR01). To demonstrate methods via pilot project. 3b. Also see coastal habitat discussion on Page 14. 3c. Also see permit streamlining.	Number of acres/stream miles of wetland restoration initiated. Number of acres/stream miles of wetland habitat successfully restored.
4. Raise awareness and engage the public in wetland protection efforts through expanded outreach and public education.	4a. Expand public education and outreach. In collaboration with OTCA, develop and distribute new outreach and guidance materials: -permit guide (YR99) -fact sheets (YR00) -poster presentation (YR00) -web site information (FY00) 4b. With OTCA, conduct an annual training workshop for municipal officials. Target: 20 officials trained/yr. 4c. With OTCA, conduct an annual training workshop for wetland consultants. Target: 20 consultants training/yr. 4d. With OTCA conduct a wetlands open house for potential applicants (once/year.). 4e. Continue to work with partners/volunteers on wetland protection and restoration projects. 4f. Coordinate, as needed, with URI on development of vernal pool information to be made accessible	Reduce initial application deficiencies by 10%.

	via a web site.	

OBJECTIVE: IV. Improved effectiveness and integration of water protection programs.	**Environmental Indicators**	
STRATEGIES*	**ACTIVITIES**	**Performance Measures***
1. Revise regulations to support permit streamlining objective and enhance effectiveness.	Planned rule changes include: - Revisions to ISDS rules to link soil-based siting with design criteria, achieve further streamlining and address other issues, technical and procedural. (FY00) - Revisions to freshwater wetlands to minimize sequentially tracked permitting and address other procedural and technical issues. - Revisions to the freshwater wetlands regulations in order 1) to facilitate wetland restoration projects, water quality improvement projects, and planting projects, and 2) to simplify fee schedule as part of streamlining. - Revise groundwater rules to streamline procedures by eliminating routine groundwater certifications with respect to sites regulated pursuant to OWM remediation programs. - Revise UIC regulations to institute a general permit system for stormwater discharges.	Reduce average permit review times for PDs. Target: FY00: 40 days FY01: 30 days Reduce average permit review times for processing alteration applications determined complete. Target: FY00: 90 days FY01: 56 days Excluding 45-day public notice period. Ensure ISDS permits are granted only after potential wetland impacts are address via concurrent review process.
2. Continue to implement permit streamlining recommendations from KPMG and Governor's Advisory Commission Report.	2a. Evaluate the progress to date with respect to implementing permit streamlining recommendation in OWR. 2b. Continue to develop and implement program reforms to support permit streamlining specific strategies include:	

	- Work toward greater integration of ISDS/Wetland applications to reduce unnecessary submittals (non-jurisdictional) to wetlands programs. - Continue to utilize permitting team to enhance coordination on NRCS projects (FY00). - Evaluate causes of deficiencies and modify checklists or guidance to encourage compliance in (FY00) wetlands program. - Identify strategy changes that are needed to remove constraints to further permit streamlining. (FY00). - Also see Raising Public Awareness for descriptions of outreach and training activities.	
3. Improve data management system to support water resource protection programs and facilitate data access.	3a. Complete data management project which will allow wetlands/ISDS application data to be represented geographically (using GIS) and provide access via an intranet to all of RIDEM (FY00). 3b. Computerize legacy data (1969-1989) in ISDS program as part of the new database system. Complete programming needed to reflect program changes, e.g. licensing of ISDS designers (YR00). 3c. Make enhancements to the Water Quality Data Systems to: - Allow the calculation of criteria for a waterbody and comparisons with existing water quality. - Allow contractors to send electronic data and have it automatically import it to the database. - Work with NRCS and USGS toward developing	

	standardized basin and watershed boundary identification and hydrologic unit numbers.(YR00) - Renumber RI waterbodies in accordance with the standardized basin identification system. - Develop maps of 305(b) assessments and 303(d)(listed waters)(FY00). 3d. Complete entry of approved pretreatment program elements into Access Database for all approved programs. 3e. Coordinate with CRMC on development of computerized tracking of wetlands loss and gain. 3f. In YR00, identify additional data system needs for YR01. Implement projects as feasible. (Resources required)	