

**FRESHWATER WETLAND
REGULATION AND PROTECTION**

**STATUS AND TRENDS REPORT
2001 THROUGH 2003**

Prepared for
Environmental Protection Agency, Region 1

Prepared by
Rhode Island Department of Environmental Management
Office of Water Resources
Groundwater and Wetlands Protection Program

With the assistance of
New England Interstate Water Pollution Control Commission

October 2004



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EXECUTIVE SUMMARY

The Department of Environmental Management (DEM) working with partners and supported by EPA, Region 1 and NEIWPCC has continued to build a comprehensive wetlands protection program by administering and enforcing the RI Freshwater Wetlands Act, implementing regulatory, policy, and administrative recommendations from the Wetland Task Force Final Report (2001); building on successful outreach projects; completing the first watershed-based wetland restoration plan (Golet et al. 2002); and initiating a wetland monitoring strategy.

The Freshwater Wetland Program granted 978 permits during 2001 through 2003, the majority for residential development. A net loss of 4.1 acres of freshwater wetland was permitted. The DEM Wetland Compliance Program received an average of 513 complaints annually and completed 325 enforcement actions during the 3-year reporting period. The Wetland Compliance Program recorded 23 acres of unauthorized alteration of freshwater wetlands, including rivers and streams and 31 acres of unauthorized alteration of perimeter, riverbank and floodplain wetlands. During the reporting period, the Coastal Resources Management Council (CRMC) also regulated alterations of freshwater wetlands seaward of the jurisdictional boundary implemented in 1999.

INTRODUCTION

This report provides a summary of freshwater wetland permitting and enforcement statistics for the years 2001 through 2003, as well as regulatory, outreach and protection projects and activities completed during the years 2002 and 2003.

REGULATORY PROGRAM

Implementation of Wetland Task Force Recommendations

The Wetland Task Force met in 2000-2001 to investigate and recommend statutory, regulatory, and administrative changes to help streamline wetland permitting. Task Force members represented a wide range of interests including federal, state and local government, the Governor's Office, the Legislature, builders, realtors, consultants, nonprofit organizations, and scientists. Implementation of the Task Force recommendations continued to be a priority for DEM during this reporting period. The group met again in January 2002 and during the first few months of 2004, when members were updated on the status of implementation of recommendations and most recently asked to review the draft Phase 2 rule changes and the draft Wetland BMP Manual.

Permits Granted

In 2001 through 2003 the Wetlands Protection Program issued 338, 314, and 326 new permits respectively (Table 1). In each of the three years, 95 percent of the new permits were for projects involving insignificant alterations to wetlands. A total of 42 permits to alter wetland and four emergency alteration permits were granted during this period. The 2001 rule amendment enabling private property owners to request permits for emergency alterations has not resulted in an increase in the number of requests. In total, seventeen applications were denied in 2001 through 2003.

As in prior years, the greatest number of new permits was for residential development, including new residential lots, modifications to already developed lots, residential subdivisions, and apartments or condominiums. Permits for the various types of residential development represented 54 to 60 percent of the permits issued in 2001 through 2003. There were 379 permits granted for residential lots alone in the three years, which represents 39 percent of the total permits granted in each year.

Table 1. Freshwater wetland permits granted by DEM in 2001 through 2003 (Foxpro, 2004).

PERMIT & PROJECT TYPES				
Insignificant Alteration Permits				
	2001	2002	2003	Total
Apartments/condos	10	15	17	42
Residential lots	141	115	123	379
Residential subdivisions	31	39	56	126
Industrial subdivisions	1	0	4	5
Office/commercial	66	57	48	171
School/church	4	11	5	20
Parks/recreation	4	2	5	11
Golf courses	1	0	0	1
Road and bridge construction	6	10	8	24
Driveways/access roads	2	2	1	5
Trails, paths, footbridges, sidewalks, and bike paths	8	5	4	17
Drainage and subdrains	17	4	13	34
Utilities and wells	6	10	11	27
Railways	1	0	0	1
Dam repair project	2	2	1	5
New pond/pond excavation	2	1	2	5
Shoreline stabilization	0	5	0	5
River relocation	1	3	0	4
Dry hydrant	0	6	4	10
Docks and floats	3	1	3	7
Land clearing	0	0	1	1
Irrigation/water diversion	0	1	0	1
Boat launch	1	1	0	2
Restoration, fish ladder	0	1	2	3
Unclassified projects	16	7	3	26
Subtotal	323	298	311	932
Permits to Alter				
Apartments/condos	0	1	0	1
Residential lots	9	7	2	18
Residential subdivisions	0	0	4	4
Office/commercial	1	3	2	6
Road and bridge	1	1	3	5
Railway	0	1	0	1
Golf course construction	0	0	1	1
River/stream relocation	0	0	1	1
Unclassified projects	3	1	1	5
Subtotal	14	14	14	42
Emergency Permits				
All project types	1	2	1	4
Total permits	338	314	326	978
Application denials	7	5	5	17

There were fewer golf course projects and more linear recreation projects including trails and bikepaths permitted. These projects while promoting public access and recreational use of wetlands provide a challenge to protection of all wetland functions and values. Other complicated projects involved lands that were marginal for development.

Permitted Losses and Gains

DEM experienced some programmatic reporting inconsistencies regarding isolated wetlands beginning in 2001 and therefore, the 2001-2003 statistics (Table 2) must be considered an estimate of freshwater wetland losses and gains permitted by DEM. The majority of loss results from unavoidable alteration associated with crossings to otherwise developable upland (C. Horbert, personal communication, April 2004).

Table 2. Estimate of freshwater wetland losses and gains permitted by DEM (Foxpro, 2004)			
Year	Permitted Loss (acres)	Permitted Gain (acres)	Net Loss/Gain (acres)
2001	1.14	0.27	-0.87
2002	0.65	0	-0.65
2003	0.10	0	-0.10
Total	1.89	0.27	-1.62

Since August 1999, CRMC has also been regulating activities within freshwater wetlands in the vicinity of the coast and reported the following losses over six permit decisions: 1.51 acres in 1999-2000; 0.16 acres in 2001; and 0.04 acres in 2002 (A. Silva and S. Feeley, personal communication, April 2003). The loss in 2000 was associated with construction of water quality basins in the Narrow River watershed. Some restoration of the impacted wetlands did take place (A. Silva, personal communication, April 2003).

The U.S. Army Corps of Engineers, New England Division data including both tidal and nontidal wetlands and waters under the authority of both DEM and CRMC, is also reported (Table 3).

Table 3. Permitted wetland and water losses statewide (USACE, NED, 2004).			
Year	Permitted NonTidal Wetland Loss (acres)	Permitted Tidal Wetland Loss (acres)	Permitted Loss Tidal and NonTidal Water (acres)
2001	3.3	0.02	0.6
2002	0.6	0.2	0.6
2003	0.2	0.4	0.2
Total	4.1	0.62	1.4

Permit Streamlining Initiatives

DEM continued to implement important streamlining improvements to the permitting process, many directly related to Task Force recommendations, and others that were initiated internally.

- The administrative and technical reviews for wetland applications were consolidated into a single process, thereby reducing application processing time and improving decision times;
- A senior level environmental scientist position was created which allowed reassignment of some tasks from the supervisors, thereby freeing them up to perform other tasks;

- Engineering reviews were curtailed for some limited projects and the engineering is accepted based on the preparer's work product and representations made in the application.
- A Memorandum of Agreement amendment was executed with CRMC (Sept. 2003) creating a coordinated application review process for those limited situations where dual jurisdiction remains. The coordinated process provides applicants the option of applying to CRMC to obtain necessary wetlands permits from both agencies. The agencies agree to coordinate their reviews thereby ensuring efficient permitting;
- Pre-application meetings continued to be an emphasis for the Wetlands Protection Program and the Office of Technical and Customer Assistance (OTCA). Wetland supervisors and Chiefs from the both Wetlands and OTCA regularly meet with prospective applicants to discuss project alternatives and application requirements before they are submitted to DEM. This helps applicants understand the Rules and helps avoid and minimize impacts to wetlands.

Finally, DEM has undertaken an innovative approach to the development and permitting of beneficial projects through the creation of a Water Quality/Wetland Restoration Team. The goals of the Team are to streamline permitting for beneficial projects, help to ensure that the projects are successful and achieve environmentally beneficial results, and to strengthen partnerships between project proponents and DEM regulators.

Permit Compliance

Ensuring permit compliance continues to be a challenge despite the continued emphasis on its importance. In 2002 and 2003 permitting staff conducted 132 and 103 permit compliance inspections and OCI completed 70 and 77. The inspections by permitting staff were triggered by start of work notices, renewal applications, proximity to other work, or some indication that there may be a problem on a site. OCI inspections were primarily in response to telephone complaints from the public.

Approximately 10-20% of all complaints to DEM are related to non-compliance of the 'limits of disturbance' (LOD) for construction of backyards and other property accessories that were not shown on original site plans, and therefore not permitted (R. Chateaufneuf, personal communication, May 24, 2003). Oftentimes, new property owners have no knowledge of permit conditions. Other common non-compliance issues include:

- Administrative conditions are not met including recordation of permits in the land evidence records and transfers of permits with change of land ownership;
- Erosion controls are not properly placed or maintained;
- Permit conditions and engineering specifications are not followed including seasonal construction restrictions;
- Clearing beyond the limits of disturbance to river or stream edges;
- Detention basins are not constructed properly and not during the correct sequence of construction;
- Post construction maintenance commitments are not adhered to; and
- Plantings and buffer zone markers are not installed.

A new initiative on permit recordation compliance was implemented during the reporting period. Automated reminder letters are now generated and mailed to those who have not recorded their permits within the specified time. In addition, an outreach flyer was produced and is enclosed with permits. Permit recordation has increased from less than 50% prior to March 2002 to 89% as of January 2004 as a result of these steps (R. Chateaufneuf, personal communication, January 27, 2004).

Compliance and Inspection

The DEM Wetland Compliance Program responds to complaints received from the public and investigates unauthorized alterations such as cutting, clearing, grading, filling, excavating, and construction. The Wetland Compliance Program receives approximately 500 wetland complaints each year. Nearly half of the complaints received in 2002 were unfounded, which inevitably takes time away from other investigations and actions. Complaint investigation is time-consuming and complex due to the varied nature of wetlands, land conditions, land ownership and regulatory requirements. Table 4 summarizes the number of complaints received, actions taken, and penalties collected during the past three years.

Table 4. Freshwater wetlands complaints and enforcement actions (OCI, 2001-2003).			
	2001	2002	2003
Complaints			
Complaints received	524	526	489
Number (and percent) of unfounded complaints	112 (21)	243 (46)	119 (24)
Number of investigations	554	477	446
Total inspections	901	943	922
Actions			
Informal actions	107	82	71
Formal actions	23	25	17
Total actions	130	107	88
Penalties collected	\$16,005	\$63,850	\$26,828

Informal actions do not result in an enforceable order or assessment of a penalty. For the most part, these actions include warning letters, letters of noncompliance, and Notices of Intent to Enforce. Formal actions are usually in the form of a Notice of Violation (NOV) that are recorded in the land evidence records. Such actions advise the respondent of the alleged facts surrounding the case, the statutes and regulations that are alleged to have been violated, the requirements to meet compliance and usually include an administrative penalty.

The Compliance Program tracks the area of unauthorized alteration of wetland and the area that is restored once the alteration is halted (Table 5). The most common unauthorized alterations are clearing and grubbing. As a result, most restoration that is required entails allowing an area to revegetate. There are cases where more serious violations occur, which require fill removal and extensive restoration planting. (OCI Annual Accomplishment Summary, 2001).

Table 5. Areas of unauthorized alteration and restoration (acres) (OCI, 2001 – 2003).			
Unauthorized alterations	2001	2002	2003
Wetland, including rivers and streams	5.0	6.4	11.2
Perimeter, riverbank, and floodplain wetland	9.6	12.9	8.1
Restoration			
Wetland	2.7	3.6	2.3
Perimeter, riverbank, and floodplain wetland	3.4	5.5	4.4

A total of 53 acres of wetland were altered by clearing, grubbing, filling or draining without a permit during the years 2001 through 2003. Twenty-two acres of wetland were reported restored. The restored acreage may correlate with violations from previous years because of the time it takes to enforce and complete restoration. This data reinforces the importance of permit and complaint inspections to help

reduce unauthorized alterations. It is difficult to assess the impact of the temporary loss of wetland functions while an area is revegetating.

During 2001, one of the major compliance accomplishments was the resolution of several longstanding and large violations through major restorations. (OCI Annual Accomplishment Summary, 2001). Again in 2002, the Wetland Compliance Program settled several major cases, one included 14 separate violations of clearing, grading, filling, and excavation by a private developer in Narragansett. Twenty-two thousand square feet Forested, Shrub, and Perimeter wetland were altered. The developer was required to remove all fill, create wetlands, replant and restore wetlands and pay a \$30,000 penalty. (OCI Annual Accomplishment Summary, 2002).

In January of 2003 new *Administrative Inspection Guidelines* were adopted Department-wide. These guidelines require that DEM seek landowner permission to inspect their property for possible wetland violations. These new requirements have made it difficult for DEM to complete necessary fieldwork in certain cases because inspectors could not gain timely access to private property.

Also in 2003, several important court cases were decided, most notably is the DEM versus Eleanor V. Davis case, which had been ongoing since 1987. The original court order from 1987 was amended in 2003 to provide for creation of wetlands on the property. By November 2003 approximately one-half of the restoration had been completed including the removal of millions of tires. The remainder is scheduled to be completed by September 2004. This site was targeted, not only by DEM, but also by the EPA as a Superfund site. This case represents a large effort in terms of hours invested by DEM.

Another large case settled in 2003 was against Ashford Holmes, LLC for clearing, grading, filling, and construction within Perimeter Wetland on eight separate properties. The Wetland Compliance Program executed a consent agreement to resolve the violations by restoration and received a reduced penalty fine of \$8,300 from the property owner. (OCI Annual Accomplishment Summary, 2003).

Finally, during the reporting period and as part of the proactive restoration-planning project, a study was conducted of 26 sites where restoration of wetland had been conducted through enforcement actions (Cavallaro and Golet, 2002). The following paragraph taken from the executive summary of that report summarizes the conclusions of the study.

“Twenty-three of the 26 restoration sites we visited had wetland hydrology and hydrophytic vegetation and were performing at least one wetland function. Wetland types created (typically wet meadow or marsh) usually differed from pre-alteration types (predominantly forested wetland). At nearly half of the sites, high-density residential, commercial, or industrial development was the dominant type of land use within the 500 ft. Most sites appeared to be capable of providing a water quality improvement function and valuable open space. Most sites also provided habitat for wetland-dependent wildlife, although surrounding land use practices often limited the quality of that habitat. Fewer sites provided downstream flood control, production export, or shoreline stabilization. Invasive plant species (*Phragmites australis* or *Lythrum salicaria*) were present at 52% of the restoration sites. Invasives were present more often at restoration sites surrounded by an abundance of high-density development. Ground cover of invasives ranged from less than 5% to more than 75%, and tended to increase with the age of the restoration.”

Cavallaro and Golet (2002) also reported on trends in enforcement actions during the almost 30 years the Act has been in place based on their review of over 400 files. They found that the number of complaints increased in each of the three decades from 1971 to 2000, from 1,026, to 2,150, to 4,693 complaints. In order to manage this workload, the compliance program created different levels of review and response.

Based on the files reviewed, the number of restoration orders required varied from less than 31%, to 70%, to 48% in the three decades. Sixty seven percent, 83% and 75% of the restorations performed were in compliance with the restoration orders in the three decades. Compliance staff visited the restoration sites from zero to 10 times in order to ensure restoration compliance; two to five staff visits were required for the majority of the sites.

Regulatory Revisions

An outline and three drafts of the Phase 2 rule revisions were completed during the reporting period. The first and second drafts were developed and reviewed internally in 2002 and 2003. The third draft was reviewed internally and with the CRMC and the Wetland Task Force in January through March 2004. The third draft rules, while primarily structural and organizational, will include some added provisions and procedural revisions aimed at improving application processing. One objective of the structural changes is to make the rules more transparent to all users. The draft rules emphasize the importance of wetland functions and values up front in the findings section; include an 'umbrella rule' that describes the prohibitions and approvals that are available; introduces a rule with requirements that relate to all applications, including site plan requirements and field requirements; simplifies the fees by eliminating the square foot additives; and introduces rules for each of the major application types, with specific requirements and review criteria. Numerous valuable comments from the Wetland Task Force and the permitting and compliance staff are now being reviewed and evaluated. The next step will be a public notice with an opportunity for public hearing and further comment.

In response to questions raised by stakeholders and the legislature, wetland policy staff completed research and analysis of dam safety projects and aquatic weed control permitting authorities and procedures in preparation for future rule revisions.

Federal Policy

The U. S. Supreme Court issued a decision (Jan. 9, 2001), *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers (SWANCC)* that changed and limited the way isolated, nonnavigable, intrastate waters that are used as habitat for migratory birds are regulated under the Clean Water Act. The SWANCC decision did not directly influence the way wetlands are regulated in Rhode Island because of the comprehensive state wetland law. Regardless, the Department responded to the Advanced Notice of Proposed Rulemaking on the Clean Water Act definition of waters (April 16, 2003) objecting to any retreat from federal protection of the nation's waters, including wetlands.

OUTREACH AND EDUCATION

Outreach continued to be an important focus during the reporting period. The majority of the outreach activities are in support of the regulatory program, in order to help explain and clarify the Rules and the application requirements. Other projects also support general wetland education, protection and restoration, many of which were a direct result of Task Force recommendations (2001).

Building on the success of the Open House in 2000 and workshops in 2001, fact sheets and other materials were also used for the May 2002 Open House. The Open House was expanded to include more stations and a PowerPoint presentation, *Wetlands: Diversity, Functions, and Values* (Golet and Ely, 2002) was developed, presented, and very well received.

In 2003, instead of a third Open House, the wetland managers, supervisors, and staff, as well as EPA participated in the Rhode Island Builder's Association Home Show at the RI Convention Center for the first time. The program staffed a 10 by 10 foot booth for five days and distributed over 2,000 pieces of

information. The Home Show drew over 30,000 people and provided a new opportunity to showcase wetland protection.

The primary outreach project during this reporting period has been the ongoing development of the draft *Wetland Best Management Practices Manual*. The objective of the Manual is to provide a better understanding of acceptable and wetland-friendly designs and practices that can be used when designing a project for submittal to DEM. The draft Manual includes avoidance and minimization techniques for specific project design types as well as broad topics that are applicable to any project. This Manual is being developed with a DEM technical team in response to suggestions emanating from the Task Force.

Other publications completed during the reporting period include the following:

- Guidance for Dry Hydrant applicants, including fire districts and municipalities;
- A flyer that illustrates the importance of communication between developers, contractors, realtors, and new homeowners to ensure compliance with permit conditions and protection of wetlands;
- An illustrated *Wetland Functions and Values* brochure; and
- A *Wetlands are Worth It* flyer with contact information, a description of the Wetlands Program, and the reasons to protect wetlands.

Wetland managers, supervisors, and staff also completed presentations to the RI Rivers Council, the RI Association of Conservation Commissions, and the State of Vermont Wetland program. It is difficult to assess the effectiveness of the wetland outreach initiatives completed during the past three years. All materials and events have been very well received, however the application deficiencies rate remains and 40-60 percent and noncompliance with the Rules remains a significant wetland protection problem.

RESTORATION

The *Wetland Restoration Plan for the Woonasquatucket River Watershed* (Golet, et al, 2002) was completed in November 2002 and the website debuted in January of 2003. DEM, EPA, and URI in partnership with the Woonasquatucket River Watershed Council and officials from the six watershed cities and towns collaborated on the project. This study identified 77 potential wetland restoration sites and 239 potential buffer restoration sites. The sites were prioritized based on the ability, if restored, to perform one or more of the following wetland functions: flood abatement, water quality improvement, wildlife habitat, fish habitat, and heritage. Each site was ranked on its ability to perform each function and/or multiple functions. The website displays the *Wetland Restoration Plan*, databases of potential wetland and buffer restoration sites, and interactive mapping of the sites. The website can be viewed at: <http://www.state.ri.us/dem/programs/benviron/water/wetlands/wetplan.htm>.

Implementation of the Plan is being led the Woonasquatucket Watershed Council and the Woonasquatucket Watershed Restoration team, chaired by the Blackstone American-Heritage River Navigator, along with other federal, state, and local representatives. One team has met with town planners and Conservation Commission members to plan future projects. The team faces a huge challenge because over 90 percent of the potential wetland and buffer restoration sites are on private property.

Several restoration projects on public properties moved forward during 2002 and 2003 including Mountindale Reservoir and Whipple Field; both located in Smithfield. The Woonasquatucket River Watershed Council was awarded a grant from the *Partnership for Narragansett Bay* for wetland and buffer restoration at Smithfield Department of Public Works, adjacent to the Mountindale Reservoir. The restored wetland and buffer area will improve wetland functions and also provide important educational opportunities. There are three schools within one mile of this restoration site and the project is intended to be a demonstration for wetland restoration within the watershed.

Whipple Field is the site of several ball fields. Restoration at this site has increased the density and variety of vegetation along the Woonasquatucket River to create shade and protection for water quality and wildlife habitat. The Smithfield Conservation Commission secured funding from the *Wildlife Habitat Incentive Program* for this project. These projects and others were highlighted, along with details on the *Wetland Restoration Plan* and website in an article in the *Narragansett Bay Journal* Fall 2003 issue.

A large showcase wetland enhancement and restoration project was completed in July of 2003 at the site of the former Lonsdale Drive-In, along the Blackstone River in Lincoln. Funding for the project came primarily from the Army Corps of Engineers, with additional monies from DEM, the Rhode Island Corporate Wetlands Restoration Partnership, and the Rhode Island Habitat Restoration Team.

The Lonsdale site was originally a floodplain, which was developed as an outdoor drive-in movie theater in the early 1950's. Approximately 20 acres of the 37-acre site were paved to construct the drive-in that eventually closed in the early 1980's. In 1998, the State of Rhode Island purchased the site with the intention of restoring wetlands and riparian habitat. The restored Lonsdale site now includes a 7-acre wetland complex of forested, scrub/shrub, wet meadow, emergent and open water wetland, in addition to almost 10 acres of restored upland grassy area (J. McGinn, personal communication, May 4, 2004).

The Rhode Island legislature created the Coastal and Estuary Habitat Restoration Program and Trust Fund the purpose of which is to facilitate the design, planning, construction and monitoring of coastal and estuarine restoration projects by providing grants and technical assistance. The program is administered by CRMC with technical support from the RI Habitat Restoration Team. In 2002, grants totaling about \$250,000 supported the following freshwater wetland, salt marsh, and dune restoration projects:

- Lonsdale Drive-in Wetlands Restoration, Lincoln– RIDEM, \$153,000;
- Field's Point Marsh Restoration, Providence– Save The Bay, \$24,000;
- Narragansett Bay Seagrass Restoration – Save The Bay/URI-GSO, \$29,000;
- Stillhouse Cove Salt Marsh Restoration - City of Cranston, \$7,000;
- Palmer Avenue Salt Marsh Restoration – Warren Land Conservation Trust, \$14,000;
- Mussachuck Creek Salt Marsh and Anadromous Fish Habitat Restoration;
- Barrington, RI Country Club, \$9,000; and
- Napatree Dunes Restoration, Westerly – NOAA/Watch Hill Fire District, \$6,000.

The Program is currently soliciting for new grant requests and expects to obligate a similar amount of funds in the current state fiscal year (FY2005) (M. Higgins, personal communication, September 2004).

WETLAND ACQUISITION

The DEM Office of Planning and Development Land Acquisition Program acquired 47 new properties totaling 3,598 acres during 2002 and 2003 and approximately 35 percent of the area is wetland (L. Primiano, personal communication, March 31, 2004). DEM partners with several agencies to acquire land, most notably the Audubon Society of Rhode Island and The Nature Conservancy, Rhode Island Field Office. With help from these associations, DEM is eligible for grant funds through the North American Wetlands Conservation Act (NAWCA) administered by the U.S. Fish and Wildlife Service. One million dollars was allocated to Rhode Island via NAWCA in 2001. Any land purchased with NAWCA funds must contain 50 percent or more wetland.

Several of the 2002 and 2003 land acquisitions are especially important to the protection of wetland values. At Conklin Land in Lincoln, 125 acres of forested habitat were acquired in 2002 as a

conservation easement (R. Enser, personal communication, April 26, 2004). This parcel includes several streams that feed the Moshassuck River, which if protected, will help to maintain the high quality of

Table 6. Wetland acquisition by DEM in 2002 & 2003 (Jordan, personal communication, April 15, 2004).	
Wetland type	Area (acres)
Marsh/Wet Meadow	12
Emergent Wetland: Fen or Bog	2
Scrub-Shrub Swamp	45
Shrub Fen or Bog	4
Forested Wetland: Coniferous	67
Forested Wetland: Deciduous	576
Estuarine Emergent Wetland	9
Estuarine Scrub-Shrub Wetland	0.8
Marine/Estuarine Unconsolidated Shore	2
Total area	718

water in this system within a highly developing part of the watershed. Also of interest was the acquisition of a conservation easement of a portion of Sneece Pond in Cumberland. This acquisition protects over 100 acres of upland habitat that borders the north side of the pond to protect the pond's shoreline and water quality.

MAPPING

During the reporting period, the limitations of Rhode Island's wetlands maps (Miller, Golet, and August, 2001) were raised again by three user groups, and in two of the circumstances, lack of up to date accurate wetland maps has influenced wetland program development. Rhode Island has two primary wetland map sources: 1) USFWS National Wetland Inventory (NWI) 1:24,000 scale maps, based on 1975, 1:80,000 scale black and white imagery, with a minimum map unit of 1 to 3 acres; and 2) RIGIS 1:24,000 scale maps, based on 1988, 1:24,000 black and white imagery, with a minimum map unit of ¼ acre.

Based on preliminary research, the lack of positionally accurate wetland maps limits Rhode Island's ability to undertake a wetland change analysis similar to that completed by the State of Massachusetts. The analysis is based on there being an accurate base map that the change can be measured from. Positional accuracy is especially important because the analysis is done by evaluating pixels within the wetland polygons and within the same area on a newer base map (C. Costello, personal communication, Jan. 29, 2004).

The EPA Regional office considered Rhode Island an excellent area to pilot a landscape scale wetland analysis because of the statewide wetland mapping and funds were allocated for this project. However, learning about the limitations of the RIGIS wetland maps influenced EPA to pilot the landscape assessment in Massachusetts instead.

Miller, Golet, and August recommended the following options, in priority order, for responding to the states wetland mapping needs (2001):

During the reporting period, comments were solicited from the mapping experts who had been consulted during the 2001 study. The University of Massachusetts NRAG lab provided an estimate of \$700,000 using the priority, 1:12,000 scale CIR transparencies (I. Huber, personal communication, March 5, 2003).

Table 7. Recommended mapping options, imagery, and project costs (Miller, Golet, and August, 2001)	
Scale and source imagery	Estimated costs and project length
1:12,000 scale CIR* transparencies	\$953,810 for 2-year project
1:5,000 scale CIR transparencies	\$2,185,005 for a 3-year project
1:24,000 scale CIR transparencies	\$494,305 for a 1-year project
1:24,000 scale black/white 1988 imagery	\$174,870 for a 1-year project
* CIR is color infrared	

Based on the 2001 report, UMASS also supported using 1:24,000 scale CIR imagery.

The USFWS also provided detailed comments regarding the report, some of which are summarized below (R. Tiner, personal communication, Feb. 29, 2003).

- RI should reconsider the recommendations regarding imagery scale;
- RI should consider using 1:40,000 scale CIR imagery which can be viewed with a digital transfer scope (DTS) at a 1:10,000-12,000 scale;
- DEM should be advised that the digital transfer scope technology allows mapping of small wetlands with 1:40,000 scale imagery.
- The 1:5,000 scale imagery is beyond what is needed given costs and map uses;
- DEM should conduct a pilot study to investigate options in the report, and also consider digital mapping photography which would facilitate on-screen interpretation and potential cost savings;
- The classification system used should be detailed enough to allow for multiple uses, such as Cowardin supplemented with landscape position, landform, water flow path, and waterbody type;
- Given new technologies (DTS, digital orthophotographs, etc.) RI should consider somehow improving the 1988 maps because of the cost effectiveness, and then the improved maps could serve as a base for future updates using 1:40,000 imagery; and
- RI could consider on-screen interpretation of wetlands on a digital orthoquad using the 1988 images as collateral data

During the reporting period, the USFWS completed updates and revisions to the NWI maps for the Rhode Island south shore quadrangles. These maps are available digitally on the USFWS website <http://www.nwi.fws.gov>. The USFWS had requested that DEM examine and review the draft maps before they were finalized (R. Tiner, personal communication, Jan. 27, 2000), although that may have not been done. More recently, the USFWS (R. Tiner, personal communication, May 2004) recommended that Rhode Island may want to partner with the USFWS Rhode Island office and apply to headquarters for a project to complete updates to the remaining NWI quadrangles at no cost to the state. The NWI products are much improved over the original 1970's products and, with the combination of Cowardin and HGM classification, they are being used in many states for landscape scale and planning level projects. The revised south shore quadrangles could be field tested by map users for a period of time to verify their utility, before making application to complete NWI updates for the remainder of the state.

MONITORING AND ASSESSMENT

With support of the EPA, Region 1, and with NEIWPC assistance, the Wetlands Protection Program is developing a freshwater wetland biomonitoring plan for the state. Currently there is no routine wetland monitoring in RI, but some research based and regulatory-oriented monitoring. There is a growing need to monitor state wetlands for complex problems, such as invasive species, water withdrawals, buffer alterations, and results of proactive and enforcement-related restorations. The wetland biomonitoring plan will be one element of an overall water-monitoring plan, which is also under development.

During development of the wetland biomonitoring plan, DEM will assess available data, identify and prioritize data needs, identify methods and protocols, and provide estimates of resources needed for implementation. When this project is completed it will provide DEM with an outline of the steps that will be necessary to begin implementation of a biological assessment program for wetlands.

LOCAL PROTECTION PROJECTS

Several EPA-sponsored local protection grant projects were completed during the reporting period. Since completion, several Towns have continued to use the project results for implementation of wetland protection, conservation and restoration.

Town of North Kingstown – Wetlands Action Plan

The Town developed an action plan to protect wetlands in the community. The wetland-mapping inventory has proved to be one of the most useful outcomes of the project (M. Cohen, personal communication, April 27, 2004). Many residents visit the planning office to view the maps as a preliminary step to see if their property would be suitable for a specific project. Also, as a result of the grant project, the Town has implemented a new, more extensive, ISDS setback of 150 feet and now also requires that all legal non-conforming lots and lots that cannot meet the ISDS setback to submit a denitrification system. The Town is also participating with URI in the Healthy Landscapes Program to discuss wetland buffers and stormwater mitigation with residents. One other result is the adoption of subdivision conservation guidelines.

The Nature Conservancy, Audubon Society of Rhode Island, and DEM - Conservation Plan for Tiverton and Little Compton

The grant partnered The Nature Conservancy, the Audubon Society of Rhode Island, DEM, and local partners in the development of a Conservation Plan for wetland and other natural resource areas in Little Compton and Tiverton (J. Lundgren, personal communication, May 4, 2004). The plan has helped to focus the efforts of the two towns and combine efforts with local partners to look at big picture, watershed wide land conservation. As a result of the study, Little Compton also received a grant for a more in depth assessment of one of the priority tracts, Watson Reservoir, which is Newport's water supply. Overall, the plan coincided with many of the areas in which the Town and environmental groups were already working, but helped to amplify the importance of certain areas, such as Weetamoo Woods.

Town of Coventry - Wetland Restoration and Enhancement Demonstration Project at Sandy Bottom Road

The grant partnered the Town of Coventry with the Rhode Island Association of Wetland Scientists (RIAWS) in the development of conceptual wetland restoration plans on a 20 acre property on Sandy Bottom Road that was acquired through a Natural Heritage Preservation Commission Open Space grant (B. Narkowitz, personal communication, May 4, 2004). After the completion of this plan, the Town received additional funding from the EPA, as well as grants from U.S. Fish and Wildlife. The next step is to leverage additional support from local and national corporate partners in the form of money and services in order to advance the design and permitting. Currently the area is somewhat inaccessible due to an ongoing sewer project in the town.

CONCLUSION

Rhode Island is continuing to build a comprehensive wetland program. The permitting program applies stringent avoidance and minimization criteria and permits very little direct loss of wetlands. While ensuring permit compliance continues to be a challenge, positive and effective steps have been taken to improve. Numerous permit-streamlining initiatives have been undertaken during the reporting period to speed responses to applicants. Another objective of streamlining is to reinforce that program time is being spent on projects and tasks that matter. The extent of unauthorized alterations of wetlands, including perimeter and riverbank wetland, also remains a challenge, as well as the Department's ability to follow-up on areas that have been restored through enforcement actions. Over the years, the compliance program has instituted numerous measures to triage responses to complaints based on their severity. Effective wetland permitting and enforcement involve technical and time-intensive work and there are many necessary tasks that cannot be streamlined. Maintaining a balance of effective wetland protection and timely responses is a constant challenge. With dedicated staff, supervisors, and managers, the RI wetlands program is felt to be highly effective, responsive and adaptive to changing needs.

During the past five and one-half years, and with EPA and NEIWPC assistance, the wetland program has dedicated non-regulatory staff and grant funds for regulatory support and wetland program development. With partners, stakeholders, and the assistance of DEM staff, rule revisions, outreach materials and events, proactive restoration planning and projects, and development of a monitoring plan have been successfully completed or undertaken.

FOR MORE INFORMATION

For more information about wetland regulation, protection, and outreach activities please see the Rhode Island DEM wetland websites at

<http://www.state.ri.us/dem/programs/benviron/water/permits/fresh/index.htm>; and

<http://www.state.ri.us/dem/programs/benviron/water/wetlands/index.htm>,

or contact: Russell J. Chateauf, P.E., Chief,
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APPENDIX A

Following are tables modified from the Wetland Task Force Final Report (March 21, 2001) including the status of ongoing and completed tasks and projects. Tasks and projects that were completed and reported in the Year-End Report (2001) have been dropped from these tables.

Project Description	Issue Originator	Status
Continue to develop Freshwater Wetland Restoration Strategy	EPA, DEM WW-5d, WWO-2a	Woon. Wetland Restoration Plan completed 03/05.
Complete background research and outline issues for statewide Wetland Conservation Plan. Coordinate planning with other Office of Water Resources plans.	EPA, DEM WW-5d	Postponed. Background research by 06/05.

Rule	Proposed Revisions #2	Status
8.04	Revise the fee schedule to simplify both the presentation and the way the fees are calculated. Eliminate the fee additives (per sq. ft. of alteration, etc.). Eliminate fees for municipalities. Otherwise strive for revenue neutral fees.	Draft complete. (Munic. fees will not be dropped)
6.00 through 14.00	Reorganize the rules for readability and clarity: improve application requirements and process descriptions, improve table of contents, and add an index. These revisions will be more presentation than content.	3 rd draft complete & reviewed. Comments under review.
6.00 through 14.00	Remove rules that address internal administrative operating procedures and create a new management procedure document as appropriate.	Analyzed with reorganized rule
3.00	Expand administrative findings section to discuss the significance of the bordering areas (perimeter wetland and riverbank wetland) in scientific terms	Draft complete & reviewed. Postponed to P3 .
8.07 B. 8.07 C.	Delete these rules and develop a policy whereby meetings with the Program (as opposed to w/ OTCA) will be scheduled and conducted.	Draft complete and reviewed.
Rule	Proposed Revisions #3	Status
----	Develop new <i>Determination of Applicability</i> application for those ~75 applicants per year who file a <i>Request for Preliminary Determination</i> and receive determination of non-jurisdiction. Roll applicant into the Preliminary Determination process if it is determined that an alteration is proposed.	Advanced to P2 rules.
----	Develop new Abbreviated <i>Request for Preliminary Determination</i> application (PD1) with reduced requirements for specific projects including planting projects and alterations to already developed residential lots.	Advanced to P2 rules.
	Develop new regulatory timelines to approve complete applications, by application type. Investigate refunding permit fees, if review times are not met.	Decision not to include timelines in rules.
14.00 & App. 5	Evaluate site plan requirements, particularly for small projects such as single family residential.	Some consideration in P2 rules.
6.13	Consider revising exemption to allow others beside DEM FWS to undertake conservation projects as exempt activities or as a "FONSI"	
7.01 B	Develop guidelines, BMPs, and/or performance standards for major projects outside of wetland jurisdictional areas that have the potential for significant wetland impacts.	
6.03L	Clarify the exemption on replacement of shoreline structures as to "in-kind" materials.	

-----	Evaluate the CRMC fact sheet on program differences and revise rules as agreed upon. For example, the length of time permits are valid differs.	
6.00	Revisit rule 6.00 and consider expanding the list of exempt activities.	3 new exemptions.
App. 1	Revisit appendix 1 and consider expanding the list of activities considered insignificant alterations.	Considered in P2 rules.
5.00 ++	Develop and add buffer zone and setback rules.	Background research complete.
Rule	Proposed Revisions #4	Status
Several	Revisions to facilitate water quality improvement and wildlife habitat projects (phase 2)	After Rules 3

Table 4. Final Policy Recommendations		
Policy Changes Description	Project Originator	Status
Develop policy that encourages water quality and wildlife habitat projects. (Phase 1 regulations)	BPE-4; DEM	Development of Water Quality and Wetland Restoration team with goals and objectives.
Develop trial policy for pre-application field meetings for problem wetland edges.	C-3	
Develop policy for pre-application meetings with Program	IM-1	Due with Phase 2 Rules
Establish ISDS / Wetlands coordinated field review for projects that are near but outside regulated wetland.	Alt. C-2	
Develop policy that promotes planting projects with recommended species and Best Management Practices	DEM, BPE-2	Due with Phase 2 rules and exemption.
Develop buffer zone and setback concept: a) Develop permit condition that identifies area to remain undisturbed as a buffer zone; b) Buffer zone mitigation and setbacks especially for residential lots.	CRMC-	a) Complete b) To be analyzed with Phase 3 Rules

Table 5. Final Administrative Recommendations		
Administrative Changes Description	Project Originator	Project Completion Date
Revise the application form to encourage applicant's address to improve service to applicant; also add checkoff for CEC projects.	DEM	
Redesign (simplify) existing application package (w/ Rules 3).	DEM	Due with Rules 3
CRMC and DEM will develop a coordinated review process for applications for projects on the DEM side of the jurisdictional boundary and are located in CRMC's Special Management Plans.	CRMC-1c	Complete

Table 6. Final Outreach Recommendations		
Project Description	Issue Originator	Project Completion Date
Work with OTCA and continue the development of additional fact sheets on application types through the Phase 3 rules.	DEM	Ongoing
Make list and location of pending applications available on the DEM Website and update frequently, especially for municipalities.	O&E-1&5c	Pending FY04 grant application to EPA.
Update 1990 brochure for realtors.	DEM	Substituted communication flyer. Complete.
Develop recommended drainage methodology for consultants to facilitate faster and	DEM	Partially complete. Web

consistent reviews.		posting 02/02.
Develop format for engineering calculations and computations to facilitate faster / consistent reviews.	DEM	Partially complete. Web posting 02/02.
Update wetlands permit questions & answers guide after Phase 3 Rules have been promulgated.	DEM; O&E	Due with Phase 3 Rules
Create guidebook with photos and field descriptions of RI wetland types for property owners (pending funding)	DEM	Pending future funding
Create <i>Wetland Best Management Practices Manual</i> with avoidance and minimization techniques; sample designs, etc.	BPE-3 WW-6B	Second draft complete and reviewed. Pending RFP for graphics.